



**2023 – 2025**

# **CAPITAL IMPROVEMENT PROGRAM**

**BOSTON WATER AND SEWER COMMISSION**



# BOSTON WATER AND SEWER COMMISSION CAPITAL IMPROVEMENT PROGRAM 2023-2025

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*Henry F. Vitale  
Executive Director  
November 2022*

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# EXECUTIVE SUMMARY

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The Boston Water and Sewer Commission (“the Commission” or “BWSC”) is a body politic and corporate and political subdivision of the Commonwealth created by Chapter 436 of the Acts of 1977 (“Enabling Act”). The Enabling Act abolished the water and sewer divisions within the City of Boston Public Works Department and transferred the ownership, operation and control of the water, sewer and storm drain systems to the Commission. As a public instrumentality, the Commission performs an essential public function in providing water and sewer services to the residents of the City of Boston. The Act authorizes the Commission to construct and make improvements to the water and sewer systems, establish and collect rates and charges for its services and finance its operations and improvements through revenue collections and the sale of bonds and notes payable solely from the Commission’s revenues. The Act further provides that any revenue surplus earned by the Commission in any Fiscal Year shall be credited to the next year’s rates or returned to the City of Boston. Since its inception, the Commission has generated a surplus in each year of its operations and has credited the surplus to the reduction of the next year’s rates.

The Enabling Act and the Commission’s General Revenue Bond Resolution adopted December 6, 1984 (“the Resolution”) require the Commission, on an annual basis, to develop a three-year Capital Improvement Program (“CIP”). Information generated by the Commission’s ongoing monitoring programs for the systems and from various engineering data files, together with information concerning the development needs of the City, is used to compile a list of pipes, conduits, transmission mains and other system components to be either renewed, replaced, relocated or added to the systems each year. The CIP outlines the schedule and implementation of the capital projects necessary to maintain and improve the water and sewer systems for the ensuing three-year period. Due to pace of project implementation, the actual expenditures are currently expected to occur over a longer period of time. While there can be no assurance that projections for the projects included in the 2023-2025 CIP will not be exceeded or that additional projects will not be required, the Commission believes the amounts set forth the 2023-2025 Capital Improvement Program are reasonable for such projects.

The Commission in compliance with the requirements of the Enabling Act and the Resolution, project costs of the Commission’s Capital Improvement Program from Fiscal Years 2023 through 2025 total approximately \$238.9 million.

Since the Commission’s inception in 1977, the Commission has set forth its Capital Improvement Plan to provide for long-term capital improvements to its water distribution and sewer collection systems, governed by a core commitment to prudent fiscal management. Comprehensive and well-planned water distribution system maintenance and planning has sustained superior water service for our customers and resulted in a low incidence of system failures. The Commission has also led the industry in implementing effective water conservation measures, including dedication to deploying the most efficient technologies and practices enabling the Commission to maximize cost savings.

The Commission utilizes effective conservation measures through continued efforts to eliminate leaks across the system through advanced leak detection technology and proactive maintenance of the system’s water mains.



## DISCUSSION OF MANAGEMENT OBJECTIVES AND ACCOMPLISHMENTS

The Commission was created to maintain and improve the long-term quality and reliability of water and sewer services for all users in the City and to assure adequate funding for operation and maintenance of the systems. For the purposes of this document, “Systems” include the water distribution system (including potable water and fire suppression facilities) and sewer system (including separate sanitary sewers, separate stormwater drains and combined sewers) and the related appurtenances and fixtures. The Commission is committed to four primary goals:

- To maintain and improve the water distribution and wastewater collection systems. The Commission is committed to various improvements to the Water Distribution and Sewer Systems, including following an aggressive renewal and replacement program, reducing unaccounted for water, encouraging conservation and improving the environment. The Commission is also committed to meeting and exceeding the requirements of all federal and state water and wastewater laws, regulations and technical standards.
- To establish and administer a billing and collections system that is fair and efficient. The Commission has worked to establish a rate structure that fully and fairly reflects its costs, properly distributes the financial obligation concerning its customer base and encourages water conservation. The metering, billing, and collection process is a central focus of the Commission’s full management team, and the Commission is committed to maintaining its strong record in that area.
- To maintain a strong financial structure. The Commission has consistently employed conservative financial projections and budgeting assumptions, maintained adequate reserves, and struck a reasonable balance between debt funding and rate funding of capital expenses.
- To sustain the effectiveness of investments / compliance of regulations. The Commission is committed to complying with all its regulatory obligations under federal and state laws, including the Safe Drinking Water Act (“SDWA”) and Clean Water Act (“CWA”) with its National Pollutant Discharge Elimination System (“NPDES”) permitting obligations for both its stormwater systems and combined sewer systems. Compliance obligations also extend to meeting and exceeding the goals and requirements of the Boston Harbor Decree and the Consent Decree executed in 2012 with the Environmental Protection Agency (“EPA”) related to stormwater discharges.

In planning its CIP, the Commission balances the recognized need for ongoing renewal and replacement and preservation of its Systems with the desirability of specific improvements to accommodate development or redevelopment plans for the city. Wherever feasible, capital improvements are scheduled in cooperation with the street rebuilding and reconstruction activities of the City’s Department of Public Works, the Boston Planning and Development Agency and Massachusetts Department of Transportation.

## OBJECTIVES

The overall objectives of the Commission's 2023-2025 CIP are to ensure the delivery of high-quality potable water for consumption and fire protection, as well as the efficient collection of sewage for transport and delivery to a treatment facility or for approved discharge. In addition, the CIP includes projects to improve overall efficiency of the Commission and to enhance the Commission's ability to provide services to its customers.

The Stormwater category was created in 2017 that focuses on Stormwater management. The primary purpose of the Stormwater category in the 2023-2025 CIP is to participate in the Boston Harbor pollution abatement projects and implement green infrastructure to improve the water quality of discharges to the local receiving waters. The goal is also to study existing conditions and make recommendations for placement of best management practices designed to promote improved water quality, ensure compliance with state and federal regulations, minimize flooding, and strategically manage Stormwater throughout the City of Boston.

CIP expenditures are divided into four categories: Water Distribution System projects, Sewer System projects, Support projects and Stormwater projects. Water Distribution System projects account for \$84.7 million, or 35.4% of the 2023-2025 CIP. Sewer System projects comprise \$79.6 million, or 33.3%, Support projects total \$30.0 million, or 12.6% of the expenditures outlined in the program, and Stormwater projects account for \$44.6 million, or 18.7% of the 2023-2025 CIP.

Total capital expenditures of \$99.5 million are outlined for 2023. Water Distribution projects comprise \$30.3 million, or 30.4% of the 2023 CIP. Sewer System projects account for \$38.5 million, or 38.7%; Support projects account for \$14.4 million of the 2023 amount, or 14.5%; Stormwater projects totaling \$16.3 million of the 2023 amount, or 16.4%.

Tables 1 and 2 represent the cash flow expenditures and funding sources for the Commission's 2023-2025 CIP.

**Table 1 - 2023-2025 CIP Cash Flows**

Program	2023	2024	2025	2023-2025
Water	\$30,275,940	\$28,563,646	\$25,828,607	\$84,668,193
Sewer	\$38,546,854	\$21,468,545	\$19,609,185	\$79,624,584
Support	\$14,390,000	\$11,015,000	\$4,615,000	\$30,020,000
Stormwater	\$16,309,713	\$14,865,345	\$13,394,749	\$44,569,807
Total	\$99,522,507	\$75,912,536	\$63,447,541	\$238,882,584

**NOTE:** Although expenditures decrease from periods 2023 to 2025, it is anticipated that funding for 2025 will be equal to or greater than funding presented in 2025. The decrease in 2025 is primarily due to the CIP being a one-year cash flow, over a three-year budget period.

CIP expenditures are funded by five funding sources: Bonds, Rate Revenue, the MWRA funded Local Water System Assistance Program (LWSAP), the MWRA funded I/I Local Financial Assistance Program (MWII), and the State Revolving Fund (SRF). In 2000 the MWRA instituted a new assistance program for the identification and removal of lead from water pipes. This program is called the Lead Service Line Replacement Loan Program (MWLLP). Costs for this program are associated under the MWRA Water Assistance program and SRF. Bonds funded projects account for \$105.9 million of the 2023-2025 CIP, or 44.3%. Rate funded projects comprise of \$75.8 million, or 31.7%; MWRA funded Water projects total \$18.4 million of the expenditures outlined in the program, or 7.7%; MWRA funded Sewer projects account for \$19.5 million of the 2023-2025 CIP, or 8.2%; and SRF funded projects account for \$14.3 million of the 2023-2025 CIP, or 8.1%.

Total capital expenditures of \$99.5 million are outlined for 2023. Bond funded projects comprise \$51.0 million of the 2023 amount, or 51.3%; Rate funded projects account for \$29.8 million of the 2023 amount, or 29.9%; MWRA Water projects account for \$3.8 million of the 2023 amount, or 3.8%; I/I projects total \$9.9 million of the 2023 amount, or 10.0%; and SRF account for \$5.0 million of the 2023 amount, or 5.0%.

**Table 2 – 2023-2025 CIP Funding Sources**

Program	2023	2024	2025	2023-2025
BWSC Bonds	\$51,022,827	\$31,430,905	\$23,480,058	\$105,933,790
Rate Revenue	\$29,783,450	\$24,931,381	\$21,086,293	\$75,801,124
MWRA Water Assistance	\$3,815,000	\$7,220,250	\$7,339,000	\$18,374,250
MWRA I/I Assistance	\$9,911,230	\$5,000,000	\$4,542,190	\$19,453,420
SRF	\$4,990,000	\$7,330,000	\$7,000,000	\$19,320,000
<b>Total</b>	<b>\$99,522,507</b>	<b>\$75,912,536</b>	<b>\$63,447,541</b>	<b>\$238,882,584</b>

**NOTE:** Although expenditures decrease from periods 2023 to 2025, it is anticipated that funding for 2025 will be equal to or greater than funding presented in 2023. The decrease in 2025 is primarily due to the CIP being a one-year cash flow, over a three-year budget period.

## PROJECT HIGHLIGHTS

The Commission's CIP includes projects to improve the overall efficiency and to enhance the Commission's ability to provide services to its customers. The projects included in this CIP are intended to accomplish these objectives in the most efficient and cost-effective manner. The Commission intends to enhance Boston's water and sewer infrastructure with several targeted projects included in the 2023-2025 Capital Improvement Program. Some of the major projects are listed below:

- ✓ Water Main Rehabilitation in Dorchester & South Boston
- ✓ South End Water Pipe Improvements Phase I
- ✓ Water Main Valve Replacement
- ✓ Rehabilitation of the New Boston Main Interceptor (NBMI)
- ✓ Storm Drain Improvements in Fenway
- ✓ Storm Drain Improvements in Charlestown
- ✓ Sewer Renewal & Replacement in Roslindale, Hyde Park & Mattapan
- ✓ Installation of Tide-gates Citywide
- ✓ Sewer Separation and System Improvements in South Boston
- ✓ Sewer R&R in Upper Roxbury Phase III
- ✓ City-wide Illegal Connections Investigations
- ✓ Dorchester Interceptor – Relief Sewer
- ✓ Upgrades to Union Park Pumping Station & Satellite Stations
- ✓ Construction of Daisy Field Green Infrastructure
- ✓ Projects affiliated with the Consent Decree; includes cleaning and televising 76 miles of sewer and drains
- ✓ Implement Stormwater/Green Infrastructure Program designed to improve water quality, the environment and manage stormwater resources
- ✓ Improvements of Information Technology

## WATER DISTRIBUTION SYSTEM

Since its creation the Boston Water and Sewer Commission has provided the City of Boston with reliable, quality water. A program, which began as an aggressive 17 miles of water pipe replaced or rehabilitated yearly based on age and the City's construction schedule, has transformed into a successful asset management approach. When combined with an aggressive leak detection and flushing program the results have been undeniable. The Commission has averaged just over 35 water pipe failures per year and has witnessed its unbilled water drop from 48% to 18%. The Commission utilizes effective conservation measures through continued efforts to eliminate leaks across the system through advanced leak detection technology and proactive maintenance of the system's water mains.

In 1991, the EPA issued the Lead and Copper Rule (the "Lead Rule") regulating the concentration of lead and copper in drinking water. Lead enters tap water through corrosion, or wearing away of lead contained in service piping, solder used in plumbing and some brass fixtures. The Commission's drinking water is treated at the MWRA's John J. Carroll facility to make it less corrosive. Under the Lead Rule, water suppliers must conduct treatment lead and copper sampling programs, identify and implement optimal corrosion control treatment and provide information to the public on ways to further reduce their exposure to lead in drinking water. At the time the Lead Rule was passed, the MWRA and MassDEP agreed that, since the MWRA was a consecutive water supplier and provides the same drinking water to all communities it serves, the number of lead and copper samples the MWRA communities were required to collect could be reduced. The Commission collects lead and copper samples from the required 33 customer locations and submits them to the MWRA. The MWRA analyzes the samples and provides the results from all the MWRA Local Bodies to MassDEP.

In March 2004, the Commission's sample results, exceeded the 90<sup>th</sup> percentile lead action level, triggering a series of required actions under the Lead Rule, including the conducting of a public education program and the implementation of an approved Lead Service Line Replacement Program. The Commission's Lead Service Line Replacement was approved by the MassDEP in November 2004. Over a three-year from 2004-2007, the Commission removed 1,074 public lead service lines identified in the system, far exceeding MassDEP requirement to remove 107 service lines annually. In February 2008, because of consecutive, favorable water sampling results below the 90<sup>th</sup> percentile lead action level, both MassDEP and EPA allowed the Commission to suspend its Lead Service Line Replacement Program. The Commission, however, continued to replace lead lines in the public way as they encountered through maintenance.

In accordance with state and federal regulations, the Commission continues its sampling program at 33 private sites that are known to have lead services. Importantly, Boston drinking water is lead free when it leaves the reservoirs, and the MWRA and Boston's water mains do not contain lead. In October 2020, the Commission's sample results from identified private homes exceeded the 90<sup>th</sup> percentile lead action level for the first time since 2004, triggering a series of required actions under the Lead Rule. In compliance with regulatory requirements, the Commission implemented a robust public education program to inform particularly vulnerable members of the public about the dangers of lead in water. The Commission updated its Lead Service Line Program, which was approved by MassDEP in March 2021. The Commission is actively removing known lead service lines in the system and investigating service lines of an unknown composition. The EPA has published changes to the Lead Rule, which upon implementation at a future date uncertain, will require systems to remove all lead lines in the public way and also those located on private property. Consistent with this pending EPA rule change and MassDEP requirements, the Commission is actively pursuing removal of all lead service lines in the system, regardless of their status as public or privately owned. In October 2021, the Commission and MassDEP executed an administrative consent order requiring the Commission to remove at least three hundred lead service lines annually. In the most recent reporting period January 2022 through October 2022, the Commission removed 269 lead service lines in the system.

Under the Commission's water use regulations, the home property owner is responsible for the private portion of the water service line, which is the portion running from the property line into the home. The cost of private line replacement is therefore the responsibility of the individual home or property owner. In 2004, the Commission created the Lead Replacement Incentive Program. The program was designed to encourage the replacement of private lead lines in the City by providing financial assistance to eligible homeowners to help defray and finance the cost of lead service line replacements. In February 2016, the Board of Commissioners voted to upgrade the Commission's existing Lead Replacement Incentive Program increased the credit from \$1,000 to \$2,000 and expanded eligibility to all properties with services two-inches (2") and under. In March 2021, the Board of Commissioners voted to further upgrade this credit from \$2,000 to \$4,000 to incentivize property owners to remove their private lead service line and reduce the financial cost to do so. The Commission mailed letters to all customers with a known private lead service line or a private service line of unknown composition to inform them of the increased credit and public lead service line removal. A second round of letters was sent to all customers with a known private lead service line or a private service line. The Commission does not expect that the SDWA requirements will impose any significant additional burden of lead service line replacement in excess of its current program.

The SDWA requires that all community water systems publish an annual drinking water quality report to be distributed to all customers of each community system. The report, called a Consumer Confidence Report, is required to contain monitoring results of all detected contaminants that are regulated by the EPA. The regulations governing this provision of the SDWA were promulgated in August 1998. The report has been published annually since 1998 by the MWRA, in cooperation with the communities it serves.

The Public Health Security and Bioterrorism Response Act, enacted in June 2002, mandated the preparation of a Vulnerability Assessment and Emergency Response Plan (ERP) by each public drinking water supplier. The Commission's Vulnerability Assessment was submitted and received by the EPA in March 2003. The Commission's Emergency Response Plan was completed in September 2003, certification of its completion was submitted to the EPA in September 2003 and it was updated in July 2004, January 2009, November 2011 and December 2014. The Emergency Response Plan addresses the actions to be taken in response to a major or catastrophic events and terrorists attack on the Commission's Water Distribution System. Based in part upon the findings of the Vulnerability Assessment and the Emergency Response Plan, the Commission continues to design and develop Water Distribution System Improvements to mitigate, prevent, detect and respond to disruptive acts and terrorist activities. The Commission also complied with the America's Water Infrastructure Act of 2018 (AWIA) by completing an updated Emergency Response Plan by September 2020.

In 2011, the Commission completed a Water Distribution Study, which provided a thorough understanding of the water system and how to best manage it. The study gave all stakeholders a better sense of the history of Boston's water infrastructure and provided key insights into current conditions. The study has been responsible for the development of best management practices in value maintenance, main flushing and more effective methodology of selecting pipe to be replaced under the Capital Improvement Plan. Not only do these tools assist current Commission employees with an understanding of the system, but they also provide future employees with a roadmap for optimal system maintenance.

The three-year study was divided into two phases. The first phase was to have both Commission staff and a hired contractor collect 93 pipe samples (coupons). The samples were taken from every neighborhood and varied in size and pipe material. The age of the water pipes ranged from 18 years old to 147 years old and included cast iron, ductile iron and a mix of cement lined and unlined. The pipes and soil sample, which were also taken from the locations, were analyzed. The analysis consisted of physical observations and measurements, microscopic examination, mechanical properties test, and chemical composition analysis. The soil sample obtained at each location was also analyzed to determine its corrosiveness. The results of the tests performed were matched with locations on Commission maps, and corrosion rates were correlated with fill areas, electrified rail locations and groundwater levels.

The second phase was to create a sustainable distribution system by developing a risk-based measure for selecting pipe to be included in the annual CIP budget. This phase employed sophisticated models that levered all the data collected in phase one, data the Commission collects in its GIS, Citiworks, and hydraulic model to determine the appropriate level of pipe rehabilitation and replacement needed to achieve the Commission's goals. The pipe selected is based on a risk-based assessment. The framework is derived from asset management principles, which consider the highest risk of pipe to be the probability of a failure, and what the consequences of an event occurring could be (hospital flooding or critical customers without water).

This system is used in the selection of pipes for replacement under the Capital Improvement Program. Pipes with the highest ranking are considered first. Pipes are also selected within proximity to other selected pipe to create geographic based contracts. All street excavations are coordinated with City and State Paving Programs.

The study recommended replacing 11 miles of pipe per year through the year 2030. This ranking system was updated in 2016 resulting in a recommendation to replace and rehabilitate eight miles of pipe per year.

In addition to the samples taken during the three-year study, the Commission obtains eight pipe samples every year. Once the results of the analysis are received the information is uploaded into the Commission's database to continue selecting the most vulnerable pipe.

Using the latest technology solutions, we are identifying new areas where BWSC can make sustainable improvement to the quality of our environment and services.

With aggressive leak detection and repair combined with progressive metering programs, the Commission continues to reduce its unbilled water by approximately 85% from 70 mgd in Fiscal Year 1977 to 9.8 mgd in Fiscal year 2021. Unbilled water is the difference between water purchased from the MWRA and water sold to customers. Of the 9.8 mgd of unbilled water in Fiscal Year 2021, approximately 5.0 mgd was identified as water for unbilled public purposes such as firefighting and street cleaning. Thus, unaccounted-for-water was approximately 4.8 mgd, or about 8.2% of the 58.8 mgd which the Commission purchased from the MWRA. The Commission continues to provide a leakage survey of the entire system each year.

Water distribution system improvements made since 1978 include the replacement of 381.6 miles of older water mains, the cleaning and lining of 275.1 miles of water mains, hydrant replacements and valve upgrades and replacements.

Over the three years of the CIP, the Commission is projected to expend \$84.7 million on improvements to the Water Distribution System. Most of these expenditures will occur in the replacement of water mains.

The projects scheduled for initiation in 2023 will result in the replacement of 8.5 miles of water mains.

Table 3 presents a summary of the 2023-2025 capital expenditures for the Water Distribution System.

**Table 3 - Water Distribution System Expenditures by Program Category**

Program	2023	2024	2025	2023-2025
Water Replacement	\$18,934,268	\$22,571,979	\$19,336,940	\$60,843,187
Water Special	\$11,341,672	\$5,991,667	\$6,491,667	\$23,825,006
<b>Total</b>	<b>\$30,275,940</b>	<b>\$28,563,646</b>	<b>\$25,828,607</b>	<b>\$84,668,193</b>

**NOTE:** Although expenditures decrease from periods 2023 to 2025, it is anticipated that funding for 2025 will be equal to or greater than funding presented in 2023. The decrease in 2025 is primarily due to the CIP being a one-year cash flow, over a three-year budget period.



## SEWER SYSTEM

The CIP for the Sewer System includes a total of \$79.6 million for various types of system improvements. These include in-kind replacement and rehabilitation of sewer pipes, installation or replacement of sewers and storm drains that increase the overall capacity of the system, separation of combined sewers, identification and reduction of infiltration and inflow and compliance with permit requirements in the areas of combined sewer overflows and stormwater discharges.

Major sewer system improvements have resulted in increased system capacity and the virtual elimination of dry weather overflows from combined sewers into Boston Harbor and the Neponset, Charles and Mystic Rivers. These improvements have also increased water quality and improved accessibility to all waterways.

Projects associated with the Plan in the Sewer System CIP include the rehabilitation or replacement of approximately 10.5 miles of newly identified deteriorated or collapsed sanitary sewers and storm drains and the television inspection of approximately 270 miles of sewer and drain pipe within the next year. Also included are drainage improvements and the replacement of faulty tide-gates.

The CIP continues funding for the separation of combined sewers and for the reduction of infiltration and inflow into the sanitary system. Infiltration and inflow (I/I) are extraneous quantities of water, which enters the sanitary sewers and reduces the capacity of the system to transport sanitary sewage. Reduction of I/I also decreases the quantity of water transported to the Massachusetts Water Resource Authority ("MWRA") wastewater treatment facilities, thereby reducing overall transportation costs, treatment costs and BWSC's sewer assessments.

Combined flows that exceed the capacity of the interceptors during storm events discharged into the Boston Harbor and the Charles River. In the past several years, the Commission has undertaken a number of studies of its combined sewer system and has developed flows to significantly reduce CSO. The issue of infiltration and inflow ("I/I") into the sanitary system in separated areas of the system is also being addressed. Surveys have been performed to identify I/I sources, stormwater into the sanitary sewers

Table 4 presents a summary of the 2023-2025 capital expenditures for the Sewer System.

**Table 4 - Sewer System Expenditures by Program Category**

Program	2023	2024	2025	2023-2025
Sewer R & R	\$27,993,057	\$18,572,163	\$17,801,244	\$64,366,464
Increased Capacity	\$600,000	\$150,000	-	\$750,000
Sewer Special	\$9,953,797	\$2,746,382	\$1,807,941	\$14,508,120
<b>Total</b>	<b>\$38,546,854</b>	<b>\$21,468,545</b>	<b>\$19,609,185</b>	<b>\$79,624,584</b>

**NOTE:** Although expenditures decrease from periods 2023 to 2025, it is anticipated that funding for 2025 will be equal to or greater than funding presented in 2023. The decrease in 2025 is primarily due to the CIP being a one-year cash flow, over a three-year budget period.

## CONSENT DECREE

On August 23, 2012, the Commission entered in a Consent Decree with the Environmental Protection Agency and Conservation Law Foundation. Under the terms of the Consent Decree the Commission implemented a Capacity, Maintenance, Operations and Management (“CMOM”) self-assessment study in 2012 that analyzed all aspects of the Commission’s sanitary sewer and storm drainage facility operations and maintenance. The Commission finalized a CMOM Corrective Action Plan in July 2013 and developed a CMOM Program Document in May 2014. The CMOM Program synchronizes infrastructure maintenance and operations goals with long-term CIP planning to achieve (“CWA”) compliance with the Commission’s NPDES permit and ultimately improve water quality.

As part of the CMOM Corrective Action Plan filed with the EPA, the Commission increased its inspection and assessment of its sewer and drainage systems. The program represents progressive increases in the quantity of pipes cleaned and televised with an end goal of completing approximately 10% of the system annually.

The Commission has embraced the Consent Decree requirements from senior management through all divisions and departments. The Commission views the requirements as an opportunity to enhance its current practices and procedures in operating and maintaining the sewer system. Staffing leadership changes have been implemented; for example, a CMOM superintendent and an SSO manager were hired in 2013 to ensure compliance with the requirements enforced by the Consent Decree.

The Consent Decree offers an unprecedented opportunity for the Commission to increase its role as an environmental steward for Boston’s waterways. The Commission is committed to meeting and surpassing the benchmarks outlined in the Consent Decree. To fulfill this commitment, the Commission has begun implementing both short-term and long-term measures that are designed to improve water quality, increase public awareness, and protect the environment.

The City of Boston, the Commission and its ratepayers have helped clean up Boston Harbor and Boston’s waterways to a level where they are accessible for the public use 90.2% of the time. South Boston’s beaches are recognized as the cleanest urban beaches in the U.S. and the Charles River has been recognized by the EPA and internationally as one of the cleanest urban rivers in America. The Commission’s illicit discharge detection protocol and sampling program have been cited as an example and standard by EPA. These achievements are a direct result of the Commission’s investment in improved sewer and stormwater infrastructure, implementation of best management practices and working with other stakeholders in the City of Boston. The Commission will continue a tenable, sustainable path to improve water quality and maintain outstanding access to the City’s waterways.

## PROJECTS ASSOCIATED WITH THE CONSENT DECREE & WATER QUALITY IMPROVEMENTS

There are several projects that the Commission is performing and planning to undertake to fulfill and exceed recommendations of the Environmental Protection Agency and Conservation Law Foundation (“EPA” and “CLF”) under the Consent Decree. The following projects will support the Commission’s goal of compliance with the Consent Decree and improved water quality discharges and the environment:

### ***Consent Decree:***

#### ***Sewer R & R***

- Cleaning and Inspections of Sewers and Storm Drains (CMOM-Capacity Management Operations)

#### ***Sewer Special***

- Citywide Illegal Connection Investigation Program Phase V
- Customization of SCREAM & CMOM

### ***Water Quality Improvements:***

#### ***Storm Water***

- Design of Stormwater Detention Facilities
- Construction of Stormwater Detention Facilities PH I
- CCTV of Sewers and Storm Drains (Contamination Investigation) IDDE
- Constructed Wetland in Stormwater Tributary Area
- Green Infrastructure
- Installation of Stormwater Treatment Vault on Talbot Avenue
- Sampling & Metering for Storm Drain Model Validation

***NOTE:*** Full description and forecasted budgets of individual projects are available in the Sewer R & R, Sewer Special & Stormwater sections.

Table 5 presents a summary of the 2023-2025 projected capital expenditures associated with the Consent Decree.

**Table 5 – Consent Decree Expenditures by Contract**

Contract	Description	Budget
23-309-009	CCTV of Sewer & Storm Drains/CMOM	\$615,000
23-309-010	CCTV of Sewers & Storm Drains/CMOM	\$615,000
22-309-009	CCTV of Sewer & Storm Drains/CMOM	\$350,000
22-309-010	CCTV of Sewer & Storm Drains/CMOM	\$750,000
Future Contracts	CCTV of Sewer & Storm Drains/CMOM	\$4,000,000
20-206-007	Citywide Illegal Connections PH V	\$1,800,000
21-309-004	Lateral Testing & CCTV of Sewer & Drains IDDE	\$355,000

#### DEDICATED INFILTRATION INFLOW 4:1 PROJECTS

In 2004, the Massachusetts Department of Environmental Protection (“DEP”), in conjunction with the MWRA and its member communities implemented a program to help remove stormwater infiltration and inflow: I/I from the sewer system. Private developments may add substantial flows to the sewer collection system, requiring additional MWRA treatment.

To offset the effect of these additions, the Massachusetts DEP previously recommended to the Massachusetts Environmental Policy Act Office and the Executive Office of Environmental Affairs that new developments with a sewerage flow estimated at greater than 15,000 GPD be required to remove I/I at a 4:1 ratio from the sanitary sewer system, as part of the requirements by the Secretary of Environmental Affairs.

The Commission conducts investigations to identify sources of I/I to the Commission’s system. These projects identify both public and private sector sources of I/I. Commission staff initially planned on developing a database with locations of I/I sources, which would be provided to a developer. The developer would correct sources from that list to fulfill their I/I removal requirement.

However, the Commission staff believed that this process would be unwieldy and unmanageable. Subsequently, at the July 28, 2005 Commission meeting, the Commission approved the establishment of a Dedicated Infiltration/Inflow (“DEDII”) account into which developers assessed a 4:1 I/I reduction requirement by the DEP would contribute funds to fulfill their requirements. These funds will be used by the Commission to fund I/I identification and reduction projects.

During private project design, Engineering Customer Services receives and reviews a Site Plan for conformance with the Commission’s Engineering Design and Construction standards. The Commission will confirm if the project is subject to the 4:1 compliance requirement as required by the new regulations.

The Engineering Customer Service Department will coordinate with the Planning Department on the most current estimated wastewater flow that has been submitted by the developer. The developer will coordinate with the Commission

how to comply with the proposed assessment. The developer can either remove sources of I/I or make a requisite monetary contribution to the Commission.

In April 2014, the DEP promulgated new regulations. These regulations require the Commission to mitigate the impacts of development of all new sewer connections exceeding 15,000 gpd by removing four gallons of I/I for each new gallon of wastewater flow. For example, if a proposed project's calculated new daily wastewater flow is 100,000 gallons per day (gpd), the developer must remove 400,000 gpd of I/I from the sewer system.

To date, the Commission has implemented 20 contracts, which are funded by the 4:1 I/I Infiltration Inflow Reduction Mitigation Account. Contracts 09-309-008, 10-206-005, 10-309-004, 15-206-001, 17-206-004, 18-206-004 and 19-206-009, 20-206-008 are complete. Contracts 14-206-002, 21-206-001 and as well as the South Boston Sewer Separation and East Boston Separation are ongoing. The South Boston Separation includes both design costs under contract 16-206-003 and construction costs under contracts 20-309-012, 21-309-012, 22-309-012, and 20-206-002. The East Boston Separation includes both design costs under contract 21-206-003 and construction costs under contracts 19-309-002, & 21-309-002. All costs identified as "DEDII" and are 100% reimbursable; therefore, are not included in the 2023-2025 cashflow. Only separation costs affiliated with the South Boston Separation and East Boston Separation are funded by DEDII.

**Table 6 – Dedicated I/I Expenditures and Status by Contract**

Contract	Description	Cost	Status
09-309-008	Dorchester Brook Regulator Relocation	\$6,924,672.92	Complete
10-206-005	Roxbury Separation Design Contract	\$1,732,975.60	Complete
10-309-004	East Boston Separation	\$504,381.30	Complete
15-206-001	Infiltration and Inflow Analysis	\$1,998,970.00	Complete
17-206-004	Infiltration and Inflow Analysis	\$994,470.00	Complete
18-206-004	I/I SSES (Roslindale & West Rox)	\$1,301,793.00	Complete
19-206-009	I/I SSES (Allston/Brighton)	\$1,415,720.00	Complete
20-206-008	I/I SSES (Mattapan)	\$1,255,934.00	Complete
21-206-001	I/I SSES (Jamaica Plain)	\$720,000.00	Active
14-206-002	Roxbury Separation Design Contract 1	\$1,049,954.00	Active
16-206-003	South Boston Separation Design Contract 1	\$5,380,000.00	Active
20-309-012	South Boston Separation Contract 1	\$5,820,000.00	Active
19-309-002	East Boston Separation PH III	\$7,645,000.00	Active
21-309-002	East Boston Separation PH IV	\$7,645,000.00	Active
21-206-003	East Boston Separation Design Services	\$4,000,000.00	Active

## WASTEWATER AND STORM DRAINAGE FACILITIES PLAN

The Commission completed its Wastewater and Storm Drainage System Facilities Plan in 2015. A major objective of the plan was to develop facility plans for the operation of the Commission's sewer and storm drains that are aligned with the Commission's primary service goals and supported by effective operations, maintenance, and engineering practices. This plan has reviewed all aspects of the Commission Sewer System, including the Commission's design standards, assets, mapping, maintenance and operational practices and future impacts of climate change on the Commission's facilities.

Critical elements of this Plan include:

- ✓ **Assessment of the Commission's Service Goals and other factors affecting long-term planning** including changing regulatory requirements, climate change and financial conditions.
- ✓ **Systematic use of Risk-based tools** to govern prioritization of investments in condition assessments, repairs and replacements
- ✓ **Integration of Business Processes** needed to sustain effective **Capacity, Management, Operation and Maintenance (CMOM)** Programs for sanitary sewer collections systems and engineering programs
- ✓ **Training and Education** to embrace the use of new tools and business processes and to sustain knowledge of the system and its operations

In addition to establishing a sustainable framework for planning and management, the plan includes a broad spectrum of data collection, engineering evaluation and tool development activities.

## SUPPORT PROJECT EXPENDITURES

The capital projects included in the Support category contribute to the overall efficient operation of the Commission and improve the Commission's ability to manage/administer projects and collect revenues. The allocated budget for Support projects in the 2023-2025 CIP total \$30.0 million.

The allocated budget in this section of the CIP are included expenditures for Advanced Meter Infrastructure, Information Technology, and various Administrative Equipment.

Table 7 presents a summary of the 2023-2025 capital expenditures for the Support projects.

**Table 7 - Support Expenditures by Project Category**

Program	2023	2024	2025	2023-2025
Metering	\$1,015,000	\$1,615,000	\$815,000	\$3,445,000
IT	\$3,170,000	\$2,850,000	\$2,300,000	\$8,320,000
Admin Equip	\$10,205,000	\$6,550,000	\$1,500,000	\$18,255,000
<b>Total</b>	<b>\$14,390,000</b>	<b>\$11,015,000</b>	<b>\$4,615,000</b>	<b>\$30,020,000</b>

**NOTE:** Although expenditures decrease from periods 2023 to 2025, it is anticipated that funding for 2025 will be equal to or greater than funding presented in 2023. The decrease in 2025 is primarily due to the CIP being a one-year cash flow, over a three-year budget period.

## STORMWATER PROJECT EXPENDITURES

The primary purpose of the Stormwater Program is to encourage participation in the Boston Harbor pollution abatement projects and implement green infrastructure to improve the water quality of discharges to the local receiving waters. The goal is also to study existing conditions and make recommendations for placement of best new management practices designed to promote improved water quality, ensure compliance with state and federal regulations, minimize flooding, and manage stormwater throughout the City of Boston. The allocated budget for Stormwater projects in the 2023-2025 CIP total \$44.6 million.

Table 8 presents a summary of the 2023-2025 capital expenditures for the Stormwater projects.

**Table 8 - Stormwater Expenditures by Project Category**

Program	2023	2024	2025	2023-2025
Stormwater	\$16,309,713	\$14,865,345	\$13,394,749	\$44,569,807
<b>Total</b>	\$16,309,713	\$14,865,345	\$13,394,749	\$44,569,807

**NOTE:** Although expenditures decrease from periods 2023 to 2025, it is anticipated that funding for 2025 will be equal to or greater than funding presented in 2023. The decrease in 2025 is primarily due to the CIP being a one-year cash flow, over a three-year budget period.



## MASSACHUSETTS WATER RESOURCES AUTHORITY (MWRA)



The Commission obtains its water supply and wastewater treatment services from MWRA. MWRA provides water services to 54 cities, towns and special purpose entities (“Local Bodies”) including the Commission and wastewater treatment to nearly half of the State’s population in 43 cities, towns and special purpose entities located throughout central and eastern Massachusetts.

### MWRA Background

In December 1984, MWRA was created by Chapter 372 of the Acts of 1984 (“the Act”). In accordance with the provisions of the Act effective July 1, 1985 the ownership, possession and control of all property comprising the Metropolitan District Commission (“MDC”) water and sewer systems was transferred to MWRA. The Act authorizes MWRA to repair, replace, rehabilitate, modernize and extend the water delivery system and the sewage collection, disposal and treatment systems on a self-sustaining basis. The Act also allows for the issuance of bonds and notes to finance any of its corporate activities.

On January 31, 1985, a suit commonly referred to as the Boston Harbor case, was brought against the MDC, the Commonwealth, MWRA (as successor to the MDC) and the Commission alleging water pollution of and alleged illegal discharges into Boston Harbor in violation of the Clean Water Act. As the successor to the MDC, MWRA assumed responsibility for taking the Court-ordered actions to achieve and maintain compliance with the CWA. Such large-scale projects are financed through the issuance of revenue bonds, proceeds of federal and state grants and operating revenues.

### MWRA Rates and Charges

Under the Act, MWRA was empowered to establish charges for its services and commodities. One of the basic goals achieved by the MWRA Act was the substitution of assessments, or user fees, to the member communities for the prior tax-based system of charges.

The Commission is the largest single customer for MWRA. For MWRA fiscal year 2023, the Commission will be assessed 34.5% of the water system charges and 28.4% of the sewer system charges. On a combined basis, the Commission will pay 30.6% of the total MWRA assessments.

Assessments for water services are calculated by MWRA based on the metered water use in the calendar year immediately preceding the MWRA fiscal year. The Commission’s water charges for the MWRA fiscal year 2023 total \$99.4 million based on the Commission’s calendar year 2021 metered water use.

As of fiscal year, 1995, sewer assessments were calculated by a formula using, among other things, population and population equivalents. In accordance with legislation enacted in 1993, the MWRA developed a new sewer rate methodology for calculating assessments beginning in fiscal year 1996. The new methodology allocates operating and maintenance costs based on total metered annual flow and total annual average strength, septage contributions and high strength flow loads. Septage contributions are allocated based on volume, total suspended solids (“TSS”) and biochemical oxygen demand (“BOD”) loadings. High-strength flow loads are generated by those permitted entities whose flows exceed 25,000 gallons per day and whose TSS and/or BOD concentrations exceed 400 milligrams per liter.

Capital or debt service costs are allocated as follows: two-eighths based on maximum month metered flow and total annual average strength, septage and high strength flow loads; three-eighths based upon contributing (sewer) population; and three-eighths based population. Metered wastewater flow from the immediately preceding calendar year is used in calculating assessments. The Commission’s sewer assessment for the MWRA fiscal year 2023 based on calendar year 2021 data, totals \$149.7 million. Total assessments for water and sewer charges for MWRA fiscal year 2023 are \$249.1 million.

As the largest of MWRA’s customers, BWSC represents 34.4 percent of the current demand on the MWRA water supply. BWSC’s water comes from the Quabbin Reservoir and the Wachusett Reservoir, located about 65 miles and 35 miles west of Boston. The two reservoirs combined supplied an average of 171.0 mgd (millions of gallon per day) to consumers in 2021. The safe yield of the reservoir system is 300 mgd.

Water distributed to the Boston metropolitan area is conveyed from the reservoirs through the Cosgrove or Wachusett Aqueducts and treated at the MWRA’s John J. Carroll Water Treatment Plant at Walnut Hill in Marlborough. Treatment includes ozone disinfection, pH adjustment with sodium bicarbonate and the addition of chloramines and fluoride. Water leaves the plant through the MetroWest Water Supply Tunnel and is stored in covered storage tanks, such as Norumbega Reservoir and the Loring Road Tanks, where it is held for delivery to BWSC’s service networks. MWRA mains distribute water to the BWSC system at 29 metered delivery points.

Today, Boston is one of 54 customers that purchases water wholesale from MWRA. BWSC’s water distribution system currently provides service to approximately 90,000 active accounts throughout the City. Boston’s resident population of nearly 675,000 almost doubles each day by commuting workers and students, shoppers, tourists, conventioners, hospital patients and visitors.

MWRA has completed construction of major transmission and treatment facilities to service the Greater Boston area including the Metro West Tunnel. These improvements will ensure that Boston receives a reliable source of clean water.

## FUNDING SOURCES AND FINANCIAL IMPACT

Funding for the Commission's CIP is provided through five sources: Commission general revenue bonds, rate revenues, state revolving funds and two grant/loan programs provided by MWRA.

The primary funding source for the three-year capital program is the sale of Commission general revenue bonds. Over the three-year plan, general revenue bonds will comprise \$105.9 million of the total funding requirement. In 2023, bonds will make up approximately \$51.0 million of the funding required for that year.

As in past CIP's, the 2023-2025 program funds renewal and replacement ("R&R") work from current rate revenues. Renewal and replacement projects include water main relining, water main replacement (only replacement with the same size pipe), sewer pipe rehabilitation. The 2023-2025 CIP outlines R&R expenditures of \$64.4 million of total expenditures over the three years of the program. In 2023, approximately \$29.8 million will be expended out of current rate revenues for CIP projects.

Each year the Commission participates in the MWRA's I/I program for Infiltration/Inflow and Separation projects. Since 1993, the Commission has received \$110.8 million in MWRA funding for various Infiltration/Inflow and Separation projects of which \$4.8 Million is currently outstanding. In addition, the Commission has received grants under the I/I Grant/Loan Program totaling \$53.6 million. The Commission plans to continue to take advantage of MWRA funding over the 2023-2025 period. \$19.5 million in funding is anticipated to be used for projects that are ongoing along with new projects for the three years 2023-2025.

Table 9 lists projects funded by MWRA's I/I program for Infiltration/Inflow and Separation

**Table 9 – Projects Funded by MWRA's I/I Program of Infiltration/Inflow and Separation**

Contract	Description
23-309-002	East Boston Separation PH IV
23-309-012	South Boston Separation Contract 4
22-309-001	Sewer R & R in Roslindale & West Roxbury
22-309-003	Sewer R & R in Upper Roxbury
21-309-012	South Boston Separation Contract 2
20-309-012	South Boston Separation Contract 1
19-308-001	South End Sewer R & R Improvements Ph I
17-309-011	Sewer R & R in Upper Roxbury Phase III

The MWRA Board of Directors, by their vote on March 16, 2016, authorized the enhancement of the Local Water System Assistance Program to provide up to \$100 million in 10-year zero-interest loans to communities under the MWRA Lead Service Line Replacement Loan Program. The program will also be referenced as the "Lead Loan Program" or "LLP" for short. This interest-free loan program is designed to assist member water communities to rehabilitate or replace water service lines so that all lead pipe is fully removed. The program will help upgrade local water systems to reduce the potential for elevated lead levels at customer taps and maintain high water quality conditions throughout the system. As of December 31, 2021, the Commission has received \$2.6 million in LWSAP funding of which there currently is an outstanding balance of \$2.6 million.

The MWRA provides support for water systems improvement projects through its Local Water System Assistance Program (LWSAP). The program offers interest-free loans payable over a ten-year period and is designed to improve water quality in local distribution systems. The amount of funds available in the program is \$34.3 million dollars per year with Boston receiving a share of approximately \$5.3 million dollars per year. The loans are approved for distribution from MWRA Fiscal Years 2011 through 2023. The Commission has applied for loan funding for certain water main replacement projects awarded through the remainder of this program. Project costs incurred since January 1, 2010 have been considered for eligibility in applications under the LWSAP. As of December 31, 2021, the Commission has received \$59.6 million in LWSAP funding of which there currently is an outstanding balance of \$32.6 million.

It is anticipated in the 2023-2025 Capital Improvement Program \$18.4 million will be funded using the LWSAP Program.

Table 10 lists water projects funded by the MWRA with LWSAP & MWLLP

**Table 10 – Projects Funded by the MWRA with LWSAP & MWLLP**

Contract	Description
23-309-002	East Boston Separation Phase IV
23-308-001	Water Main Replacement in Lower Roxbury
22-308-001	Water Main Replacement in City Proper
21-308-004	Lead Service Replacement (MWLLP)
20-309-012	South Boston Separation
20-308-001	Water Main Replacement on Harrison Ave, South End
20-308-002	Water Main Replacement on Shawmut Ave, South End
19-308-001	South End Water Pipe Improvements Phase I
19-308-004	City Proper Water Pipe Improvements
18-308-001	Water Main Replacement in City Proper
17-308-002	Water Main Replacement in Dorchester and Roxbury

The EPA and Commonwealth provide support for funding and financing through the State Revolving Fund (SRF). The SRF offers affordable loan options to cities and towns to improve water supply infrastructure and drinking water safety; and to help them to comply with federal and state water quality requirements that deal with wastewater treatment plants and collection systems, while addressing issues such as watershed management priorities, stormwater management, and green infrastructure. Additionally, the SRF supplies financial assistance to address communities with septic system problems. These federal-state programs offer below-market rate loans and other authorized assistance with extended loan terms typically over twenty to thirty years.

It is anticipated in the 2023-2025 Capital Improvement Program \$19.3 million will be funded using the SRF Program.

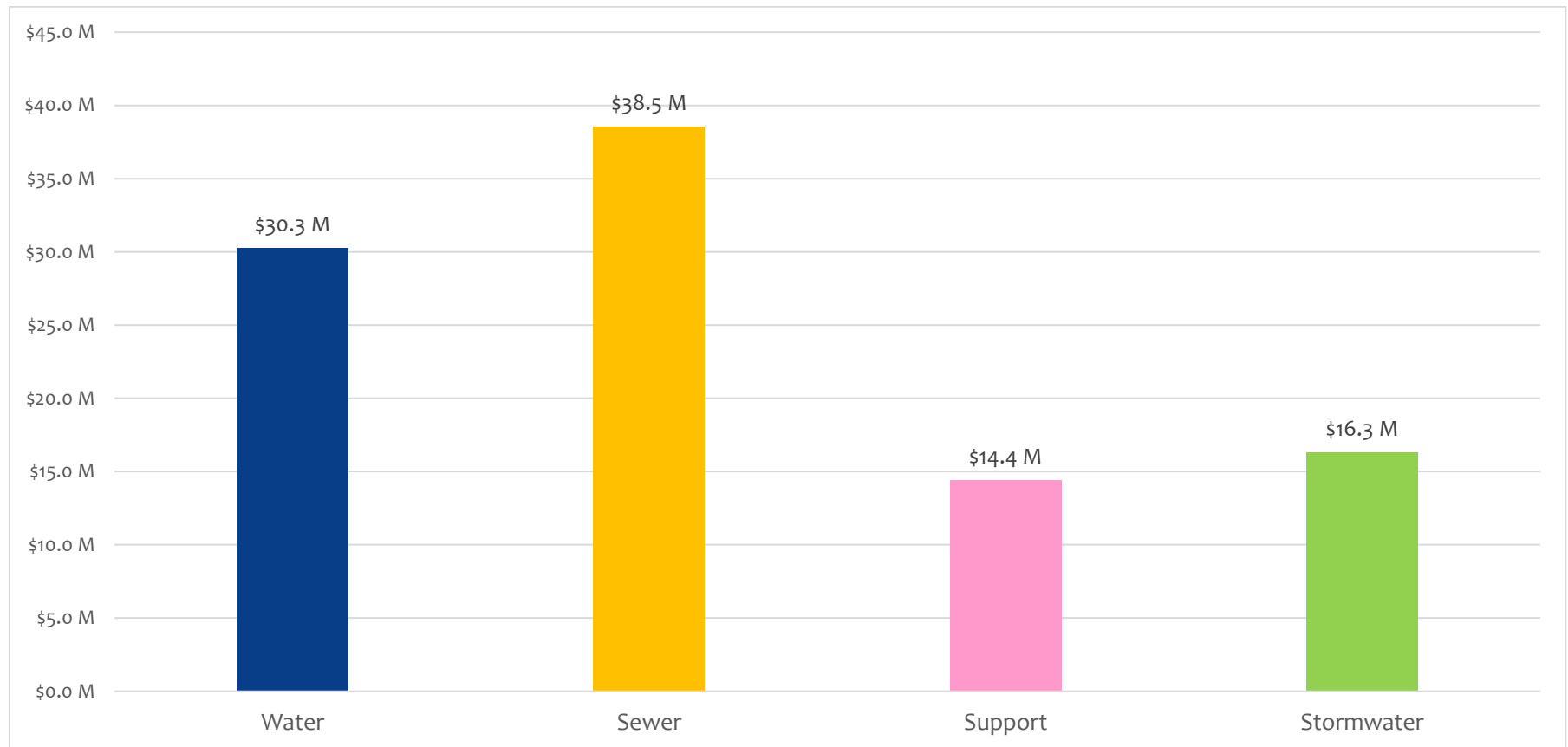
Table 11 on page 20 represents the cash flow expenditures by category and funding source for the Commission's 2023-2025 CIP.

Table 11

Capital Improvement Program  
2023 - 2025  
Totals by Category and Funding Source

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2023	2024	2025	Total 2023 - 2025
<b>Water Total</b>	\$ 790,556	\$ 901,630	\$ 930,556	\$ 1,120,941	\$ 1,509,959	\$ 4,060,686	\$ 4,093,440	\$ 4,208,243	\$ 3,284,069	\$ 3,117,738	\$ 3,405,202	\$ 2,852,920	\$ 30,275,940	\$ 28,563,646	\$ 25,828,607	\$ 84,668,193
Bonds	325,556	451,630	430,556	520,556	824,574	1,829,676	1,705,476	1,908,281	1,409,106	1,367,775	1,415,867	1,400,485	13,589,538	13,089,502	12,089,502	38,768,542
Rate	265,000	250,000	250,000	275,385	310,385	1,346,010	1,552,964	1,564,962	1,264,963	1,159,963	1,479,335	897,435	10,616,402	7,753,894	5,400,105	23,770,401
LWSAP	70,000	70,000	105,000	87,500	87,500	522,500	522,500	522,500	505,000	435,000	435,000	452,500	3,815,000	7,220,250	7,339,000	18,374,250
I/I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRF	130,000	130,000	145,000	237,500	287,500	362,500	312,500	212,500	105,000	155,000	75,000	102,500	2,255,000	500,000	1,000,000	3,755,000
<b>Sewer Total</b>	\$ 1,439,534	\$ 1,551,246	\$ 2,481,873	\$ 2,579,226	\$ 5,399,274	\$ 4,707,948	\$ 3,285,624	\$ 3,646,000	\$ 3,774,210	\$ 3,689,919	\$ 2,913,760	\$ 3,078,240	\$ 38,546,854	\$ 21,468,545	\$ 19,609,185	\$ 79,624,584
Bonds	1,142,034	1,206,569	1,388,031	1,689,549	3,674,383	2,485,767	1,314,154	1,676,854	1,900,229	1,550,939	1,107,504	1,334,350	20,470,363	4,094,744	4,177,941	28,743,048
Rate	297,500	344,677	843,842	634,677	914,891	1,267,181	1,266,470	1,264,146	1,168,981	1,433,980	1,101,256	1,038,890	11,576,491	11,033,801	11,481,149	34,091,441
LWSAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I/I	-	-	225,000	225,000	775,000	775,000	525,000	525,000	525,000	525,000	525,000	525,000	5,150,000	3,000,000	750,095	8,900,095
SRF	-	-	25,000	30,000	35,000	180,000	180,000	180,000	180,000	180,000	180,000	180,000	1,350,000	3,340,000	3,200,000	7,890,000
<b>Support Total</b>	\$ 585,000	\$ 1,050,000	\$ 320,000	\$ 1,220,000	\$ 225,000	\$ 1,300,000	\$ 625,000	\$ 2,100,000	\$ 2,175,000	\$ 1,775,000	\$ 1,795,000	\$ 1,220,000	\$ 14,390,000	\$ 11,015,000	\$ 4,615,000	\$ 30,020,000
Bonds	585,000	1,050,000	320,000	1,220,000	225,000	1,300,000	625,000	2,100,000	2,175,000	1,775,000	1,795,000	1,220,000	14,390,000	11,015,000	4,615,000	30,020,000
Rate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LWSAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I/I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Stormwater Total</b>	\$ 512,216	\$ 530,187	\$ 1,068,210	\$ 1,038,141	\$ 1,070,418	\$ 1,535,737	\$ 1,693,939	\$ 1,565,166	\$ 1,842,009	\$ 1,915,290	\$ 1,980,295	\$ 1,558,105	\$ 16,309,713	\$ 14,865,345	\$ 13,394,749	\$ 44,569,807
Bonds	83,000	100,971	131,817	225,308	197,933	245,703	233,499	243,499	253,499	348,449	263,499	245,749	2,572,926	3,231,659	2,597,615	8,402,200
Rate	429,216	429,216	536,393	407,833	462,485	558,606	729,012	590,239	932,080	910,413	949,138	655,926	7,590,557	6,143,686	4,205,039	17,939,282
LWSAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I/I	-	-	375,000	375,000	375,000	546,428	546,428	546,428	471,430	471,428	582,658	471,430	4,761,230	2,000,000	3,792,095	10,553,325
SRF	-	-	25,000	30,000	35,000	185,000	185,000	185,000	185,000	185,000	185,000	185,000	1,385,000	3,490,000	2,800,000	7,675,000
<b>Total</b>	\$ 3,327,306	\$ 4,033,063	\$ 4,800,639	\$ 5,958,308	\$ 8,204,651	\$ 11,604,371	\$ 9,698,003	\$ 11,519,409	\$ 11,075,288	\$ 10,497,947	\$ 10,094,257	\$ 8,709,265	\$ 99,522,507	\$ 75,912,536	\$ 63,447,541	\$ 238,882,584
Bonds	2,135,590	2,809,170	2,270,404	3,655,413	4,921,890	5,861,146	3,878,129	5,928,634	5,737,834	5,042,163	4,581,870	4,200,584	51,022,827	31,430,905	23,480,058	105,933,790
Rate	991,716	1,023,893	1,630,235	1,317,895	1,687,761	3,171,797	3,548,446	3,419,347	3,366,024	3,504,356	3,529,729	2,592,251	29,783,450	24,931,381	21,086,293	75,801,124
LWSAP	70,000	70,000	105,000	87,500	87,500	522,500	522,500	522,500	505,000	435,000	435,000	452,500	3,815,000	7,220,250	7,339,000	18,374,250
I/I	-	-	600,000	600,000	1,150,000	1,321,428	1,071,428	1,071,428	996,430	996,428	1,107,658	996,430	9,911,230	5,000,000	4,542,190	19,453,420
SRF	130,000	130,000	195,000	297,500	357,500	727,500	677,500	577,500	470,000	520,000	440,000	467,500	4,990,000	7,330,000	7,000,000	19,320,000
<b>Total</b>	\$ 3,327,306	\$ 4,033,063	\$ 4,800,639	\$ 5,958,308	\$ 8,204,651	\$ 11,604,371	\$ 9,698,003	\$ 11,519,409	\$ 11,075,288	\$ 10,497,947	\$ 10,094,257	\$ 8,709,265	\$ 99,522,507	\$ 75,912,536	\$ 63,447,541	\$ 238,882,584

**Graph 1 - 2023 CIP Total Expenditures by Category \$99.5 Million**

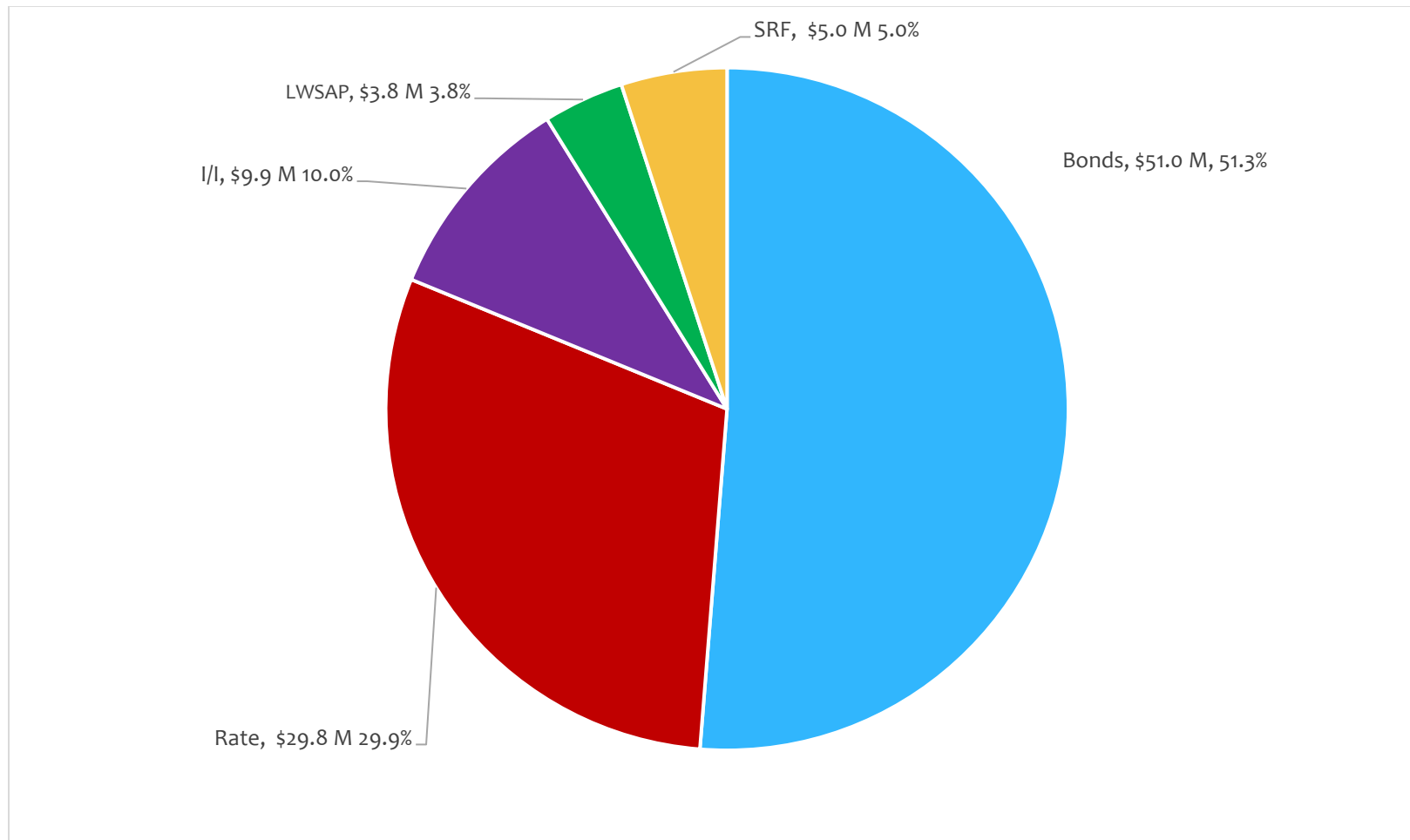


Graph 2 – 2023-2025 CIP Total Expenditures by Category \$238.9 Million

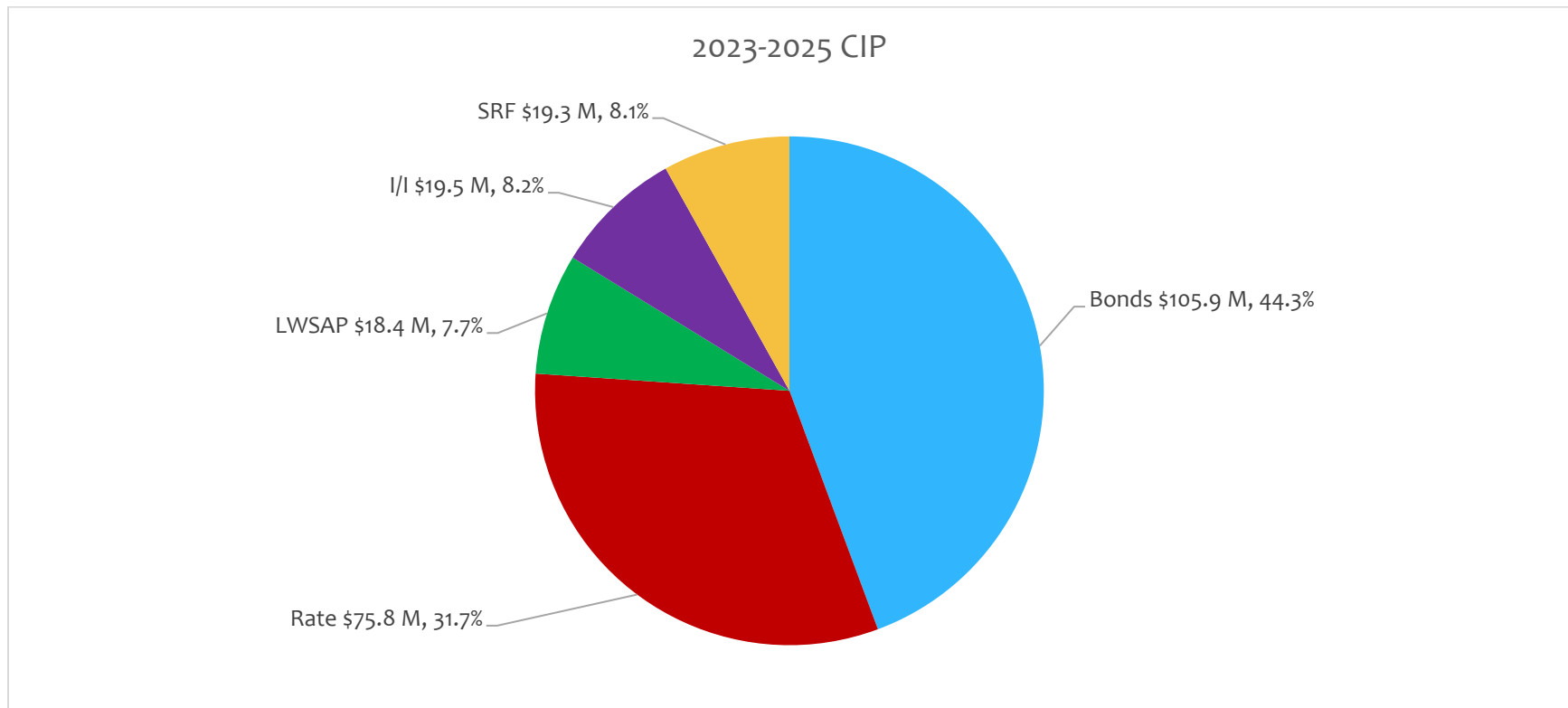




**Graph 3 – 2023 CIP Total Expenditures by Funding \$99.5 Million**



**Graph 4 – 2023 - 2025 Total Expenditures by Funding Source \$238.9 Million**



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# WATER DISTRIBUTION SYSTEM

The system serves approximately 90,000 accounts through five major service networks: Southern Low Service, which serves City Proper, South Boston and parts of Roxbury; Northern Low Service, which serves Allston/Brighton, Charlestown and East Boston; Southern High Service, which serves City Proper, Allston/Brighton, Dorchester, Hyde Park, Roslindale and parts of Jamaica Plain, Roxbury and West Roxbury; and Southern Extra-High Service, which serves portions of Jamaica Plain, West Roxbury and Hyde Park. In addition, a relatively small area in the Orient Heights section of East Boston is served by a single connection to the MWRA Northern High Service System.

Approximately 90% of the water consumed in the city is delivered through the Southern Low Service and Southern High Service, with most of the remainder delivered through the Northern Low Service. These service networks are supplied with potable water purchased from MWRA at 29 metered delivery points. This water is drawn from the Quabbin and Wachusett Reservoirs located in western and central Massachusetts. Supply is conveyed via aqueducts from these reservoirs to the Loring Road Tanks and Norumbega Reservoirs, where it is held for delivery to the Commission's service networks.

The Commission's current water distribution system consists of the following:

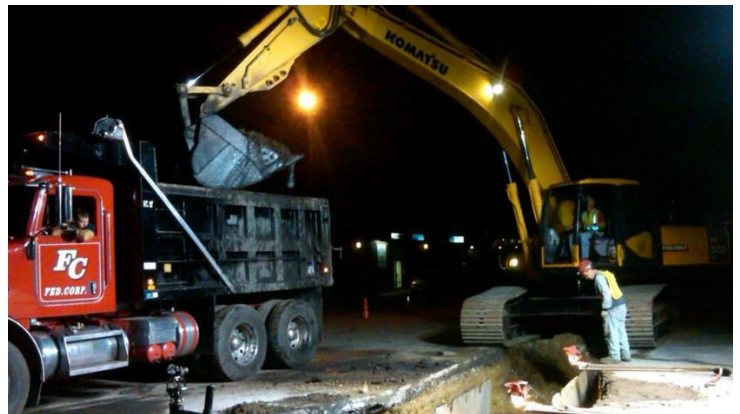
APPURTENANCES		WATER MAIN CITY WIDE		PRESSURE ZONE	
Hydrants	12,757	Total Linear Feet	5,327,174	High Pressure Fire System	15 Miles
		Total Linear Miles	1,008	Northern High	4 Miles
		Pumping Stations	1	Northern Low	90 Miles
				Southern Extra High	80 Miles
				Southern High	561 Miles
Gate Valves *	17,724			Southern Low	260 Miles

\* Includes only facilities owned by BWSC

## OBJECTIVES

### Primary Objectives of the 2023-2025 Water Distribution System Capital Improvement Plan are:

- To ensure a continued adequate supply of high quality, potable water at adequate pressure for consumption by Commission's customers and for fire protection
- To reduce the amount of non-revenue producing water and to reduce the long-term maintenance costs of the system
- To improve the operability of valves and appurtenances to advance the efficient operation of the water system
- To reduce public inconvenience by coordinating the scheduling of system improvements with related projects of other public agencies



To ensure the above stated objectives are attained, the Commission has implemented projects of the rehabilitation and replacement of water mains, the replacement of valves and hydrants, and the installation or replacement of water mains associated with bridge reconstruction projects.

## 2023-2025 WATER PROJECTS

### Water Pipe Replacement Projects

- Replacement of Unlined Cast-Iron Water Mains and Pipes That Have Reached the End of Their Useful Life

### Water Special

- System Planning as well as Other Studies and Professional Services with the Rehabilitation and Operation of the Water System

The Commission's improvements to the Water Distribution System since 1977 include the replacing or relining of approximately 656.7 miles of water mains, resulting in lower maintenance costs and improved water service. As a result of the Commission's renewal and replacement, leak detection and metering programs, annual unbilled water, which is the difference between water purchased from the Massachusetts Water Resources Authority (the "MWRA") and water sold to customers, has been reduced from 70 mgd in Fiscal Year 1977 to 10.2 mgd in Fiscal in 2021, an 85% reduction. Over the last ten years, the Commission has completed a total of \$254.9 million in water distribution system improvements.

## 2023-2025 WATER DISTRIBUTION SYSTEM CAPITAL PROGRAM

The Commission's 2023-2025 CIP for the Water Distribution System continues the investments necessary to maintain and improve the water distribution infrastructure. Projects are planned in the following areas: the rehabilitation or replacement of water mains, including the replacement of water pipes and the upgrade of valves and hydrants. Also included are water mains that are replaced as part of the Commission's sewer separation work. Together, these planned program activities will result in significant improvements to the water distribution system.

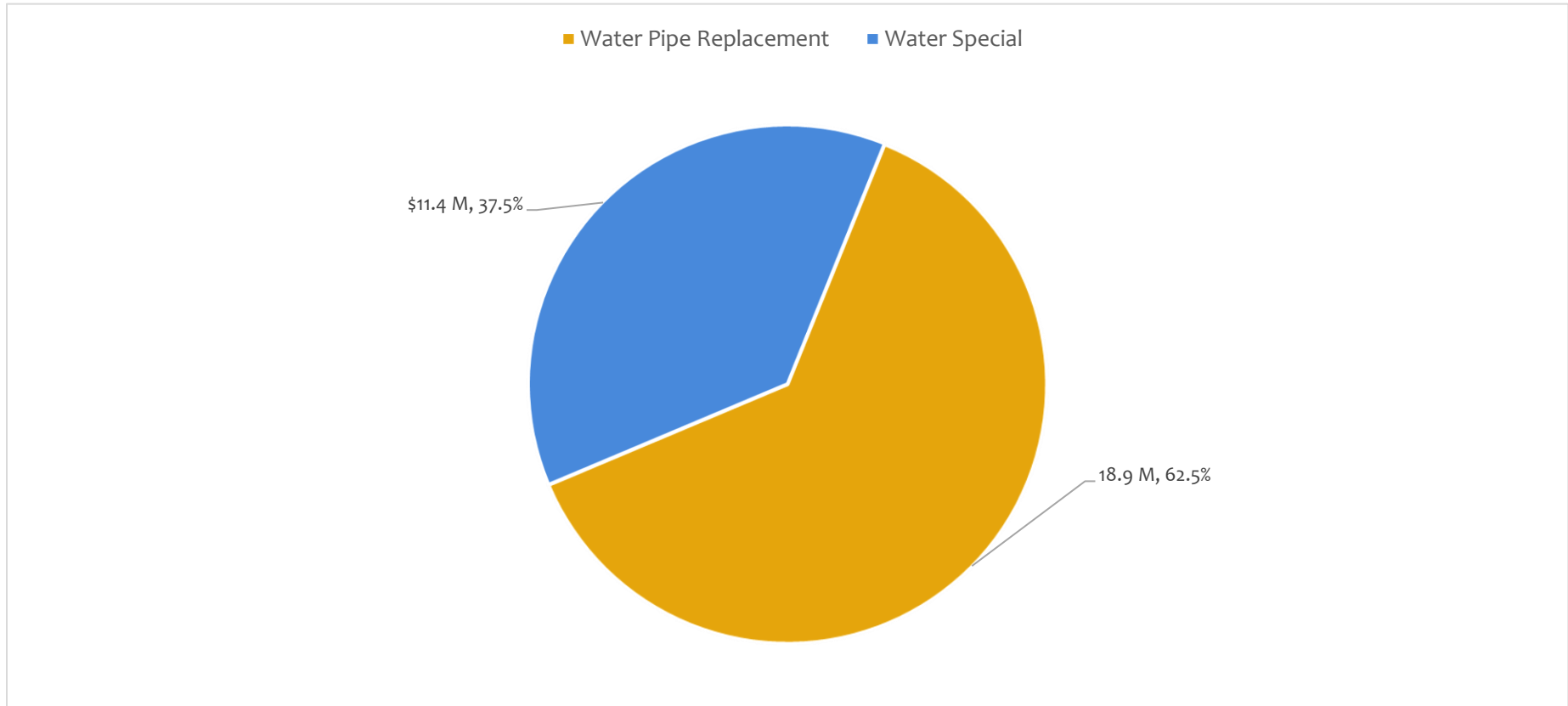
Table 12 and Graph 5 on the following pages present the 2023-2025 capital expenditures for the Water Distribution System. Graph 6 depicts the funding source application of the 2023-2025 capital expenditures. Graph 7 illustrates the spending by the program for 2023. Three-year expenditures are projected to be \$84.7 million, of which \$30.3 million is allocated in 2023. The three-year amounts are distributed in the Water Program as follows: Replacement \$60.8 million and Special \$23.8 million.

**Table 12 - Water Distribution System by Category**

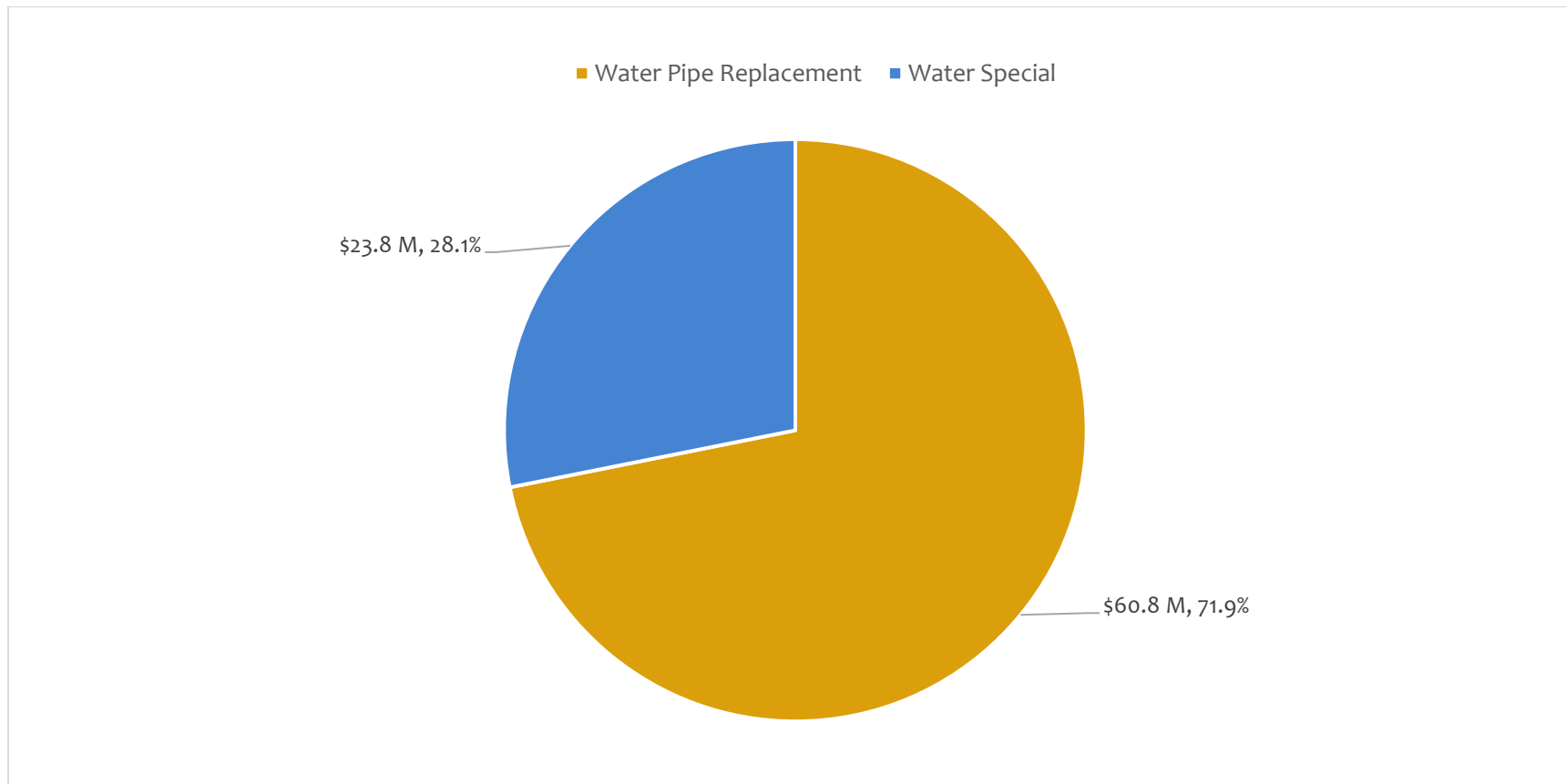
Capital Improvement Program 2023 - 2025 Water Total																
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2023	2024	2025	Total 2023 - 2025
Water Replacement																
Bonds	-	36,074	-	-	9,018	914,120	789,920	642,725	493,550	552,219	600,311	484,929	4,522,866	7,372,835	5,872,835	17,768,536
Rate	-	-	-	25,385	25,385	1,061,010	1,272,964	1,284,962	1,234,963	1,129,963	1,444,335	862,435	8,341,402	7,478,894	5,125,105	20,945,401
LWSAP	70,000	70,000	105,000	87,500	87,500	522,500	522,500	522,500	505,000	435,000	435,000	452,500	3,815,000	7,220,250	7,339,000	18,374,250
I/I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRF	130,000	130,000	145,000	237,500	287,500	362,500	312,500	212,500	105,000	155,000	75,000	102,500	2,255,000	500,000	1,000,000	3,755,000
Relay Total	\$ 200,000	\$ 236,074	\$ 250,000	\$ 350,385	\$ 409,403	\$ 2,860,130	\$ 2,897,884	\$ 2,662,687	\$ 2,338,513	\$ 2,272,182	\$ 2,554,646	\$ 1,902,364	\$ 18,934,268	\$ 22,571,979	\$ 19,336,940	\$ 60,843,187
Water Special																
Bonds	325,556	415,556	430,556	520,556	815,556	915,556	915,556	1,265,556	915,556	815,556	815,556	915,556	9,066,672	5,716,667	6,216,667	21,000,006
Rate	265,000	250,000	250,000	250,000	285,000	285,000	280,000	280,000	30,000	30,000	35,000	35,000	2,275,000	275,000	275,000	2,825,000
LWSAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I/I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Special Total	\$ 590,556	\$ 665,556	\$ 680,556	\$ 770,556	\$ 1,100,556	\$ 1,200,556	\$ 1,195,556	\$ 1,545,556	\$ 945,556	\$ 845,556	\$ 850,556	\$ 950,556	\$ 11,341,672	\$ 5,991,667	\$ 6,491,667	\$ 23,825,006
Water Total	\$ 790,556	\$ 901,630	\$ 930,556	\$ 1,120,941	\$ 1,509,959	\$ 4,060,686	\$ 4,093,440	\$ 4,208,243	\$ 3,284,069	\$ 3,117,738	\$ 3,405,202	\$ 2,852,920	\$ 30,275,940	\$ 28,563,646	\$ 25,828,607	\$ 84,668,193
Bonds	325,556	451,630	430,556	520,556	824,574	1,829,676	1,705,476	1,908,281	1,409,106	1,367,775	1,415,867	1,400,485	13,589,538	13,089,502	12,089,502	38,768,542
Rate	265,000	250,000	250,000	275,385	310,385	1,346,010	1,552,964	1,564,962	1,264,963	1,159,963	1,479,335	897,435	10,616,402	7,753,894	5,400,105	23,770,401
LWSAP	70,000	70,000	105,000	87,500	87,500	522,500	522,500	522,500	505,000	435,000	435,000	452,500	3,815,000	7,220,250	7,339,000	18,374,250
I/I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRF	130,000	130,000	145,000	237,500	287,500	362,500	312,500	212,500	105,000	155,000	75,000	102,500	2,255,000	500,000	1,000,000	3,755,000
Totals	\$ 790,556	\$ 901,630	\$ 930,556	\$ 1,120,941	\$ 1,509,959	\$ 4,060,686	\$ 4,093,440	\$ 4,208,243	\$ 3,284,069	\$ 3,117,738	\$ 3,405,202	\$ 2,852,920	\$ 30,275,940	\$ 28,563,646	\$ 25,828,607	\$ 84,668,193



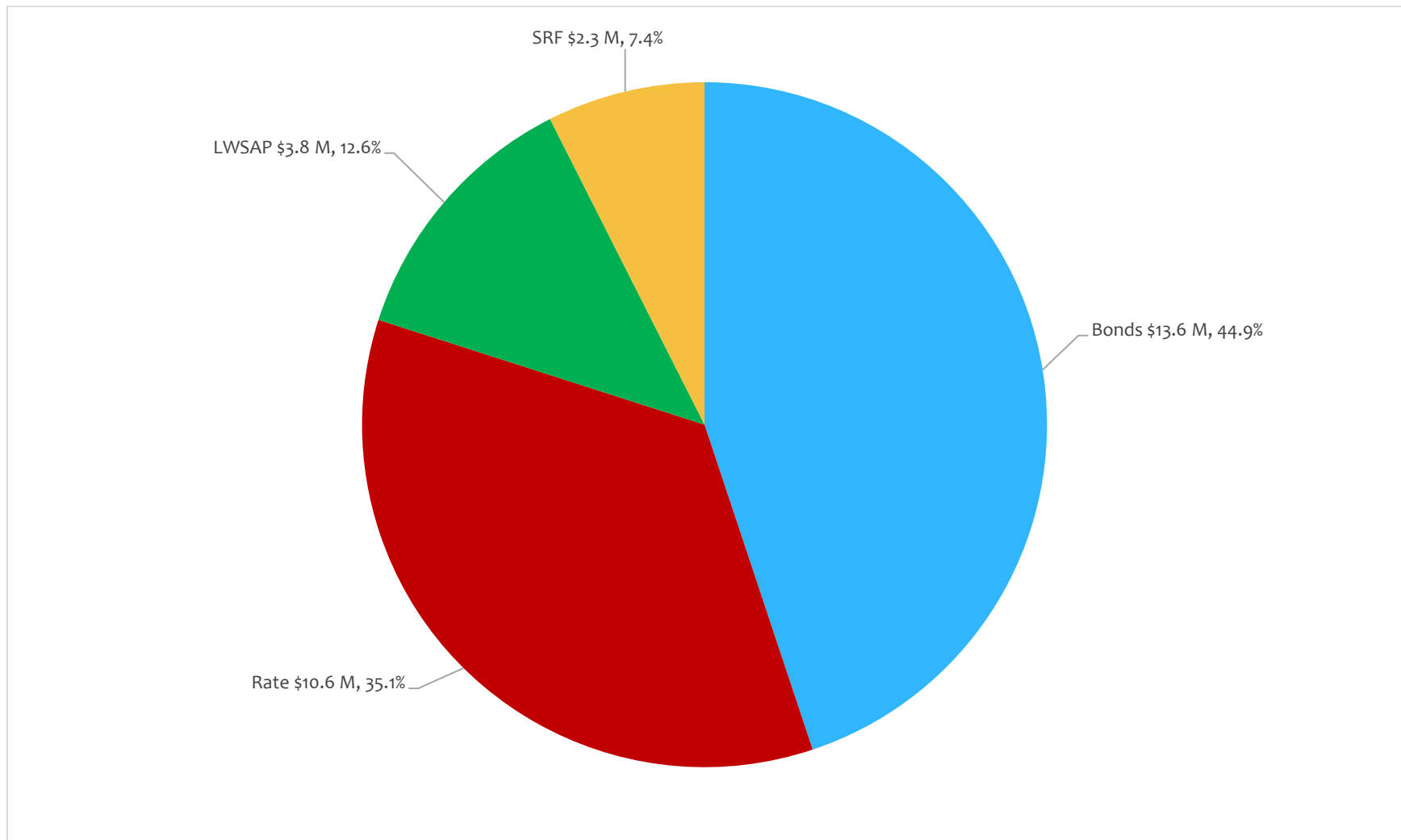
**Graph 5 - 2023 Total Water Expenditures by Program \$30.3 million**



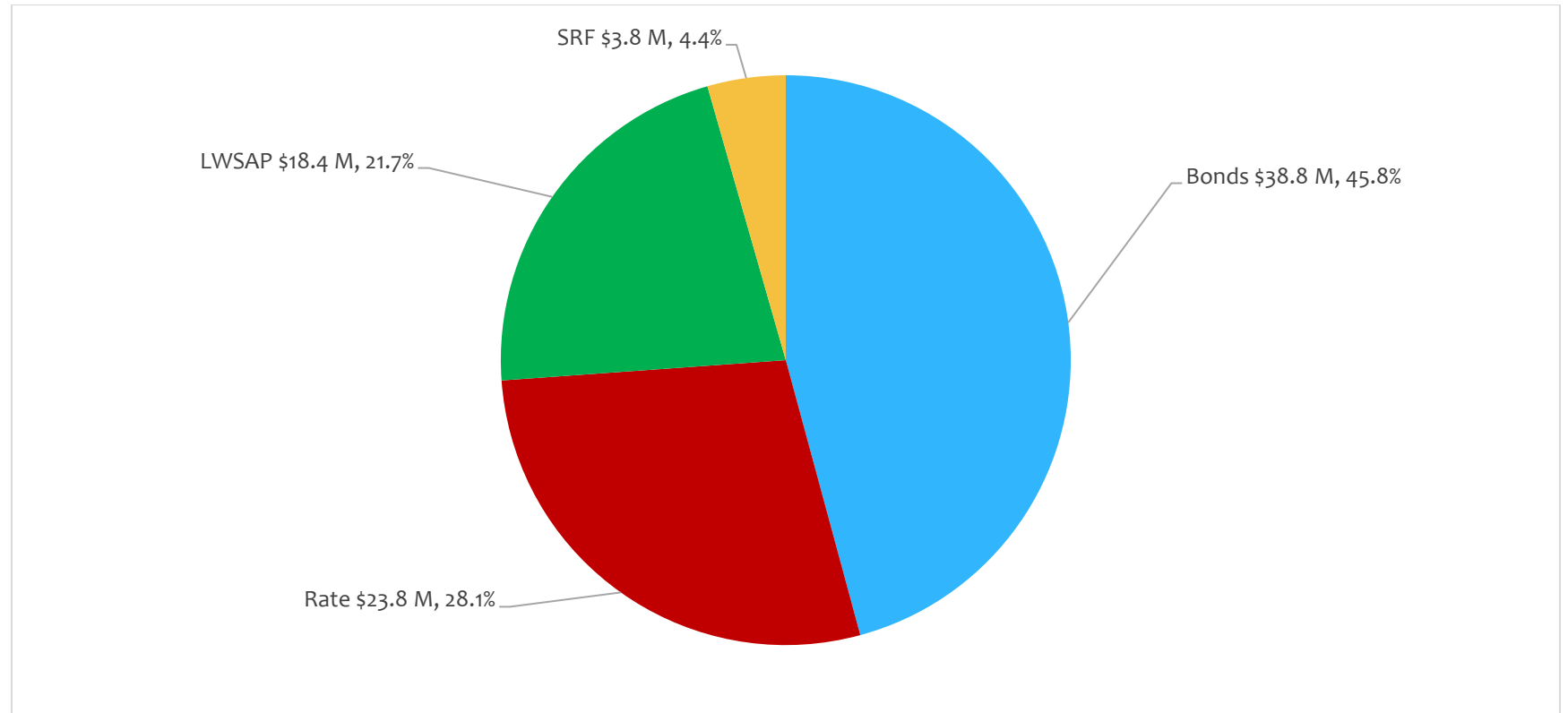
**Graph 6 – 2023 - 2025 Total Water Expenditures by Program \$84.7 million**



**Graph 7 – 2023 Total Water Expenditures by Funding Source**  
**\$30.3 Million**



**Graph 8 - 2023-2025 Total Water Expenditures by Funding  
Source \$84.7 million**



# WATER MAIN REPLACEMENT PROGRAM

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## DESCRIPTION AND JUSTIFICATION

Funding is provided in the 2023-2025 CIP for the continuation of the Commission's Water Main Replacement Program. The program consists of the replacement of unlined cast-iron water mains and water mains that have reached the end of their useful life.

The primary purpose of the Water Main Replacement Program is to ensure the quality and quantity of water provided by the Commission to its customers. Over long periods of time, the internal and external surfaces of water mains are subject to corrosion and deterioration. Internal corrosion of water mains can affect water quality, particularly taste, odor and color as well as reduce the hydraulic capacity of the pipe. Internal and external corrosion can also reduce the structural integrity of pipe, causing potential leakage and main breaks.

The largest component of the Water Distribution System CIP is the program to replace water mains. The replacement program replaces aged, undersized or structurally deteriorated pipe. The program also includes rehabilitation of pipe by structural lining.

The 2023-2025 CIP for the Water Distribution System continues programs for the replacement of water mains, the replacement of older or defective hydrants as necessary on all replacement projects, the replacement of water mains on new or reconstructed bridges and various design services, permits and paving fees associated with the capital funded projects.

## THE WATER MAIN REPLACEMENT PROGRAM ACCOMPLISHES THE FOLLOWING:

- Reduces the occurrence of main breaks, public inconvenience, loss of water and associated costs
- Decreases water leakage
- Increases the capacity of water mains, when replacing unlined mains
- Reduces discolored water conditions associated with water main tuberculation
- Reduces long-term maintenance costs
- Contributes to the control of biofilm in complying with the requirements of the Safe Drinking Water Act

## WATER MAIN REPLACEMENT PROGRAM 2023 SUMMARY

The projects scheduled for initiation in 2023 will result in the replacement of approximately 8.5 miles of water mains.

Prior to construction, the Commission inspects sewer and drain pipes in streets where water pipes are scheduled to be replaced. All sewer and drain replacement and rehabilitation work is then performed along with the water pipe replacement. This coordination avoids disruption of the streets and saves project costs. Funding for the sewer and drain work is included in the sewer section of the CIP.

## METHODOLOGY FOR SELECTING WATER MAINS FOR REHABILITATION

The Commission conducts an annual evaluation of its water distribution system to determine and prioritize water main replacement and rehabilitation needs. Based on this annual evaluation staff prepares a priority list of pipes to be replaced.

Candidates are based on information and recommendations from the 2016 update of the pipe ranking system as well as water main breaks, customer complaints concerning water quality or pressure deficiency, BWSC maintenance records, pressure and fire-flow tests, machine learning artificial intelligence software and construction work planned by other agencies.

To the highest extent possible, the Commission coordinates the replacement and lining of water mains with roadway and highway construction, urban development, housing development and mass transit work planned by state or local government entities.

For example, if the City of Public Works Department (BWPD) is planning to resurface a roadway within the next few years, the Commission would make every effort to replace the older water main in that street before it is resurfaced.

The coordination of the Commission's capital programs with other infrastructure improvements minimizes temporary construction related impacts to Boston's residential neighborhoods and commercial centers.



# WATER REPLACEMENT

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The following pages contain brief summaries of each on-going and new water replacement projects included in the 2023-2025 CIP.

## NEW PROJECTS

**Water Relay Lower Roxbury – Contract No. 23-308-001:** This contract includes relay of old water mains and associated sewage work. Construction is projected to commence in June 2024 and be completed in November 2025. The three-year budget is \$500,000.

**Water Relay South End Phase IV – Contract No. 23-308-002:** This contract includes relay of old water mains. Construction is projected to commence in June 2025 and be completed in November 2026. The three-year budget is \$500,000.

**Water Relay City Proper – Contract No. 23-308-003:** This contract includes relay of old water mains. Construction is projected to commence June 2025 and will be completed in November 2026. The three-year budget is \$500,000.

## ONGOING PROJECTS

**Water Main Replacement in Upper Roxbury – Contract No. 22-309-003:** This project includes the replacement of old water mains that have reached the end of their useful life and water mains with a history of water main breaks and/or leaks in Upper Roxbury. Construction is projected to commence in January 2024 and be completed by December 2025. The three-year budget for this project is \$447,410.

**Water Main Replacement in City Proper – Contract No. 22-308-001:** This project includes the replacement of old water mains that have reached the end of their useful life and water mains with a history of water main breaks and/or leaks in City Proper. Construction is projected to commence in January 2024 and be completed by December 2025. The three-year budget for this project is \$1,000,000.

**Water Main Replacement Citywide – Contract No. 22-308-002:** This project includes the replacement of old water mains that have reached the end of their useful life and water mains with a history of water main breaks and/or leaks Citywide. Construction is projected to commence in January 2024 and be completed by December 2025. The three-year budget for this project is \$500,000.

**Water Main Replacement in the Georgetowne Neighborhood - Contract No. 22-308-003:** This project includes the replacement of old water mains that have reached the end of their useful life and water mains with a history of water main breaks and/or leaks in the Georgetowne Neighborhood of West Roxbury. Construction is expected to commence in May 2023 and is expected to be completed by December 2024. The three-year budget is \$2,050,000.



**Water Main Replacement associated with South Boston Separation – Contract No. 22-309-012 (Contract 3):**

Construction Contract No. 3 is one of five planned contracts which include the upgrade of water main systems within the project limits to continue providing the highest level of service to the community and to support the BPDA's initiative to foster future development along Dorchester Avenue. Construction is projected to commence in April 2024 and completed in April 2026. The three-year budget is \$1,000,000.

**Replacement of Lead Services on Public and Private Property – Contract No. 22-308-004:** Work under this contract includes replacement of lead water services in the public way and on private property, Citywide. Work will commence in March 2023 and will be completed in September 2026. The total three-year budget is \$1,100,000.

**Excavation for Identification of Water Services – Contract No. 22-308-005:** Work under this contract includes excavating, locating, identifying and possible relaying the water services of approximately 700 existing water services currently listed in the Commission's GIS system as being lead or unknown. Work commenced in August 2022 and will be completed in August 2023. The total three-year budget is \$1,400,000.

**Water Main Replacement in Dorchester and South Boston – Contract No. 21-308-001:** The project includes the replacement of water mains in South Boston and Dorchester. Construction commenced October 2022 and will be completed by November 2026. The total three-year budget for this project is \$4,443,170.

**Water Main Replacement in City Proper – Contract No. 21-308-003:** This project includes the replacement of older cast iron water mains that have reached the end of their useful lives and the rehabilitation and replacement of sewer and drain pipes that are in disrepair in City Proper. Construction commenced October 2022 and is projected to be completed by October 2024. The total three-year budget for this project is \$4,687,500.

**Water Main Replacement in Readville – Contract No. 21-309-001:** The project includes the replacement of pipes within project limits that have reached the end of their lifespan. Construction is projected to commence April 2023 and be completed by October 2025. The total three-year budget for this project is \$413,085.

**Water Main Replacement associated with East Boston Separation Phase 4 – (Contract 1) – Contract No. 21-309-002:** The project includes the replacement of pipes within project limits that have reached the end of their lifespan in East Boston. Construction is projected to commence April 2024 and be completed by April 2026. The total three-year budget for this project is \$1,000,000.

**Water Main Replacement associated with South Boston Separation – (Contract 2) – Contract No. 21-309-012:**

Construction Contract No. 2 is one of five planned contracts which include the upgrade of water main systems within the project limits to continue providing the highest level of service to the community and to support the BPDA's initiative to foster future development along Dorchester Avenue. Construction is projected to commence in April 2023 and completed in April 2025. The three-year budget is \$3,050,000.

**Water Relay based on findings of CMOM in Charlestown, Sewer R&R with associated Water Relay – Contract No.**

**20-309-002:** This project includes associated water relay in the City Square area of Charlestown based on the findings of the CMOM group. Construction is scheduled to commence in April 2023. The three-year budget is \$2,134,959.

**Water Relay based on findings of CMOM Citywide – Contract No. 20-309-006:** This project includes associated water relay based on the findings of the CMOM group. Construction is projected to commence February 2024 and be completed by July 2025. The total three-year budget for this project is \$302,500.

**Water Main Replacement associated with South Boston Separation (Contract 1) – Contract No. 20-309-012:** Contract No. 1 is one of five planned contracts which includes upgrades to the water main systems within the project limits. Construction commenced in July 2021 and is projected to be completed by December 2023. The three-year budget is \$840,000.

**Water Main Replacement in Harrison Ave, South End Phase II – Contract No. 20-308-001:** This project includes the replacement of older cast iron water mains that have reached their useful life in Harrison Ave, South End. Construction is projected to commence April 2023 and be completed by June 2024. The total three-year budget for this project is \$5,050,750.

**Water Main Replacement in Shawmut Ave, South End Phase III – Contract No. 20-308-002:** This project includes water relay for 6,330 feet of 12- and 16-inch water mains on Shawmut Avenue, Waltham, Hanson, and Bond Street in the South End. Construction is projected to commence April 2024 and be completed by December 2025. The total three-year budget for this project is \$3,678,000.

**Water Main Replacement in Charlestown and Back Bay – Contract No. 20-308-004:** This project includes the replacement of older cast iron water mains that have reached their useful life in Charlestown and Back Bay. Construction commenced August 2022 and is projected to be completed by December 2023. The three-year budget for this project is \$1,375,000.

**Water Main Replacement in City Proper and Mission Hill – Contract No. 20-308-005:** This project includes the replacement of older cast iron water mains that have reached their useful life in City Proper and Mission Hill. Construction commenced April 2022 and be completed by November 2023. The three-year budget for this project is \$1,050,000.

**South End Water Pipe Improvements Phase I – Contract No. 19-308-001:** This contract will replace 7,585 feet of 12- and 16-inch water mains on East Berkeley Street and Washington Street in the South End. This work is being programmed in response to several water main breaks on 1897 and 1873 PCI water main on Washington Street. This project is the first of three phases of water main replacement on major arterials in this section of the South End. Work is projected to commence in December 2022 and be completed by December 2024. The three-year budget for this project is \$4,955,500.

**Water Main Replacement in Charlestown – Contract No. 19-308-002:** This project will replace 8,800 feet of 8- and 12-inch water mains on Bunker Hill Street, Chelsea Street, School Street, Vine Street, and Bartlett Street in Charlestown. This contract is being programmed as a response to a request by the Operations Division for Water Relay on Chelsea Street, in conjunction with break history (School Street), and pipe age/risk scoring on 1880's cast iron mains in Bunker Hill and Vine Streets. Construction is projected to commence in April 2023 and completed by November 2025. The three-year budget is \$5,050,000.

**Water Pipe Improvements Citywide – Contract No. 19-308-003:** This project includes replacement and laying of approximately 6,650 linear feet of water mains, rehabilitation of approximately 525 linear feet of water main and multiple point repairs. Construction commenced in October 2022 and is projected to be completed October 2024. The three-year budget is \$2,890,244.

**City Proper Water Pipe Improvements – Contract No. 19-308-004:** This project includes water relay on various streets in Beacon Hill, including Boston Common and Cambridge Street adjoining Massachusetts General Hospital. Water mains in this Contract are old and have a history of breaks and leaks. Construction is projected to commence in April 2024 and completed September 2026. The three-year budget is \$500,000.

**Water Pipe Improvements in East Boston – Contract No. 19-309-002:** This is the third phase in a multi-year plan which includes water main upgrades within the project limits. Construction commenced in September 2019 and is projected to be completed by July 2023. The three-year budget is \$678,488.

**Water Pipe Improvements in Brighton – Contract No. 19-309-004:** This project includes the replacement of water mains that have reached the end of their useful life. Construction is projected to commence in October 2023 and to be completed in May 2025. The total three-year budget is \$1,829,214.

**Water Main Replacement in City Proper – Contract No. 18-308-001:** This project includes the replacement of older cast iron water mains that have reached their useful life in City Proper. Construction commenced in October 2021 and is projected to be completed by December 2022. The total three-year budget for this project is \$325,822.

**Water Main Replacement in Fenway – Contract No. 18-309-001:** This project includes the replacement and rehabilitation of water mains in the Fenway area. Construction is projected to commence May 2023 and completed by November 2025. The total three-year budget for this project is \$3,955,715.

**Water Main Replacement in Roslindale, Hyde Park and Mattapan – Contract No. 18-309-003:** This project includes replacement of water mains in Roslindale, Hyde Park & Mattapan. Construction is projected to commence in March 2023 and completed by November 2024. The total three-year budget for this project is \$2,000,000.

**Water Main Replacement in Dorchester, Hyde Park, South Boston & West Roxbury – Contract No. 17-309-001:** This project includes the replacement of water mains associated with sewerage works. Construction is projected to commence in April 2023 and is expected to be completed by June 2023. The total three-year budget for this project is \$406,536.

**Water Main Replacement Associated with Sewer Separation in Upper Roxbury Phase III – Contract No. 17-309-011:** Phase 3 in this project includes the replacement of older cast iron water mains that have reached their useful life in Upper Roxbury. Construction commenced in July 2022 and is expected to be completed by March 2024. The total three-year budget for this project is \$854,774.

**Water Main Replacement in City Proper – Contract No. 17-308-007:** This project includes the replacement of older cast iron water mains that have reached their useful life in City proper. Construction commenced in April 2021 and is projected to be completed by December 2022. The total three-year budget for this project is \$155,250.

## PROJECT CASH FLOW

Table 13 on page 42 presents cash flow expenditures for Water Replacement Projects for the period from 2023-2025. The total expenditures for the three-year period are \$60.8 million, of which \$18.9 million is allocated in 2023.



Table 13 - Water Replacement

Capital Improvement Program 2023 - 2025 Water Pipe Replacement																							
Description	Contract	Acct	Fund	Org	Prog	Class	Proj	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2023	2024	2025	Total 2023 - 2025
New Projects																							
Water Main Replacement in City Proper	23-308-003					LWSAP																500,000	500,000
Water Main Replacement South End Ph IV	23-308-002					LWSAP																500,000	500,000
Water Main Replacement in Lower Roxbury	23-308-001					LWSAP																500,000	500,000
Ongoing Projects																							
South Boston Separation Contract 3	22-309-012	721100	200	000000	10100	SRF	3311200306	-	-	-	-	-	-	-	-	-	-	-	-	-	-	500,000	500,000
South Boston Separation Contract 3	22-309-012	721100	200	000000	10100	RATE	3311200306	-	-	-	-	-	-	-	-	-	-	-	-	-	-	500,000	500,000
Water Main Replacement in Upper Roxbury	22-309-003	721100	200	000000	10100	RATE	3311220307	-	-	-	-	-	-	-	-	-	-	-	-	-	-	447,410	447,410
Water Main Replacement Citywide	22-309-002	721100	200	000000	10100	RATE	3311220306	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Main Replacement in Roslindale & West Roxbury	22-309-001	721100	200	000000	10100	RATE	3311220305	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Excavations for Lead Service ID	22-308-005					SRF		100,000	100,000	100,000	200,000	250,000	250,000	200,000	100,000		80,000		20,000	1,400,000	-		1,400,000
Replacement of Lead Services on Public and Private Property	22-308-004					SRF	3311220308	30,000	30,000	45,000	37,500	37,500	37,500	37,500	37,500	30,000		7,500	330,000	-		330,000	
Replacement of Lead Services on Public and Private Property	22-308-004					MWLLP	3311220309	70,000	70,000	105,000	87,500	87,500	87,500	87,500	87,500	70,000		17,500	770,000	-		770,000	
Water Main Replacement in Georgetowne Neighborhood	22-308-003	721100	200	000000	10100	RATE	3311220304	-	-	-	-	-	150,000	150,000	150,000	150,000	150,000	150,000	1,050,000	500,000	500,000	2,050,000	
Water Main Replacement Citywide	22-308-002	721100	200	000000	10100	RATE	3311220303	-	-	-	-	-	-	-	-	-	-	-	-	-	-	500,000	500,000
South Boston Separation Contract 2	21-309-012	721100	200	000000	10100	SRF	3311190307						75,000	75,000	75,000	75,000	75,000	75,000	525,000	500,000	500,000	1,525,000	
South Boston Separation Contract 2	21-309-012	721100	200	000000	10100	RATE	3311190307						75,000	75,000	75,000	75,000	75,000	75,000	525,000	500,000	500,000	1,525,000	
Water Pipe Replacement ass w/ East Boston Separation PHIV	21-309-002	721100	200	000000	10100	RATE	3311210306													-		1,000,000	1,000,000
Water Pipe Replacement in Readville	21-309-001	721100	200	000000	10100	RATE	3311210305			25,385	25,385	25,385	25,385	25,385	25,385	25,385	25,385			177,695	117,695	117,695	413,085
Water Main Replacement in City Proper	21-308-003	722100	200	000000	10100	CP06A	3311210307						312,500	312,500	312,500	312,500	312,500	312,500	2,187,500	2,000,000	500,000	4,687,500	
Water Main Rehabilitation in Dorchester & South Boston	21-308-001	722100	200	000000	10100	CP06A	3311210201													-	2,221,585	2,221,585	4,443,170
South Boston Separation Contract 1	20-309-012	721100	200	000000	10100	LWSAP	3311190306					60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	420,000		420,000	
South Boston Separation Contract 1	20-309-012	721100	200	000000	10100	RATE	3311190306					60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	420,000		420,000	
Water Main Replacement Citywide based of CMOM Findings	20-309-006					CP06A														-	151,250	151,250	
Water Main Replacement in Charlestown	20-309-002					RATE								135,000	230,000	180,000	75,000	150,000		770,000	1,364,959		2,134,959
Water Main Replacement in City Proper & Mission Hill	20-308-005	721100	200	000000	10100	RATE	3311200305						150,000	150,000	150,000	150,000	150,000	150,000	150,000	1,050,000			1,050,000
Water Main Replacement in Charlestown & Back Bay	20-308-004	721100	200	000000	10100	RATE	3311200304						125,000	125,000	125,000	125,000	125,000	125,000	125,000	875,000	500,000		1,375,000
Water Main Replacement on Shawmut Ave, South End	20-308-002	721100	200	000000	10100	LWSAP	3311200302														-	1,839,000	3,678,000
Water Main Replacement on Harrison Ave, South End	20-308-001	721100	200	000000	10100	LWSAP	3311200301						125,000	125,000	125,000	125,000	125,000	125,000	875,000	2,175,750	2,000,000		5,050,750
Water Pipe Improvements in Brighton	19-309-004	721100	200	000000	10100	RATE	3311190310						152,434	152,434	152,434	152,435	152,435	152,435	1,067,042	762,172			1,829,214
Water Pipe Improvements in East Boston	19-309-002	722100	200	000000	10100	CP06A	3311190305						180,226	180,226	180,225				137,811	678,488		678,488	
City Proper Water Pipe Improvements	19-308-004	721100	200	000000	10100	LWSAP	3311190304													-		500,000	500,000
Water Pipe Improvements Citywide	19-308-003	721100	200	000000	10100	RATE	3311190303						150,000	150,000	150,000	150,000	150,000	150,000	150,000	1,050,000	1,840,244		2,890,244
Water Pipe Improvements in Charlestown	19-308-002	722100	200	000000	10100	CP06A	3311190302						150,000	150,000	150,000	150,000	150,000	150,000	150,000	1,050,000	2,000,000	2,000,000	5,050,000
South End Water Pipe Improvements Phase I	19-308-001	721100	200	000000	10100	LWSAP	3311190301						250,000	250,000	250,000	250,000	250,000	250,000	250,000	1,750,000	3,205,500		4,955,500
Water Main Replacement in Hyde Park, Mattapan & Roslindale	18-309-003	722100	200	000000	10100	CP06A	3311180305													-	1,000,000	1,000,000	2,000,000
Water Main Replacement in Fenway	18-309-001	721100	200	000000	10100	RATE	3311180304						167,143	167,143	167,143	167,143	167,143			835,715	1,560,000	1,560,000	3,955,715
Water Main Replacement in Dorchester	18-308-003	722100	200	000000	10100	CP06A	3311180303			36,074		9,018								45,092			45,092
Water Main Replacement in Upper Roxbury Phase III	17-309-011	721100	200	000000	10100	RATE	3311170315						6,048	83,002				431,900	520,950	333,824	-		854,774
Water Main Replacement Citywide	17-309-001	722100	200	000000	10100	CP06A	3311170311						147,194	147,194				89,719		22,429	406,536		406,536
Water Main Replacement in City Proper	17-308-007	722100	200	000000	10100	CP06A	3311170316									31,050				155,250	-		155,250
Totals								\$200,000	\$236,074	\$250,000	\$350,385	\$409,403	\$2,860,130	\$2,897,884	\$2,662,687	\$2,338,513	\$2,272,182	\$2,554,646	\$1,902,364	\$18,934,268	\$22,571,979	\$19,336,940	\$60,843,187
Bonds								70,000	106,074	105,000	87,500	96,518	570,968	782,922	647,725	400,000	314,719	869,711	189,929	4,241,066	4,850,033	3,151,250	12,242,349
Rate								30,000	30,000	45,000	62,885	62,885	939,228	815,028	815,028	838,578	777,528	585,000	592,500	5,593,660	11,619,530	11,185,690	28,398,880
Grants								-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LWSAP								-	-	-	-	-	712,434	712,434	712,434	712,435	712,435	712,435	4,987,042	3,602,416	3,500,000	12,089,458	
II								-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRF								100,000	100,000	100,000	200,000	250,000	637,500	587,500	487,500	387,500	467,500	387,500	407,500	4,112,500	2,500,000	1,500,000	8,112,500
Totals								\$200,000	\$236,074	\$250,000	\$350,385	\$409,403	\$2,860,130	\$2,897,884	\$2,662,687	\$2,338,513	\$2,272,182	\$2,554,646	\$1,902,364	\$18,934,268	\$22,571,979	\$19,336,940	\$60,843,187

# WATER DISTRIBUTION SYSTEM SPECIAL PROJECTS

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## DESCRIPTION AND JUSTIFICATION

Special Projects includes funding for a variety of system planning and other studies, professional services associated with the rehabilitation and operation of the water system, and for the engineering design and construction of the installation or replacement of water mains associated with bridge improvement projects undertaken by other agencies. Also included are the associated design and engineering services required for the implementation of capital projects and the permanent paving fees for ongoing and future capital improvements.

Overall, the objectives of the Water Distribution System Special Projects are to extend the useful life of water mains, reduce long-term maintenance and repair costs, reduce the occurrence of main breaks and the resulting impacts, conserve drinking water and coordinate improvements with other agencies to minimize disruptions.

## NEW PROJECTS

**Roadway Restoration of BWSC Excavations – Contract No. 23-309-007:** This contract includes restoration of roadways associated with Boston Water and Sewer Commission excavations. The total three-year budget is \$2,500,000.

**Water System Model Update and Asset Evaluation – Contract No. 21-206-004:** This contract includes design services to update water distribution model and perform asset management. This project commenced September 2022 and will end in December 2025. The total three-year budget is \$450,000.

## ONGOING PROJECTS

**Water Main Flushing Program – Contract No. 19-203-001:** This project involves the maintenance of a water main flushing program for the Commission's water distribution system by a qualified engineering firm. Since 1997, the Commission has maintained a system-wide water main flushing program to ensure water quality throughout its entire water distribution system. The flushing program was initiated as part of the Commission's Biofilm Corrective Action Plan developed in response to a 1996 violation of the Total Coliform Rule, a national primary drinking water regulation. Since implementation of the water main flushing program, the Commission has had no Coliform bacteria violations.

The Commission's unidirectional water main flushing program is designed to flush all pitometer sections individually and includes water main pipes less than 16-inches in diameter. Unidirectional water main flushing is achieved by

closing valves to isolate water mains from the actual pipe being flushed. After isolating the desired pipe and creating one intake main, hydrant(s) are flowed downstream from a dead-end valve. Water main flushing is intended to bring stronger chlorine residuals into areas where it is low and scour pipe walls of biofilm and tuberculation. Annually, the Commission flushes approximately 200 miles of water main with the intended goal of flushing 800 miles of water main over a four-year cycle. The flushing program is conducted during the construction season (March-November) in the late evening/early morning hours to minimize disturbance to customers.

The Commission has engaged the services of a professional engineering consulting firm (Weston & Sampson) to implement and maintain the system-wide water main flushing program. Weston & Sampson has reviewed the Commission's current water main flushing program and made recommendations for improvements including updating the flushing database utilizing the Commission's recently restructured water distribution system model; developing methodologies to achieve greater flushing velocities for low flow areas; and evaluating the overall program effectiveness by way of a water quality sampling program. The Commission will be required to re-bid a new water main flushing services contract for 2026 and beyond. This project will commence in April 2023 with services continuing to December 2025. The total three-year budget for this project is \$825,000.

**Traffic Management Services – Contract No. 22-206-006:** In support of the capital plan, on occasion it is necessary to develop traffic management plans for construction phasing of water, sewer, and drain replacement projects. This project allows the Commission to utilize transportation engineers to develop these plans in accordance with BTM regulations. If the construction will occur on state agency roadways, the traffic plans can be produced to meet state agency requirements. Work commenced in September 2022 and is projected to be completed September 2025. The three-year budget is \$200,006.

**Water Main Valve Replacement – Contract No. 20-308-006:** This project consists of the replacement of water main valves in critical condition citywide. These improvements are based on the findings of the Special Structures group, which identified faulty valves when surveyed and exercised. Work is projected to commence in December 2022 and will be completed in July 2023. The total three-year budget is \$2,000,000.

**Hydrant Replacement:** Replacement of defective and inoperative hydrants is essential to maintain public safety and reduce unaccounted-for-water resulting from hydrant leaks. Older fire hydrants, many of which are impossible to repair due to unavailability of replacement parts, must be replaced to ensure Public Safety. Standardization of hydrants also reduces the number and styles of hydrant repair parts needed to be stored in inventory. Large quantity purchases significantly reduce unit costs and assure cost over a three-year period. Construction is projected to commence in January 2022 with a completion date of December 2023. New Hydrants will be installed through the Annual Area Emergency Contracts, Construction Projects and by Operations personnel. Custodian-equipped hydrants discourage illegally opened hydrants and reduce unaccounted-for-water loss by preventing water theft. The total three-year budget for this project is \$850,000.

**City of Boston-Permit Fees:** The Boston Water & Sewer Commission is required by the City of Boston's regulations to obtain street opening permits for any construction activity that will require the removal of existing street and/or sidewalk material in the public way. This project involves obtaining street opening permits from the City of Boston for excavation activities performed by the Commission's crews and contractors in the public way. The City of Boston



Public Works Department issues the street opening permits for which the Commission reimburses the City. This project is renewed annually. The total three-year budget is \$7,500,000.

**Paving and Restoration:** The Boston Water and Sewer Commission is responsible for the permanent restoration of streets and sidewalks excavated during construction activities. On an annual basis, the Commission publicly advertises and awards contracts to private contractors for permanent restoration work. In addition, the Commission is required to reimburse City of Boston contractors for the repairs and/or replacement of the Commission's castings through the permanent restoration of the streets under the City contracts. The three-year budget totals \$9,500,000.

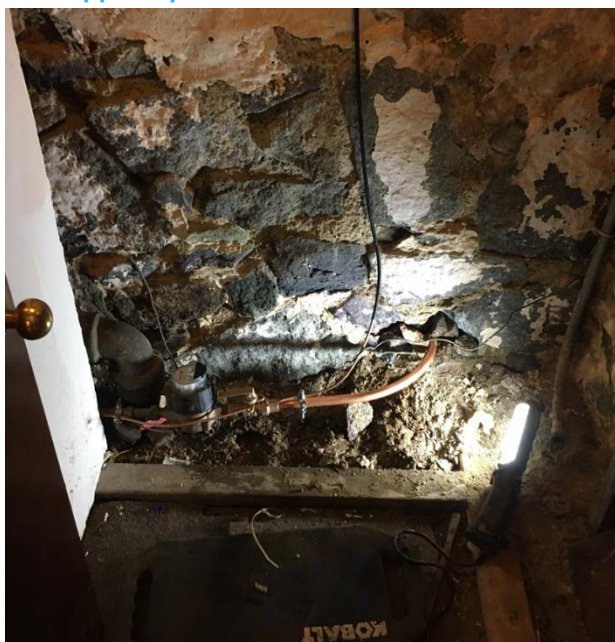
Streets	2023	2024	2025	2023-2025 Total
Permits	2,500,000	2,500,000	2,500,000	7,500,000
Paving	3,500,000	3,000,000	3,000,000	9,500,000
<b>Total</b>	<b>6,000,000</b>	<b>5,500,000</b>	<b>5,500,000</b>	<b>17,000,000</b>

## PROJECT CASH FLOW

Table 14 on page 46 illustrates the cash flow information for the Water Special Program for 2023-2025. Three-year expenditure for this program total \$23.8 million, of which \$11.3 million is allocated in 2023.

### *Work Associated with MWRA Lead Service Identification & Replacement Program MWLLP*

*Copper Pipe Connected Water Meter*



*Lead Pulled from Street*





Table 14 - Water Special

Capital Improvement Program 2023 - 2025 Water Special																															
Description								Contract	Acct	Fund	Org	Prog	Class	Proj	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2022	2024	2025	Total 2023 - 2025	
New Projects																															
Roadway Restoration of BWSC Excavations								23-309-007					CP06A		120,000	10,000	10,000		295,000	295,000	295,000	295,000	295,000	295,000	295,000	295,000	295,000	2,500,000			2,500,000
Water System Model Update and Asset Eval								21-206-004					CP06A				15,000	15,000		15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	150,000	150,000	150,000	450,000
Ongoing Projects																															
Hydrant Replacement								N/A	722100	200	0000000	10400	CP06A	2114991018									350,000					350,000		500,000	850,000
Operations Permits								N/A	722100	200	0000000	10400	CP06A	3314919998	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	2,500,000	2,500,000	2,500,000	7,500,000
Operations Permits								N/A	721100	200	0000000	10400	RATE	3314919998															-		-
Paving								N/A	722100	200	0000000	10400	CP06A	3314919999		200,000	200,000	300,000	300,000	400,000	400,000	400,000	400,000	400,000	300,000	300,000	300,000	3,500,000	3,000,000	3,000,000	9,500,000
Traffic Management Services								22-206-006					CP06A	3314130301	5,556	5,556	5,556	5,556	5,556	5,556	5,556	5,556	5,556	5,556	5,556	5,556	5,556	66,672	66,667	66,667	200,006
Water Main Flushing Program								22-203-001	721100	200	0000000	10400	RATE	3314110302	15,000				35,000	35,000	30,000	30,000	30,000	30,000	35,000	35,000	275,000	275,000	275,000	825,000	
Water Main Valve Replacement								20-308-006	721100	200	0000000	10400	RATE	3314200201	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000					2,000,000	-	-	2,000,000
Totals															\$590,556	\$665,556	\$680,556	\$770,556	\$1,100,556	\$1,200,556	\$1,195,556	\$1,545,556	\$945,556	\$845,556	\$850,556	\$950,556	\$11,341,672	\$5,991,667	\$6,491,667	\$23,825,006	
Bonds															375,556	465,556	480,556	570,556	865,556	965,556	965,556	1,315,556	715,556	615,556	615,556	615,556	8,566,672	3,216,667	3,716,667	15,500,006	
Rate															215,000	200,000	200,000	200,000	235,000	235,000	230,000	230,000	230,000	230,000	235,000	335,000	2,775,000	2,775,000	2,775,000	8,325,000	
LWSAP															-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
III															-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
SRF															-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Totals															\$590,556	\$665,556	\$680,556	\$770,556	\$1,100,556	\$1,200,556	\$1,195,556	\$1,545,556	\$945,556	\$845,556	\$850,556	\$950,556	\$11,341,672	\$5,991,667	\$6,491,667	\$23,825,006	

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# THE SEWER SYSTEM

The Commission owns and operates a system for the collection and transport of wastewater in the City of Boston.

The original backbone of the sewer system was the Boston Main Drainage System (“BMDS”). The BMDS was constructed from 1877 to 1884 under the direction of a special committee established by the City of Boston for that specific purpose. The original system consisted of five combined interceptors, the Calf Pasture pumping station and the Dorchester Bay Tunnel. Neither the pumping station, nor the tunnel is in use today. The BMDS interceptors were initially designed to carry a peak dry weather sanitary flow together with an allowance for stormwater.

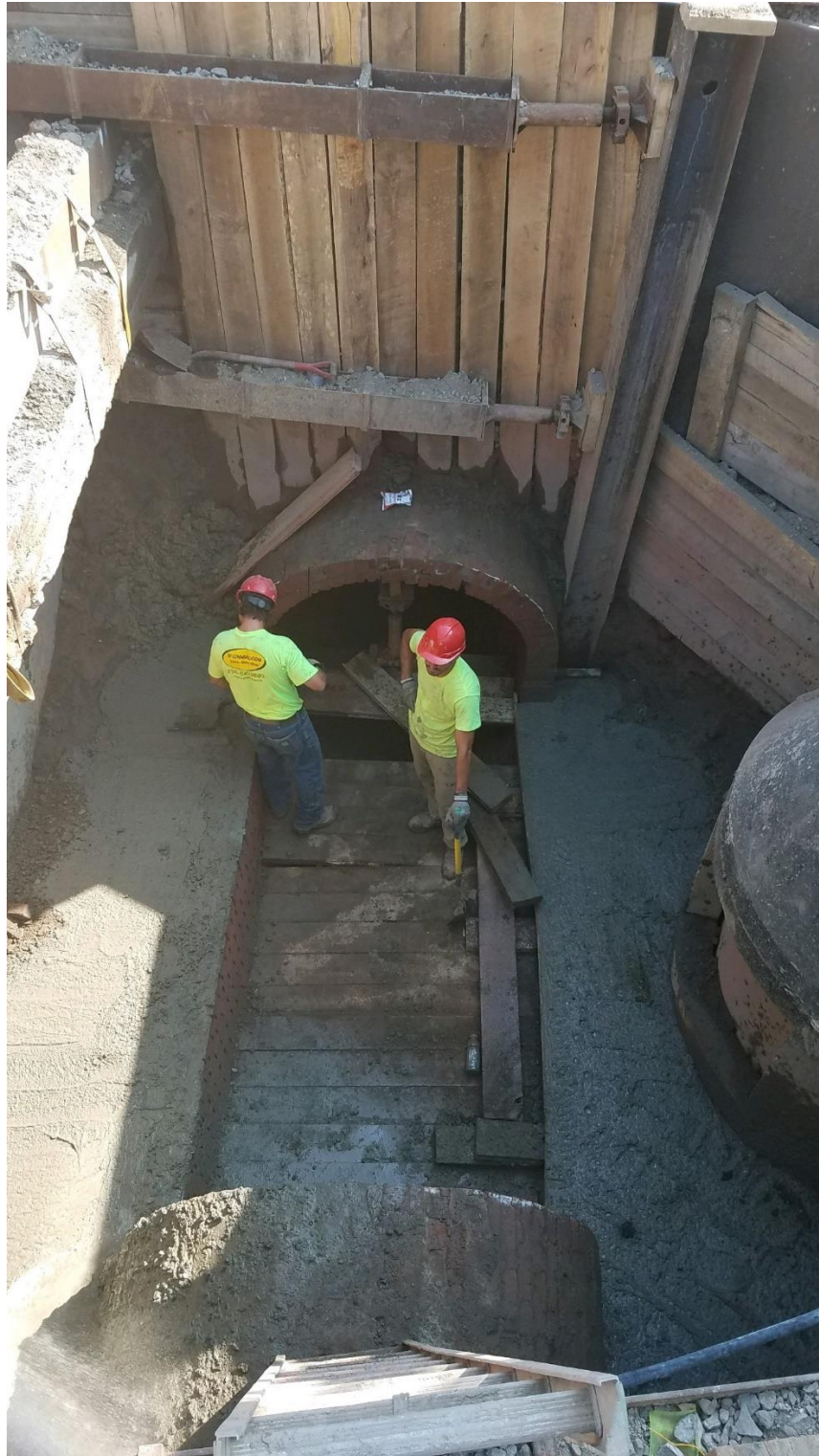
In 1988, construction of the New Boston Main Interceptor and the New East Side Interceptor were completed, replacing portions of the original system. The interceptors serve the sewer needs of downtown Boston, the South End, Roxbury, Dorchester, and South Boston. These improvements have increased capacity, eliminated dry weather overflows, and decreased the occurrences and volume of wet weather overflows.

Other collection facilities provide sewer services to different parts of the City. Charlestown is served by a separated system, except for one small area. East Boston, City Proper, South Boston and Roxbury are served by combined systems; however, major portions of each area have been or are in the process of being separated. The South End has been separated under a program initiated by the City’s urban renewal program and continued by the Commission where feasible and cost effective. Allston/Brighton, Roslindale, West Roxbury, Hyde Park, Mattapan and portions of Dorchester and Jamaica Plain, all of which are in the southern part of the City, are served by separate systems.

Contract 20-309-012 SOUTH BOSTON SEPARATION: B ST

Special Manhole B

The manhole is a temporary structure that allows relief to the sewer until the entire separation project is completed. The old brick combined sewer was converted to a storm drain.



The backbone of the Commission's sewer is several major interceptors, which convey flows from the Commission's system to the MWRA's interceptors. The New East Side Interceptor, the Boston Main Interceptor completed in 1988 and the New Albany St. Interceptor completed in 1990, serve Downtown, South Boston, the South End and Dorchester. The other interceptors and the neighborhoods they serve are:

**Interceptor**

**Neighborhood Served**

Boston Main Interceptor	South End, Roxbury and North Dorchester
Dorchester Interceptor	Dorchester and Neponset
East Side Interceptor	Downtown and North End
Faneuil Street Trunk Sewer	Allston/Brighton
Roslindale Interceptor	Roslindale and West Roxbury
South Boston Interceptors	South Boston
Southwest Corridor Interceptor	Roxbury and Jamaica Plain
Stony Brook Interceptor	Roxbury
Stony Brook Valley Sewer	Roxbury and Jamaica Plain
West Side Interceptor	Back Bay, Beacon Hill and West End
Talbot Avenue High Level Sewer	Dorchester, Mattapan and Roslindale
Hyde Park Trunk Sewer	Hyde Park
East Boston Low Level Sewer	East Boston
Dorchester High Level Sewer	Mattapan and Hyde Park

The sewer system is comprised of the following:

APPURTENANCES		SEWER PIPES CITY WIDE		TYPE OR DESIGNATION	
Catch Basins	30,327	Total Linear Feet	8,095,343	Combined Sewer	143 Miles
Manholes	49,884	Total Linear Miles	1,533	Combined Sewer Overflow	12 Miles
Outfalls	267	Pumping Stations	18	Sanitary Sewer	710 Miles
Regulators	149			Storm Drain	667 Miles
Tide gates	201				

## OBJECTIVES

# Primary Objectives of the 2023-2025 Sewer Collection System are:

- Implement and manage contracts affiliated with the Consent Decree
- Implement Green Infrastructure Projects
- Comply with the requirements of the Commission's National Pollutant Discharge Elimination System ("NPDES") and Municipal permits
- Minimize infiltration and inflow into the sanitary system, which will increase system capacity and decrease treatment costs
- Reduce combined sewer overflows by reducing wet weather discharges and minimizing sea water intrusions
- Provide sufficient hydraulic capacity for current and projected flows
- Protect the structural integrity of the wastewater collection and storm drainage systems
- Coordinate sewer system improvements with the related projects of other public agencies



Contract 20-308-005  
36" RCP replacing a 3'x4' wood stave

## OBJECTIVES

The objectives of the Sewer System Capital Improvement Program for 2023-2025 are to provide uninterrupted wastewater transport and storm drainage services to the residents, businesses, and visitors of Boston and to improve water quality in Boston Harbor and its tributary waters. The 2023-2025 CIP has five major programs for the Sewer System: the sewer renewal and replacement program, the increased capacity program, the sewer separation program, the infiltration/inflow program, and sewer special program.

The Commission's CMOM Program utilizes closed circuit TV camera inspection equipment and software to assess the structural and maintenance condition of pipes and identify areas of excessive infiltration and inflow. The System Condition Risk Enhanced Assessment Model "SCREAM" software system is utilized to prioritize these inspection results for repair and replacement by Commission crews and under its Capital Improvement Program. The CMOM Program includes the cleaning and inspection of approximately 60 miles of sewer pipe in 2023. This along with TV



inspection under other programs will result in the inspection of 76 miles of pipe in 2023 with a goal of completing the entire system over a ten-year period.

Projects included in the Sewer System CIP include repair or replacement of approximately 7 miles of deteriorated or failing sanitary sewers and storm drains each year. Work is included under contracts 22-309-009, 22-309-010, 22-309-004, 21-309-009, 21-309-009, 21-309-010, 21-309-001, 21-309-002, and 20-309-014. Also included in the Sewer System CIP are South Boston Separation contracts, 20-309-012, 21-309-012, 22-309-012 and 23-309-012, the East Boston Separation contracts 19-309-002 and 21-309-002 as well as the Roxbury Sewer Separation Contract III, 17-309-011.

The sewer system objectives will be carried out through the continuation of the following program activities renewal and replacement of sewer pipes, rehabilitation of sewers and drains, separation of combined sewers, improvements that will result in an increase in system capacity, an infiltration/inflow reduction program including the disconnection of downspouts and several special projects necessary to improve the efficiency and effectiveness of the sewer system.

In addition, all sewers and drains on streets where water mains are to be replaced will be inspected prior to replacement. All defective pipes will then be replaced or rehabilitated in the water main replacement contract under the 2023-2025 Sewer System Capital Program.

## WASTEWATER PROJECTS HIGHLIGHTS

- New Boston Main Interceptor
- South Boston Separation Contracts 1 & 2
- Sewer R&R in Upper Roxbury Phase III
- Replacement of Tidegates
- Sewer R&R in Fenway
- Sewer R & R Improvements in Charlestown
- Dorchester Interceptor - Relief Sewer Construction Supervision
- Port Norfolk Pump Station
- Infiltration/Inflow Analysis
- Downspout Disconnection Program

## PROJECT CASH FLOW

Table 15 on page 52 illustrates Sewer Distribution System by Category. Graph 6 on page 54 illustrates the capital expenditures by program of the Total Sewer Program for 2023-2025. Three-year total expenditures are \$79.6 million, of which \$38.5 million is allocated in 2023. Graph 8 on page 56 illustrates Sewer Expenditure by Funding Source for 2023-2025.

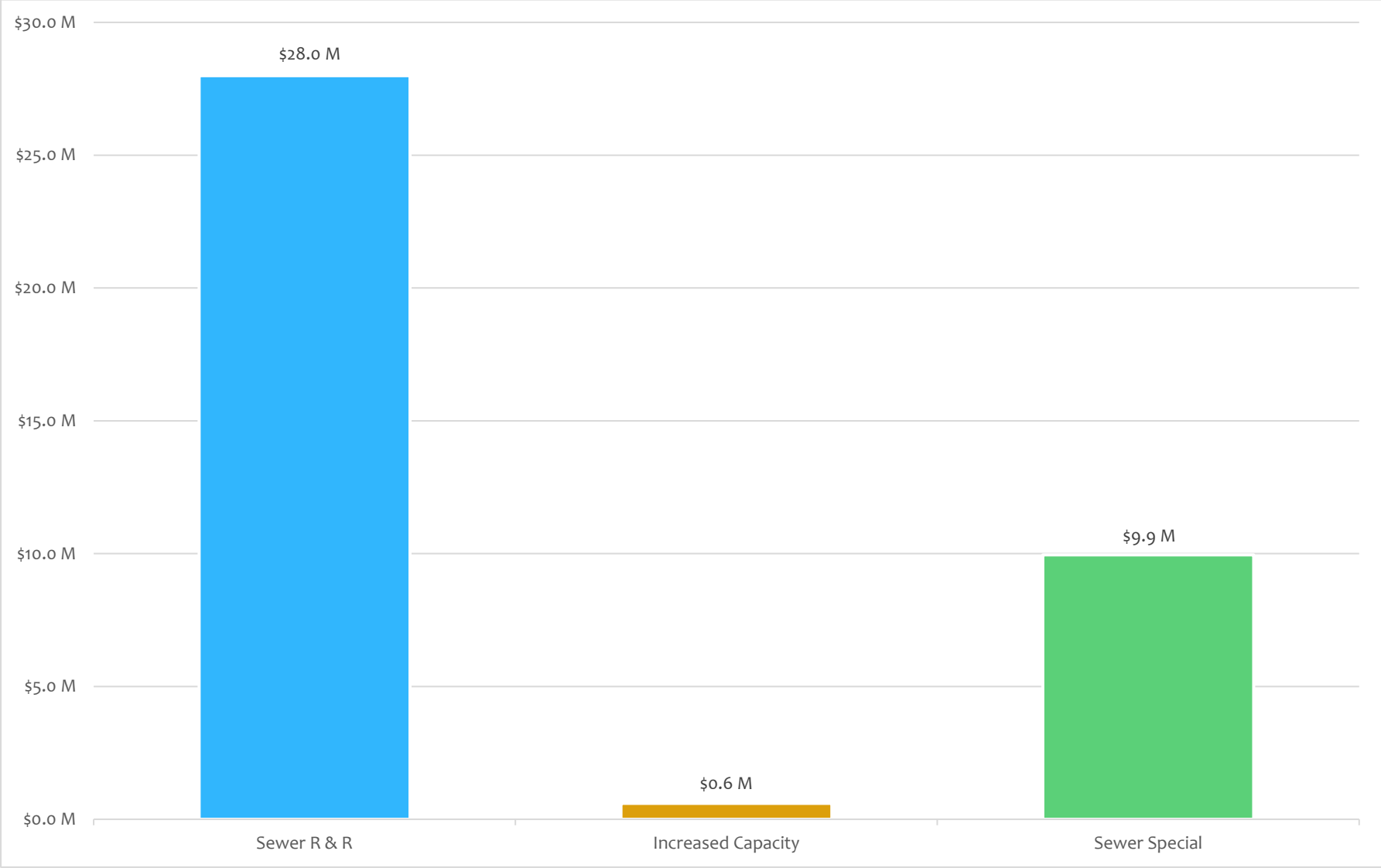
**TABLE 15 - SEWER DISTRIBUTION SYSTEM BY CATEGORY**

Capital Improvement Program  
2023 - 2025  
Sewer Total

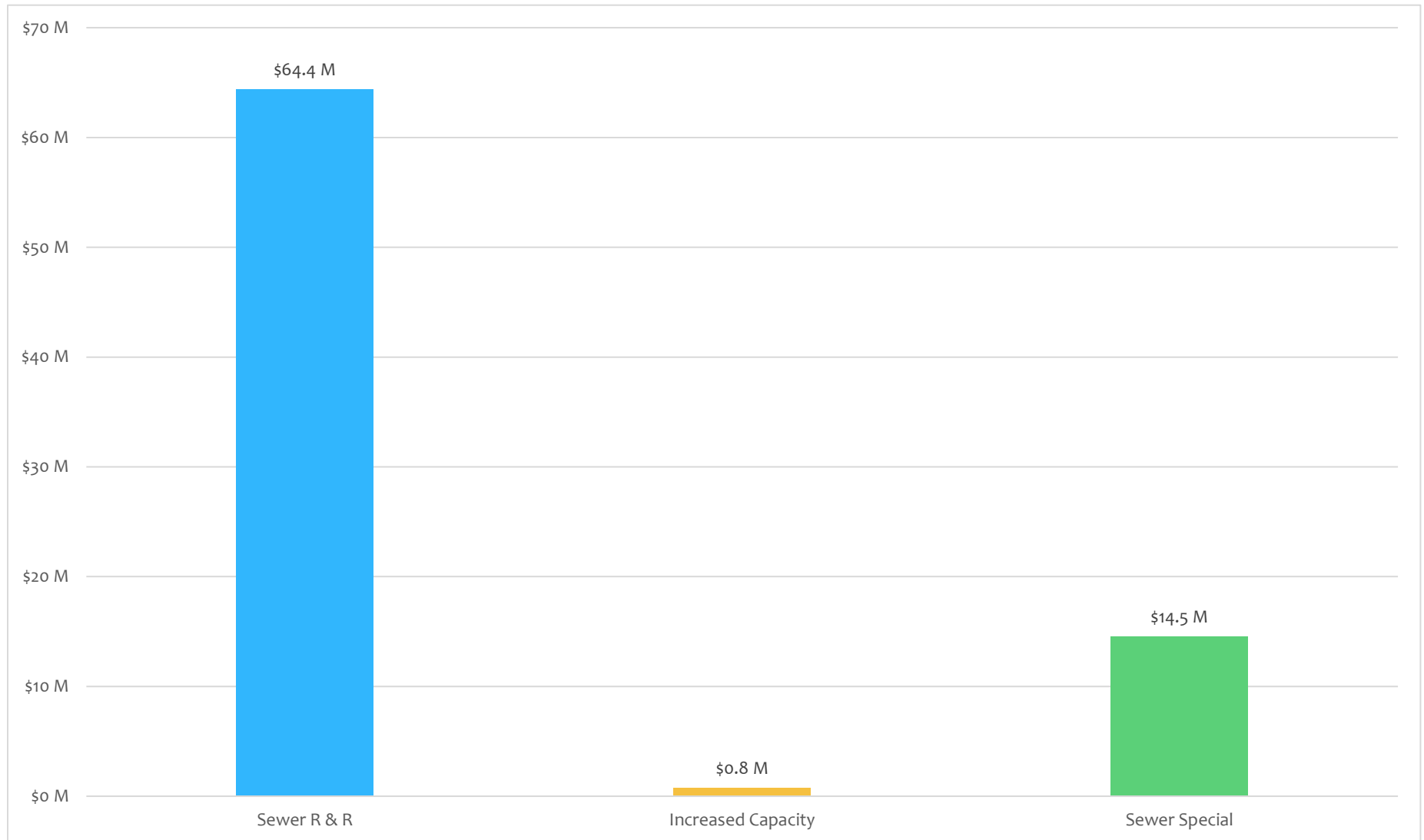
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2023	2024	2025	Total 2023 - 2025
<b>Sewer R&amp;R</b>																
Bonds	539,255	841,291	989,207	808,225	2,500,559	1,411,943	482,830	655,530	876,405	737,115	683,680	695,526	11,221,566	2,413,862	3,320,000	16,955,428
Rate	217,500	264,677	763,842	554,677	834,891	1,197,181	1,186,470	1,184,146	1,088,981	1,353,980	1,011,256	948,890	10,606,491	10,158,301	11,231,149	31,995,941
LWSAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I/I	-	-	225,000	225,000	775,000	775,000	525,000	525,000	525,000	525,000	525,000	525,000	5,150,000	3,000,000	750,095	8,900,095
SRF	-	-	-	-	-	145,000	145,000	145,000	145,000	145,000	145,000	145,000	1,015,000	3,000,000	2,500,000	6,515,000
Totals	756,755	1,105,968	1,978,049	1,587,902	4,110,450	3,529,124	2,339,300	2,509,676	2,635,386	2,761,095	2,364,936	2,314,416	\$ 27,993,057	\$ 18,572,163	\$ 17,801,244	\$ 64,366,464
<b>Increased Capacity</b>																
Bonds	-	-	-	-	-	-	-	-	300,000	-	-	300,000	600,000	150,000	-	750,000
Rate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LWSAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I/I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	300,000	\$ -	\$ -	\$ 300,000	\$ 600,000	\$ 150,000	\$ -	\$ 750,000
<b>Sewer Special</b>																
Bonds	602,779	365,278	398,824	881,324	1,173,824	1,073,824	831,324	1,021,324	723,824	813,824	423,824	338,824	8,648,797	1,530,882	857,941	11,037,620
Rate	80,000	80,000	80,000	80,000	80,000	70,000	80,000	80,000	80,000	80,000	90,000	90,000	970,000	875,500	250,000	2,095,500
LWSAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I/I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRF	-	-	25,000	30,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	335,000	340,000	700,000	1,375,000
Totals	\$ 682,779	\$ 445,278	\$ 503,824	\$ 991,324	\$ 1,288,824	\$ 1,178,824	\$ 946,324	\$ 1,136,324	\$ 838,824	\$ 928,824	\$ 548,824	\$ 463,824	\$ 9,953,797	\$ 2,746,382	\$ 1,807,941	\$ 14,508,120
<b>Sewer Total</b>	<b>\$ 1,439,534</b>	<b>\$ 1,551,246</b>	<b>\$ 2,481,873</b>	<b>\$ 2,579,226</b>	<b>\$ 5,399,274</b>	<b>\$ 4,707,948</b>	<b>\$ 3,285,624</b>	<b>\$ 3,646,000</b>	<b>\$ 3,774,210</b>	<b>\$ 3,689,919</b>	<b>\$ 2,913,760</b>	<b>\$ 3,078,240</b>	<b>\$ 38,546,854</b>	<b>\$ 21,468,545</b>	<b>\$ 19,609,185</b>	<b>\$ 79,624,584</b>
Bonds	1,142,034	1,206,569	1,388,031	1,689,549	3,674,383	2,485,767	1,314,154	1,676,854	1,900,229	1,550,939	1,107,504	1,334,350	20,470,363	4,094,744	4,177,941	28,743,048
Rate	297,500	344,677	843,842	634,677	914,891	1,267,181	1,266,470	1,264,146	1,168,981	1,433,980	1,101,256	1,038,890	11,576,491	11,033,801	11,481,149	34,091,441
LWSAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I/I	-	-	225,000	225,000	775,000	775,000	525,000	525,000	525,000	525,000	525,000	525,000	5,150,000	3,000,000	750,095	8,900,095
SRF	-	-	25,000	30,000	35,000	180,000	180,000	180,000	180,000	180,000	180,000	180,000	1,350,000	3,340,000	3,200,000	7,890,000
Totals	\$ 1,439,534	\$ 1,551,246	\$ 2,481,873	\$ 2,579,226	\$ 5,399,274	\$ 4,707,948	\$ 3,285,624	\$ 3,646,000	\$ 3,774,210	\$ 3,689,919	\$ 2,913,760	\$ 3,078,240	\$ 38,546,854	\$ 21,468,545	\$ 19,609,185	\$ 79,624,584



*Graph 9 – 2023 Total Sewer Expenditures by Program \$38.5 Million*

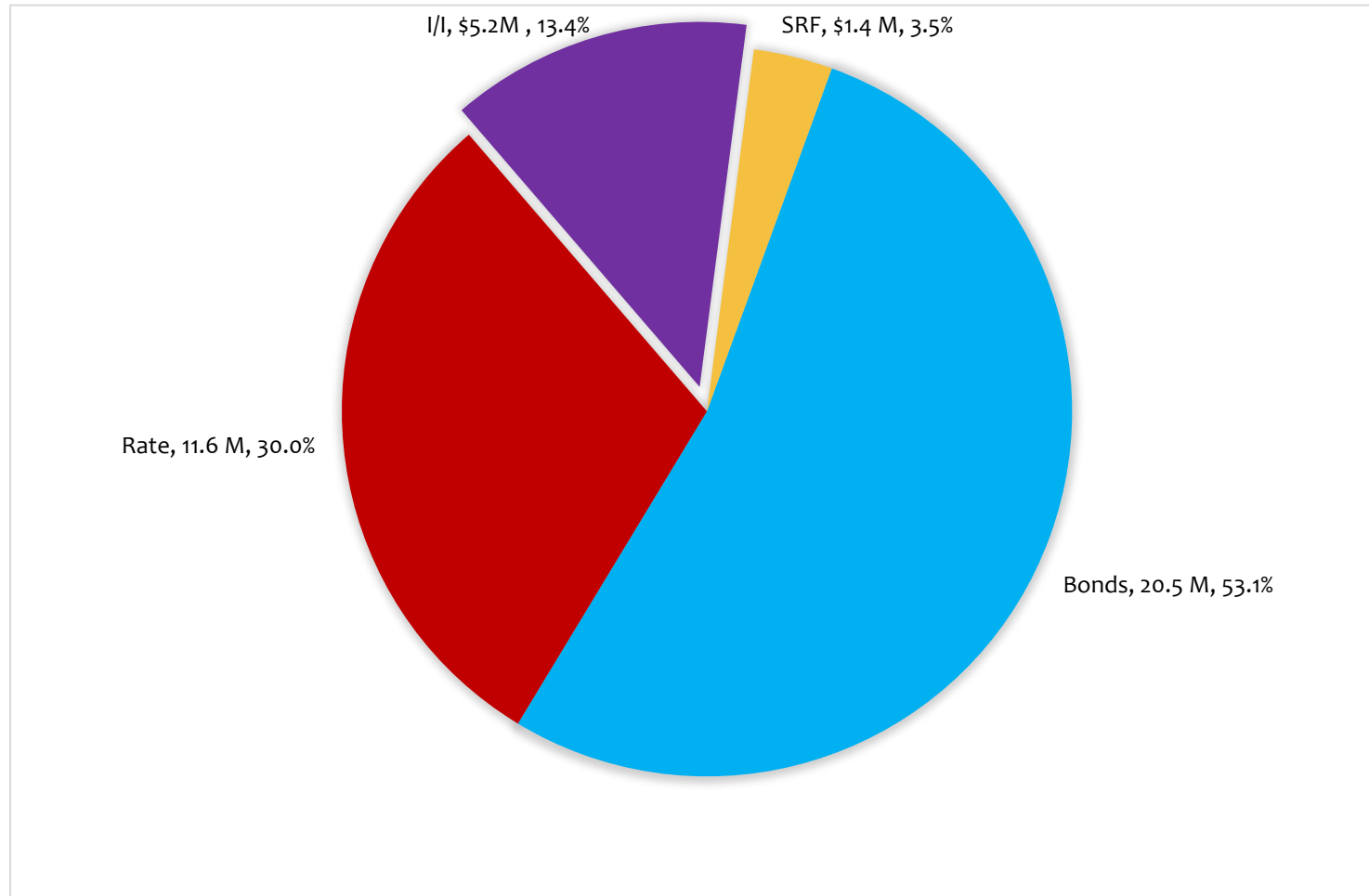


**Graph 10 – 2023 - 2025 Total Sewer Expenditures by Program \$79.6 Million**

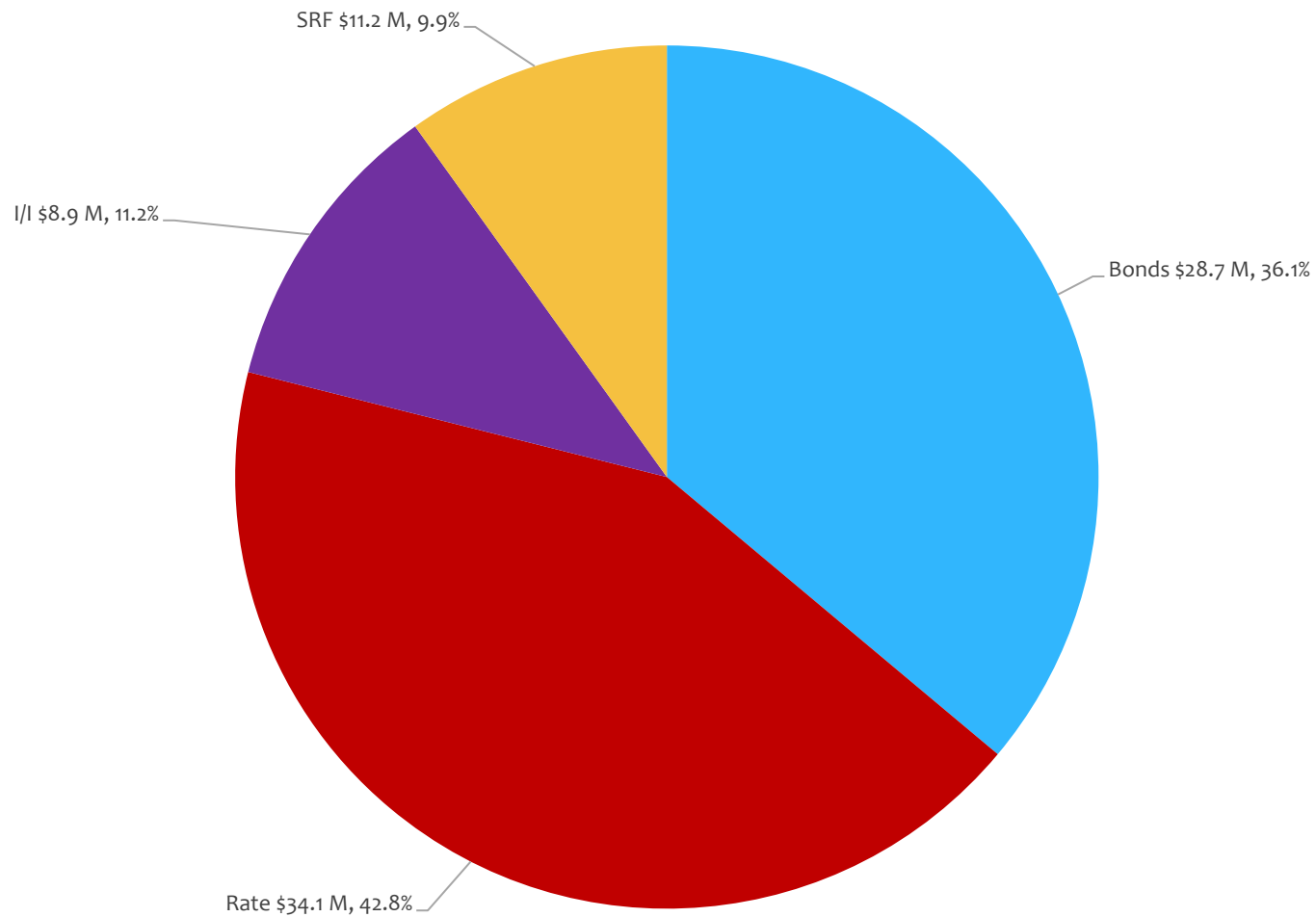


**Graph 11 - 2023 Total Sewer Expenditures by Funding Source \$38.5 Million**

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**Graph 12 - 2023 - 2025 Sewer Expenditures by Funding Source \$79.6 Million**



## SEWER RENEWAL AND REPLACEMENT

### DESCRIPTION AND JUSTIFICATION

Renewal and replacement projects involve the trenchless rehabilitation or replacement of sewers and storm drains in response to persistent malfunction, structural deterioration, excessive emergency repairs and other operation and maintenance problems.

The Commission identifies sewer and drain lines that require renewal or replacement through television inspections, sewer system evaluation surveys and routine maintenance activities. Renewal and replacement projects are coordinated with the Boston DPWD's Roadway Resurfacing and Reconstruction Programs to ensure that the Commission avoids excavating newly resurfaced street, unless under emergency circumstances.

The objectives of the renewal and replacement program are to: ensure the operability of sewers and storm drains, protect the structural integrity of the sewer system, reduce long-term capital and maintenance costs and minimize disruptions of service caused by sewerage back-ups or other related problems.

### New PROJECTS

**Sewer R&R based on Allston/Brighton SSES – Contract No. 23-309-001:** This contract includes rehabilitation recommendations based on Allston/Brighton SSES project which identified sources of I/I. Construction is expected to commence in April 2024 and to be complete by July 2025. The three-year budget for this project is \$500,000.

**Sewer Replacement & Rehabilitation Citywide – Contract No. 23-309-003:** This contract includes sewer and drain replacement and rehabilitation where SSOs and other issues have occurred in order to mitigate future overflows. Construction is expected to commence in July 2024 and to be complete by June 2025. The three-year budget for this project is \$500,000.

**Sewer CCTV in for Future CIP Work – Contract No. 22-309-004:** This contract includes television inspection and cleaning of sewer and drainpipes in the City of Boston for streets where water mains replacement or separation work is planned, and large conduits. Construction is expected to commence in April 2023 and to be complete by December 2023. The three-year budget for this project is \$550,000.

**Sewer Renewal & Replacement Dorchester, Mattapan, and Roxbury – Contract No. 23-309-005:** This contract includes sewer and drain replacement and rehabilitation in Dorchester, Mattapan, and Roxbury. Construction is expected to commence in July 2024 and to be complete by June 2025. The three-year budget for this project is \$500,000.

**CCTV of Sewers and Storm Drains/CMOM – Contract No. 23-309-009:** This project entails the inspection of sewers and drains using closed-circuit TV cameras utilizing the SCREAM coding system to assess the structural condition of the pipes. Approximately 30 miles of various sized pipes will be cleaned and inspected. Construction is expected to commence in March 2023 and is expected to be completed by March 2024. The three-year budget is \$465,000.

**CCTV of Sewers and Storm Drains/CMOM – Contract No. 23-309-010:** This project entails the inspection of sewers and drains using closed-circuit TV cameras utilizing the SCREAM coding system to assess the

structural condition of the pipes. Approximately 30 miles of various sized pipes will be cleaned and inspected. Construction is expected to commence in March 2023 and is expected to be completed by March 2024. The three-year budget is \$465,000.

**Sewer R&R in Lower Roxbury – Contract No. 23-308-001:** This contract includes relay of old water and sewers. Construction is projected to commence in June 2024 and be completed in November 2025. The three-year budget is \$2,000,000.

**Sewer R&R South End Phase IV – Contract No. 23-308-002:** This contract includes relay of old water mains water and sewers. Construction is projected to commence in June 2025 and be completed in November 2026. The three-year budget is \$400,000.

**Sewer R&R in City Proper – Contract No. 23-308-003:** This contract includes relay of old water mains water and sewers. Construction is projected to commence June 2025 and will be completed in November 2026. The total three-year budget is \$900,000.

**Future CCTV of Sewers & Storm Drains/CMOM – Contract No. 24-309-009, 24-309-010, 25-309-009 & 25-309-010:** These projects entail the inspection of sewers and drains through the use of closed-circuit TV cameras utilizing the SCREAM coding system in order to assess the structural condition of the pipes. Approximately ninety (90) miles annually of various sized pipes will be cleaned and inspected with a goal of completing the entire system over a 10-year period. These contracts complete 60 miles annually. Construction is expected to commence in March 2024 and to be complete by March 2025. The three-year budget for this project is \$2,000,000.

**Emergency Sewer & Storm Drain Replacement 2023-2024 – Contract No. 23-309-014 & 24-309-014:** Replacement of sewers and storm drains in critical condition, citywide. These improvements are based on the findings of the CMOM group which identified sewer and drain defects, with associated water relay. Construction is projected to commence in 2024 and is expected to be completed in 2025. The three-year budget is \$4,000,000.

**Sewer R&R in Charlestown – Contract No. 20-309-002:** This contract includes sewer and storm drain improvements in the City Square area of Charlestown. These improvements are based on the findings of the CMOM group which identified sewer and drain defects in this area with associated water relay. Construction is projected to commence in April 2023. The three-year budget is \$1,875,000.

**Sewer Renewal & Rehabilitation City Wide based on findings of CMOM – Contract No. 20-309-004:** This project includes sewer and storm drain improvements City wide. These improvements are based on the findings of the CMOM group which identified sewer and drain defects in this area. Construction is projected to commence in February 2023 and is expected to be completed by November 2023. The three-year budget is \$1,000,000.

**Sewer Renewal & Rehabilitation City Wide based on findings of CMOM – Contract No. 20-309-006:** This project includes sewer replacement/rehabilitation based on findings of the CMOM group, some water main replacement. Construction is expected to commence in February 2024 and be completed in July 2025. The three-year budget is \$1,000,000.

## ONGOING PROJECTS

**Sewer R & R in Upper Roxbury – Contract No. 22-309-003:** This project includes the replacement and rehabilitation of failing 1800s combined sewers where SSOs have occurred to mitigate future overflows. Construction is expected to commence in January 2024 and is expected to be completed by December 2025. The three-year budget is \$750,095.

**CCTV of Sewers and Storm Drains/CMOM – Contract No. 22-309-009:** This project entails the inspection of sewers and drains using closed-circuit TV cameras utilizing the SCREAM coding system to assess the structural condition of the pipes. Approximately 30 miles of various sized pipes will be cleaned and inspected. Construction commenced in March 2022 and is expected to be completed by March 2023. The three-year budget is \$150,000.

**CCTV of Sewers and Storm Drains/CMOM – Contract No. 22-309-010:** This project entails the inspection of sewers and drains using closed-circuit TV cameras utilizing the SCREAM coding system to assess the structural condition of the pipes. Approximately 30 miles of various sized pipes will be cleaned and inspected. Construction commenced in March 2022 and is expected to be completed by March 2023. The three-year budget is \$150,000.

**South Boston Sewer Separation – Contract 3-Contract No. 22-309-012:** This project includes upgrades of the sanitary sewer systems and installation of a separate storm drain system to continue high level service to the community and support future development along Dorchester Avenue. Construction is projected to commence in April 2024 and completed in April 2026. The three-year budget is \$500,000

**Sewer R & R in City Proper – Contract No. 22-308-001:** This project includes the replacement of rehabilitation of sewer mains in Boston Proper. Construction is expected to commence in January 2024 and is expected to be completed by December 2025. The three-year budget is \$300,000.

**Sewer R & R Citywide – Contract No. 22-308-002:** This project includes the replacement of rehabilitation of sewer mains Citywide. Construction is projected to commence in January 2024 and be completed by December 2025. The total three-year budget for this project is \$500,000.

**Sewer R & R in the Georgetowne Neighborhood – Contract No. 22-308-003:** This project includes the replacement of rehabilitation of sewer mains in the Georgetowne Neighborhood of West Roxbury. Construction is expected to commence in May 2023 and is expected to be completed by December 2024. The three-year budget is \$750,000.

**Construction Supervision Services-NBMI Rehabilitation – Contract No. 21-103-001:** This project includes the rehabilitation of the 102" New Boston Main Interceptor (NBMI) between the approximately the crossing at Dorchester Brook Sewer to the Columbus Park Headworks, both siphon chambers at Andrew Square, and other associated manhole/cambers. Initial evaluation of the siphon chambers at Andrew Square identified significant deterioration of both structures. Construction commenced in April 2022 and is expected to be completed in 2024. The three-year budget is \$955,797.

**Sewer Renewal & Rehabilitation in South Boston and Dorchester – Contract No. 21-308-001:** This project includes rehabilitation and replacement of damaged sewers and drainpipes in South Boston and Dorchester. Construction commenced in October 2022 and is expected to be completed by November 2026. The three-year budget is \$1,661,550.

**Sewer Renewal & Rehabilitation in City Proper – Contract No. 21-308-003:** This project includes rehabilitation and replacement of damaged sewers and drainpipes in City Proper. Construction commenced in October 2022 and is expected to be completed by October 2024. The three-year budget is \$917,916

**Sewer Renewal & Rehabilitation in Hyde Park – Contract No. 21-309-001:** This project includes Sewer and Storm Drain Improvements in Hyde Park based on the findings of the CMOM group which identified sewer and drain defects in this area. The contract also includes associated water relay for pipes within project limits that have reached the end of their lifespan. Construction is projected to commence in April 2023 and is expected to be completed by October 2025. The three-year budget is \$604,188.

**South Boston Sewer Separation-NMBI Phase 1 – Contract No. 21-309-005:** This project includes the rehabilitation of the 102" New Boston Main Interceptor (NMBI) between the approximately the crossing at Dorchester Brook Sewer to the Columbus Park Headworks, both siphon chambers at Andrew Square, and other associated manhole/cambers. Initial evaluation of the siphon chambers at Andrew Square identified significant deterioration of both structures. Construction commenced in September 2022 and is expected to be completed in October 2023. The three-year budget is \$9,805,500.

**South Boston Sewer Separation - Contract 2 – Contract No. 21-309-012:** Construction Contract No. 2 is one of five planned contracts. This project includes sewer replacement & rehabilitation and installation of a separate storm drain system along the Dorchester Ave. corridor in South Boston. Construction is projected to commence in April 2023 and completed in April 2025. The three-year budget is \$6,015,000.

**Construction Oversight of South Boston Sewer Separation – Contract No. 20-206-002:** This project includes the construction oversight of the South Boston Separation. This project commenced in September 2020. The three-year budget is \$1,784,244.

**Sewer Renewal & Rehabilitation in South End – Contract No. 20-308-001:** This project includes sewer and storm drain replacement & rehabilitation on Harrison Ave. in the South End. Construction is projected to commence in April 2023 and be completed in June 2024. The three-year budget is \$1,095,000.

**Sewer R & R in South End – Contract No. 20-308-002:** This project includes Water Relay for 6,330 feet of 12- and 16-inch water mains on Shawmut Avenue, Waltham, Hanson and Bond Street in the South End. As part of the design work, associated sewers and drains found in disrepair will be structurally rehabilitated or replaced if found damaged beyond rehabilitation. At this time, the project also includes the lining of 1,600 linear feet of 10" thru 24" sewer pipe and the rehabilitation of 590 linear feet of 15" and 18" drainpipe. Construction is expected to commence in April 2024 and be completed in December 2025. The three-year budget is \$160,493.

**Sewer Renewal & Rehabilitation in Charlestown – Contract No. 20-308-003:** This project includes sewer and storm drain replacement & rehabilitation on Rutherford Ave. in Charlestown. Construction commenced in November 2024 and be completed in May 2027. The three-year budget is \$1,000,000.

**Sewer R & R in City Proper/Charlestown – Contract No. 20-308-004:** This project includes sewer replacement & rehabilitation of pipes that are in disrepair in City Proper and Charlestown. Construction commenced in August 2022 and is projected to be completed in December 2023. The three-year budget is \$251,247.



**Sewer R & R in City Proper/Mission Hill – Contract No. 20-308-005:** This project includes sewer replacement & rehabilitation of pipes that are in disrepair in City Proper and Mission Hill. Construction commenced in April 2022 and expected to be completed in November 2023. The three-year budget is \$40,947.

**South Boston Separation – Contract 1 – Contract No. 20-309-012:** Contract No. 1 is one of five planned contracts which includes upgrades to the water main systems within the project limits. Construction commenced in July 2021 and is projected to be completed by December 2023. The three-year budget is \$2,400,000.

**Emergency Sewer & Storm Drain Replacement 2020 – Contract No. 20-309-014:** This project includes the replacement of sewers and storm drains in critical condition, citywide. These improvements are based on the findings of the CMOM group which identified sewer and drain defects, with associated water relay. Construction commenced in September 2022 and is expected to be completed by December 2023. The three-year budget is \$2,030,000.

**City-Wide Correction of Illicit Sanitary Building Connections – Contract No. 20-309-015:** This contract involves disconnection of sanitary sewer laterals from storm drains and reconnection of laterals to sanitary sewers. Sanitary sewer laterals connected to storm drains allow untreated sewage to discharge to storm drains and from there to rivers, streams, wetlands and Boston Harbor. Sanitary sewer laterals connected to storm drains are prohibited under the Commission's NPDES Stormwater Permit and the Consent Decree. This project commenced in April 2023 and will be completed by October 2023. The three-year budget is \$150,000.

**Sewer & Storm Drain Improvements in East Boston – Contract No. 19-309-002:** This project is the third phase in a multi-year plan to separate East Boston combined sewers to reduce combined sewer overflows and improve water quality in the Boston Harbor. The project also includes upgrades of the sanitary sewer systems to continue a high level of service to the community. Construction commenced in September 2019 and is projected to be completed by July 2023. The three-year budget is \$675,430.

**Storm Drain Improvements in Allston/Brighton – Contract No. 19-309-004:** This project includes sewer and storm drain rehabilitation replacement as well as the replacement of water mains in Allston/Brighton. Construction is projected to commence in October 2023 and be completed by May 2025. The three-year budget is \$677,129.

**South End Sewer R & R Phase I – Contract No. 19-308-001:** This project includes Water Relay for 7,585 feet of 12- and 16-inch water mains on Washington Street, East Berkeley and Mystic Street in the South End. As part of the design work, eroded lining in the concrete pipe was found in the sewers in East Berkeley Street. It was therefore decided to structurally line these large pipes and others to prevent further system degradation. The project also includes the rehabilitation of 2,635 liner feet of 10" thru 12"x18' pipe of which 970 is large diameter trunk sewer. Construction is projected to commence in December 2022 and be completed in December 2024. The three-year budget is \$500,000.

**Sewer R & R in Charlestown – Contract No. 19-308-002:** This project includes sewer replacement & rehabilitation in Charlestown. Construction is projected to commence in April 2023 and be completed in November 2025. The three-year budget is \$2,817,634.

**Sewer R & R Citywide – Contract No. 19-308-003:** This project includes replacement and laying of approximately 6,650 linear feet of water mains, rehabilitation of approximately 525 linear feet of water main, replacement of approximately 2,795 linear feet of sewer and storm drain, rehabilitation of approximately 3,200 linear feet of sewer and storm drains, and multiple point repairs. Construction commenced in September 2022 and be completed in October 2024. The three-year budget is \$2,180,000.

**Sewer R&R in City Proper – Contract No. 19-308-004:** This project includes water relay on various streets in Beacon Hill, including Boston Common and Cambridge Street adjoining Massachusetts General Hospital. Water mains in this contract are old and have a history of breaks and leaks. Construction is projected to commence in April 2024 and completed September 2026. The three-year budget is \$750,000.

**Sewer R & R in Dorchester – Contract No. 18-308-003:** This project includes the replacement & rehabilitation of sanitary sewer and drain pipes in Dorchester. Sewers serving the area were found damaged and undersized. The work in this contract also includes the replacement of 670 feet of 8" clay pipe with new 10" sewer pipe. Construction commenced in August 2021 and will be completed by September 2022. The three-year budget is \$68,082.

**Sewer R & R in Fenway – Contract No. 18-309-001:** This project includes the replacement and rehabilitation of sanitary sewer, storm drain, and combined sewer pipes in the Fenway area. Construction is projected to commence in May 2023 and be completed in November 2025. The three-year budget is \$2,854,502.

**Sewer R & R in Roslindale, Hyde Park & Mattapan – Contract No. 18-309-003:** This project includes replacement of sanitary sewer and drain pipes in Roslindale, Hyde Park & Mattapan. Construction is projected to commence in March 2023 and be completed by November 2024. The three-year budget is \$2,000,000.

**Sewer R & R in Beacon Hill – Contract No. 17-308-006:** This project includes sanitary sewer & drain replacement and rehabilitation in Back Bay/Beacon Hill and City Proper. Construction commenced in September 2019 and will be completed by December 2022. The three-year budget is \$15,255.

**Sewer R & R in Dorchester, Hyde Park, South Boston & West Roxbury – Contract No. 17-309-001:** This project includes the replacement & rehabilitation of sanitary sewer and drain pipes in Dorchester, Hyde Park, South Boston & West Roxbury. Construction will commence in April 2023 and will be completed by June 2023. The three-year budget is \$665,000.

**Sewer R&R in Upper Roxbury – Contract No. 17-309-011:** This project includes the installation of sewers and drains for sewer separation in Upper Roxbury. Construction commenced in July 2022 and is projected to be completed by March 2024. The three-year budget is \$5,250,000.

**Rehabilitation of Large Diameter Sewer Conduits – Contract No. 17-309-015:** This project includes trenchless rehabilitation of large diameter sewer conduits in City Proper / South Boston. Recent CCTV inspection of sewer and drain in these areas have shown signs of hydrogen sulfide chemical attack to the existing pipe walls. Pipes in this contract have been found defective and in need of repair as determined by CCTV inspection under contract 17-309-006. Construction commenced in April 2022 and is expected to be completed by November 2022. The three-year budget is \$286,455.

## PROJECT CASH FLOW

Table 16 on the page 64 presents the cash flow expenditures for the Sewer Renewal and Replacement Program. Total 2023-2025 expenditures are \$64.4 million, of which \$28.0 million is allocated in 2023.



# Table 16 - Sewer Renewal & Replacement

Capital Improvement Program  
2023 - 2025  
Sewer Renewal and Replacement

Description	Contract	Acct	Fund	Org	Prog	Class	Proj	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2023	2024	2025	Total 2023 - 2025
New Projects																							
Future CCTV of Sewers & Storm Drains/CMOM	N/A	721200	200	000000	20100	RATE	3321220301	-	-	-	-	-	-	-	-	-	-	-	-	-	1,000,000	1,000,000	2,000,000
CCTV of Sewers & Storm Drains - CMOM	23-309-010	721200	200	000000	20100	RATE	3321230202	-	-	-	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	315,000	150,000	-	465,000
CCTV of Sewers & Storm Drains - CMOM	23-309-009	721200	200	000000	20100	RATE	3321230201	-	-	-	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	315,000	150,000	-	465,000
Sewer R&R in Dorchester, Mattapan & Roxbury	23-309-005					RATE																500,000	500,000
Sewer CCTV in for Future CIP Work	23-309-004					RATE								68,750	68,750	68,750	68,750	68,750	68,750	412,500	137,500	-	550,000
Sewer R&R Citywide	23-309-003					RATE																500,000	500,000
Sewer R&R based of Allston/Brighton SSES	23-309-001					RATE																500,000	500,000
Sewer R&R in City Proper	23-308-003					RATE																900,000	900,000
Sewer R&R South End Phase IV	23-308-002					RATE																400,000	400,000
Sewer R&R in Lower Roxbury	23-308-001					RATE																500,000	500,000
Sewer CCTV in for Future CIP Work	22-309-004	722200	200	000000	20100	CP06A	3321220203	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sewer R&R Citywide based of findings of CMOM	20-309-006					CP06A														-		1,000,000	1,000,000
Sewer R&R Citywide based of findings of CMOM	20-309-004					CP06A														-		1,000,000	1,000,000
Sewer R&R in Charlestown	20-309-002					RATE							125,000	125,000	125,000	125,000	125,000	125,000	125,000	875,000	1,000,000	-	1,875,000
Future Emergency Sewer Repair Contracts		721200	200	000000	20100	RATE														-	2,000,000	2,000,000	4,000,000
Ongoing Projects																							
South Boston Separation Contract 3	22-309-012	722200	200	000000	20100	SRF	3321200309															500,000	500,000
CCTV of Sewers & Storm Drains - CMOM	22-309-010	721200	200	000000	20100	RATE	3321220202	50,000	50,000	50,000										150,000	-	-	150,000
CCTV of Sewers & Storm Drains - CMOM	22-309-009	721200	200	000000	20100	RATE	3321220201	50,000	50,000	50,000										150,000	-	-	150,000
Sewer R & R in Upper Roxbury	22-309-003	721200	200	000000	20100	RATE	3321220305	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sewer R & R in Upper Roxbury	22-309-003	722200	200	000000	20100	MW/IB	3321220305	-	-	-	-	-	-	-	-	-	-	-	-	-	-	750,095	750,095
Sewer Renewal & Replacement in Georgetowne Neighb	22-308-003	721200	200	000000	20100	RATE	3321220308	-	-	-	-	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	280,000	470,000	-	750,000
Sewer Renewal & Replacement Citywide	22-308-002	721200	200	000000	20100	RATE	3321220307	-	-	-	-	-	-	-	-	-	-	-	-	-	239,130	260,870	500,000
Sewer Renewal & Replacement in City Proper	22-308-001	721200	200	000000	20100	RATE	3321220306	-	-	-	-	-	-	-	-	-	-	-	-	-	143,478	156,522	300,000
South Boston Separation Contract 2	21-309-012	722200	200	000000	20100	SRF	3321190313						145,000	145,000	145,000	145,000	145,000	145,000	145,000	1,015,000	3,000,000	2,000,000	6,015,000
New Boston Main Interceptor	21-309-005	722200	200	000000	20100	CP06A	3321210304	411,776	656,676	865,401	675,923	2,200,341	1,126,413	197,076	544,776	765,651	373,776	563,776	438,092	8,819,877	985,623	-	9,805,500
Construction Services Contract 21-103-001	21-309-005	722200	200	000000	20100	CP06A	3321210304	78,792	81,262	62,915	83,615	62,915	58,792	62,067	62,067	62,067	93,102	71,217	68,747	847,558	108,239	-	955,797
Sewer R & R in Roadville	21-309-001	721200	200	000000	20100	RATE	3321210302	-	-	-	-	-	-	-	-	-	-	-	-	-	-	604,188	604,188
Sewer R & R in City Proper	21-308-003	721200	200	000000	20100	RATE	3321210307	-	-	-	-	-	-	-	-	-	-	-	-	700,000	217,916	-	917,916
Sewer R & R in South Boston	21-308-001	722200	200	000000	20100	CP06A	3321210303	-	-	-	175,000	175,000	175,000	175,000						221,550	720,000	720,000	1,661,550
Correction of Illicit Sanitary Building Connections	20-309-015					RATE		12,500	12,500	12,500	12,500	12,500	12,500	12,500	12,500	12,500	12,500	12,500	12,500	150,000	-	-	150,000
Emergency Sewer Replacement 2020	20-309-014	721200	200	000000	20100	RATE	3321200302	105,000	105,000	105,000	105,000	105,000	105,000	300,000	300,000	300,000	300,000	300,000	100,000	100,000	2,030,000	-	2,030,000
South Boston Separation Contract 1	20-309-012	722200	200	000000	20100	MW/IB	3321190312						300,000	300,000	300,000	300,000	300,000	300,000	300,000	2,400,000	2,400,000	-	2,400,000
Sewer R & R in City Proper & Mission Hill	20-308-005	721200	200	000000	20100	RATE	3321200315	-	-	-	2,489	2,489	2,489	7,495	5,171	5,006	5,005	5,006	5,006	37,667	3,280	-	40,947
Sewer R & R in Charlestown & Back Bay	20-308-004	721200	200	000000	20100	RATE	3321200314	-	47,177	47,177	47,177	47,177	47,177							235,885	15,362	-	251,247
Sewer R & R in Charlestown	20-308-003	721200	200	000000	20100	RATE	3321200313	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sewer R & Ron Shawmut Ave, South End	20-308-002	721200	200	000000	20100	RATE	3321200312	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sewer R & R on Harrison Ave, South End	20-308-001	721200	200	000000	20100	RATE	3321200311	-	-	-	-	-	-	-	-	-	-	-	-	-	160,493	160,493	1,095,000
Construction Supervenision Services for SB Separation	20-206-002					CP06A		48,687	48,687	48,687	48,687	48,687	48,687	48,687	48,687	48,687	48,687	48,687	48,687	584,244	600,000	600,000	1,784,244
Storm Drain Improvements in Brighton	19-309-004	721200	200	000000	20100	RATE	3321190306				50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	450,000	227,129	-	677,129
Sewer & Storm Drain Improvements in East Boston	19-309-002	721200	200	000000	20100	RATE	3321190304			95,000	95,000	95,000	95,000	95,000	95,000					50,000	50,000	-	675,430
City Proper Sewer R & R Improvements	19-308-004	721200	200	000000	20100	RATE	3321190310													-	-	750,000	750,000
Sewer R & R Improvements Citywide	19-308-003	721200	200	000000	20100	RATE	3321190309					100,000	155,000	155,000	155,000	155,000	155,000	155,000	150,000	1,180,000	1,000,000	-	2,180,000
Sewer R & R Improvements in Charlestown	19-308-002	721200	200	000000	20100	RATE	3321190308						125,000	125,000	125,000	125,000	125,000	125,000	67,634	817,634	1,000,000	1,000,000	2,817,634
South End Sewer R & R Improvements Ph I	19-308-001	721200	200	000000	20100	MW/IB	3321190307					250,000	250,000							500,000	-	-	500,000
Sewer R & R in Roslindale, Hyde Park & Mattapan	18-309-003	721200	200	000000	20100	RATE	3321180305													-	1,000,000	1,000,000	2,000,000
Sewer R & R in Fenway	18-309-001	721200	200	000000	20100	RATE	3321180303					142,725	142,725	142,725	142,725	142,725	142,725			856,350	999,076	999,076	2,854,502
Sewer R & R in Dorchester	18-308-003	722200	200	000000	20100	BD18A	3321180307		54,466			13,616								68,082		-	68,082
Rehab of Large Sewer & Drain Conduits	17-309-015	721200	200	000000	20100	RATE	3321170320			229,165			57,290							286,455	-	-	286,455
Sewer R&R in Upper Roxbury Phase III	17-309-011					MW/IB				225,000	225,000	225,000	225,000	225,000	225,000	225,000	225,000	225,000	225,000	2,250,000	3,000,000	-	5,250,000
Sewer R& R City Proper, Dor, Hyd Pk, SB & W. Rox	17-309-001	722200	200	000000	20100	BD18A	3321170301					175,000	175,000	175,000					140,000	665,000	-	-	665,000
Sewer R & R in Beacon Hill	17-308-006	722200	200	000000	20100	CP06A	3321170319			12,204			3,051							15,255	-	-	15,255
Totals								\$756,755	\$1,105,968	\$1,978,049	\$1,587,902	\$4,110,450	\$3,529,124	\$2,339,300	\$2,509,676	\$2,635,386	\$2,761,095	\$2,364,936	\$2,314,416	\$27,993,057	\$18,572,163	\$17,801,244	\$64,366,464
Bonds																							
Rate	</																						

## INCREASED CAPACITY PROJECTS

### DESCRIPTION AND JUSTIFICATION

During the 1980s, the Commission completed the construction of several new major interceptors including the New Boston Main and New East Side Interceptors. They provided increased system capacity, which reduced wet weather combined sewer overflow discharges and virtually eliminated dry weather discharges to Boston Harbor and its tributary waters. In 1994, the EPA issued a policy nationwide on CSOs that requires communities with CSOs to implement nine minimum controls to reduce the frequency and volume of CSO discharges. Maximizing the use of in-system storage, or system capacity, is one of the nine controls. The Commission continues its efforts to increase system capacity. The projects presented in the CIP Increased Capacity Program seek to fulfill that objective.

Since their completion, the Commission has continued to make capital investments to increase system capacity in some areas and maximize the existing capacity of the system in other areas. The Commission's efforts to increase system capacity are designed to ensure sufficient hydraulic flow in all areas of the city, reduce long-term maintenance costs, minimize the frequency and volume of CSO discharges and ensure the continued structural integrity of the wastewater collection system.

### NEW PROJECTS

No New Projects

### ONGOING PROJECTS

**Installation of Tide-gates City-Wide – Contract No. 19-309-001:** This contract will evaluate the need for and provide design for the installation of five tide gates on drainage systems of various sizes in Water Front/North End, South Boston (Seaport), and Dorchester. The Design Department is working with the planning department to identify outfalls which may not be protected from extreme tides to prevent street flooding from surcharged drainage systems. This project includes the installation of tide-gates in City Proper, South Boston, Charlestown and Dorchester. Construction is projected to commence in March 2023 and will be completed in December 2023. The three-year budget is \$750,000.

### PROJECT CASH FLOW

Table 17 on page 66 illustrates the 2023-2025 cash flow projection for Increased Capacity projects. Total 2023-2025 expenditures are \$750,000, of which \$600,000 is allocated in 2023.

TABLE 17 - INCREASED CAPACITY

Capital Improvement Program 2023 - 2025 Increased Capacity																
Description	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2023	2024	2025	Total 2023 - 2025
New Projects																
Ongoing Projects																
Tidegate Installation Citywide	-	-	-	-					300,000			300,000	600,000	150,000	-	750,000
Totals	-	-	-	-	-	-	-	-	300,000	-	-	300,000	600,000	150,000	-	750,000
Bonds	-	-	-	-	-	-	-	-	300,000	-	-	300,000	600,000	150,000	-	750,000
Rate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LWSAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I/I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals	-	-	-	-	-	-	-	-	300,000	-	-	300,000	\$600,000	\$150,000	\$0	\$750,000



## SEWER SYSTEM SPECIAL

### DESCRIPTION AND JUSTIFICATION

The Sewer System Special Projects category provides funding for a variety of system planning and other studies and for professional services associated with the rehabilitation and operation of the sewer system.

Overall, the objectives of the Sewer System Special Projects are to extend the useful life of the Commission's wastewater facilities, comply with the requirements of the NPDES Permit regulations and plan for future sewer system projects.

### NEW PROJECTS

**Survey Services for CIP Projects – Contract No. 22-206-003:** This professional services contract provides survey information utilized to produce design plans. These services augment the Commission staff surveys. The services began in June 2022 and must be completed June 2025. The three-year budget is \$264,711.

### ONGOING PROJECTS

**Summer Street Pump Station Upgrades:** This project includes flood protection, discharge piping upgrades/replacement and miscellaneous repairs. Construction is projected to commence in January 2023 and to be completed by December 2023. The three-year budget for this project is \$450,000.

**Depictions of Sewer Special Structures Phase II – Contract No. 22-206-001:** The project will produce animated files that allow Commission staff to educate themselves on how regulating structures are configured and how they operate under varying weather conditions. The depictions will provide Commission employees with knowledge about what they will see in the field and how the structure operates and how the tributary pipes impact them. These animated three-dimensional (3D) renderings will help the Commission in its goal to provide knowledge transfer to Commission employees. This project will produce animated three-dimensional interactive renderings for up to 50 sewer regulators and other sewer structures. Planning commenced in July 2022 with a completion date of December 2023. The three-year budget is \$250,000.

**Dorchester Interceptor-Storage Tank Design:** Prior studies have shown that the Dorchester Interceptor is not able to convey flows during large storm events. This project encompasses engineering services for design and preparation construction document suitable for public bidding. The engineering firm will prepared bid documents include plans, specification and cost estimates for construction of a tank and appurtenances for the temporary storage excess flow in Dorchester Interceptor. Prior studies conducted by the Commission have shown that the Dorchester Interceptor is not able to convey flows during large storm events. The purpose of this project will be to design an approximately 2.25-million-gallon tank for temporary storage of excess flows in the Dorchester interceptor to prevent SSOs during large storm events. The design phase is set to commence in August 2025 with a projected completion date of December 2026. The three-year budget for this project is \$500,000.

**Dorchester Interceptor – Relief Sewer Design:** This project encompasses engineering services, for design services in connection with the preparation construction document suitable for public bidding. The engineering firm will be responsible for the preparation of bid documents, include plans, specification, and cost estimates for construction of the Dorchester Interceptor relief sewer and all appurtenances. Work

commenced in November 2022 with a completion date of December 2023. The three-year budget for this project is \$5,000,000.

**Sewer and Drain Models – Update & Maintenance:** The purpose of this program is to update the Commission's Sewer and Drain Models to incorporate changes to the Commission's sewer and drain systems since the last time the models were updated in 2018. The project will also recalibrate the Stormwater Quality component of the Stormwater Model to the sampling data that was collected for the Stormwater Quality and Model Validation Project and will provide a general hydrologic recalibration to account for changes in the sewer and drain system. The project will provide maintenance of the models and will continue to provide support and training for Commission staff that utilize the Models. The planning phase will commence in January 2024 and will be completed by December 2026. The three-year budget is \$875,000.

**Inundation Model Update & Maintenance:** The purpose of this program is to utilize the updated Commission's Sewer and Drain Models to update the inundation model and add new LIDAR data and coastal sea level and storm surge data and rerun the inundation model as needed to determine if areas of the city will change based upon implementation of flood barriers. The Commission has made a significant investment in both the Sewer Model and the Drain model. The Commission will benefit from the maintenance of the models with the most modifications and updates to the Commission's sewer and drain systems. The planning phase will commence in January 2024 and will be completed by December 2026. The three-year budget is \$300,000.

**Port Norfolk Pump Station – Contract No. 21-103-008:** This project includes Inlet and Bypass Gate Replacement, Discharge Piping Upgrade/Replacement, Pump Upgrades, Station Structure Upgrades, and miscellaneous repairs. Construction commenced in October 2022 and is projected to be completed by August 2023. The three-year budget for this project is \$1,400,000.

**Sensor Deployment – Contract No. 21-206-002:** The project builds on the foundation of the Dorchester Interceptor (DI) Monitoring Program and the Stony Brook Conduit Pilot Monitoring Project and expands the geographic reach to include the entire Commission's collection system. The industry is moving towards a "Smart Sewer System." The Commission will leverage the "Smart Sewer System" technology to monitor the Commission's sewage and drain collection system in real time and provide real time information to the Commission. Commission Operations staff will utilize the monitoring system data to respond to SSOs/potential SSOs as they occur and will result in minimizing potential SSOs or lessening the severity of an SSO event. Planning for this project commenced in April 2021 and is expected to be completed by June 2025. The three-year budget is \$750,000.

**Lateral Testing & CCTV of Sewers & Drains (IDDE) – Contract No. 21-309-004:** Under the Consent Decree with EPA the Commission must adhere to strict deadlines for completing illicit discharge investigations. Testing of sewer laterals will verify whether the laterals leak sewage to the storm drain system. CCTV of sewers and drains will aid in identifying illicit sanitary discharges and structural deficiencies in the pipes. This funding will be used to continue testing sewer laterals to determine whether they leak sewage into drains, and to CCTV inspect sewers and drains to aid in identifying illicit connections and structural deficiencies in pipes. It is anticipated that the contract will run over the original contract completion date of May 7, 2023. Funding is being allocated in preparation for the extension of this contract. The extension will not affect the original contract value. Construction for this project commenced in May 2021 and is expected to be completed by May 2024. The three-year budget is \$182,909.



**City-wide Illegal Connections Investigation Phase 5 – Contract No. 20-206-007:** This project is a continuation of the Commission’s Citywide Illegal Connection Investigation Program under Phase 5. Under the Consent Decree with the EPA and NPDES Stormwater Permit the Commission is required to identify and eliminate sanitary sewer connections to storm drains and annually screen all the Commission’s outfalls. Under this program illicit sanitary sewer connections to storm drains are identified using manhole inspections and sandbagging, water quality sampling, and dye tests of buildings. This program also includes wet and dry weather outfall screening to prioritize drainage sub-catchments for investigation. This project began in August 2020 and is expected to be conclude in August 2024. The three-year budget for this project is \$1,345,500.

**Owner Fix of Illegal Connections:** Illicit connections in the public way are usually corrected by a Commission contractor. In a few instances, homeowners must alter internal plumbing by installing an ejector pump or redirecting piping to correct an illicit connection. In these instances, the Commission will reimburse owners up to \$7,500 for the work. Illicit connections are a violation of Federal law and must be promptly corrected. This program was instituted and approved by the Commission to assist property owners with costly alterations required to correct illicit connections. The average need is four per year for a total of \$30,000 per year. The three-year budget for this project is \$90,000.

**Discharge Notification for CSOs – Contract No. 19-206-008:** The purpose of this is to comply with the anticipated new State Regulations and the Commission’s CSO NPDES Permit, which requires the Commission to notify the public of discharges from its combined sewer system. Professional metering services will be used to determine when an overflow began and when it ended. A website will be maintained for the public to access the overflow information. Work commenced in August 2019 and is estimated to be completed in December 2022. The three-year budget is \$150,000.

**Trilling Way Pump Station Improvements:** In 2016 a condition assessment of the Commission’s pump stations was completed which recommended various repairs and improvements to be made to maintain service and reliability of the pump stations. This project includes the flood protection, by-pass piping installation, building and roof repairs, and pump upgrades. The upgrades will commence in January 2023 and will be completed by December 2025. The three-year budget is \$725,000.

**BWSC Union Park Pump Station Upgrades:** In 2016 a condition assessment of the Commission’s pump stations was completed which recommended various repairs and improvements to be made to maintain service and reliability of the pump stations. This project includes flood protection, right angle gear replacement, roof repairs, electric pumps 5&6 VFD replacement, and an air handling unity. The upgrades are expected to commence in January 2023 and are projected to be completed by December 2025. The three-year budget is \$1,475,000.

**Castings & Gratings:** This project involves payments to the City of Boston’s roadway and sidewalk reconstruction contractors for the repair or replacement of the Commission’s iron castings during the paving of the City of Boston streets or pouring of sidewalks by the Boston Public Works Department. Services are projected to commence in January 2023 and expected to conclude in December 2025. The three-year budget is \$750,000.

## PROJECT CASH FLOW

Table 18 on page 71 illustrates the cash flow expenditures for Sewer Special Projects for the period 2023-2025. The total expenditures for the Sewer Special program are \$14.5 million, of which 10.0 million is allocated in 2023.

TABLE 18 - SEWER SPECIAL

2023 - 2025 Sewer Special																							
Description	Contract	Acct	Fund	Org	Prog	Class	Proj	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2023	2024	2025	Total 2023 - 2025
New Projects																							
Survey Services for CIP Projects	22-206-003	722200	200	000000	20500	CP06A	3225220305	8,824	8,824	8,824	8,824	8,824	8,824	8,824	8,824	8,824	8,824	8,824	8,824	105,888	105,882	52,941	264,711
Ongoing Projects																							
Port Norfolk Pump Station	N/A	722200	200	000000	20500	CP06A	3225220304		50,000	50,000	150,000	300,000	300,000	200,000	175,000	100,000	60,000	15,000		1,400,000			1,400,000
Dorchester Interceptor - Relief Sewer Design	N/A	722200	200	000000	20500	CP06A	3225220302	200,000	200,000	300,000	500,000	500,000	500,000	500,000	500,000	500,000	400,000	300,000	200,000	4,600,000	400,000		5,000,000
Dorchester Interceptor - Storage Tank Design	N/A	722200	200	000000	20500	SRF	3225220303	-	-	-	-	-	-	-	-	-	-	-	-	-	500,000		500,000
Sewer & Drain Models Update & Maintenance	N/A	722200	200	000000	20500	SRF	3225220301			25,000	30,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	335,000	340,000	200,000	875,000
Inundation Model Update & Maintenance	N/A					CP06A															150,000		300,000
Upgrades to UPPS & Satellite Stat	N/A	722200	200	000000	20500	CP06A	3325090302	280,000				250,000			97,500		97,500			725,000	375,000	375,000	1,475,000
3D Depiction of Sewer Structures Phase II	22-206-001	722200	200	000000	20500	CP06A	3225190201					25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	200,000	50,000		250,000
Lateral Testing & CCTV of Sewers & Drains (IDDE) 2021	21-309-004	722200	200	000000	20500	CP06A	3225200201	6,455	6,454	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	162,909	20,000		182,909
Sewer Drain Sensor Deployment	21-206-002	722200	200	000000	20500	CP06A	3225210301	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	300,000	300,000	150,000	750,000
Citywide Illegal Connections Investigation Ph V	20-206-007					RATE		60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	720,000	625,500		1,345,500
Technical Assistance for Sewer & Drain Models	19-206-012	722200	200	000000	20500	CP06A	3225190301													-			-
Discharge Notification for CSOs	19-206-008	722200	200	000000	20500	CP06A	3225160303	75,000	75,000											150,000			150,000
Totals								\$ 682,779	\$ 445,278	\$ 503,824	\$ 991,324	\$ 1,288,824	\$ 1,178,824	\$ 946,324	\$ 1,136,324	\$ 838,824	\$ 928,824	\$ 548,824	\$ 463,824	\$ 9,953,797	\$ 2,746,382	\$ 1,807,941	\$ 14,508,120
Bonds								587,779	350,278	458,824	941,324	1,233,824	1,133,824	891,324	1,081,324	783,824	873,824	483,824	398,824	9,218,797	2,156,382	857,941	12,233,120
Rate								95,000	95,000	20,000	20,000	20,000	10,000	20,000	20,000	20,000	20,000	30,000	30,000	400,000	250,000	250,000	900,000
Grants								-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LWSAP								-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VI								-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRF								-	-	25,000	30,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	335,000	340,000	700,000	1,375,000
Totals								\$ 682,779	\$ 445,278	\$ 503,824	\$ 991,324	\$ 1,288,824	\$ 1,178,824	\$ 946,324	\$ 1,136,324	\$ 838,824	\$ 928,824	\$ 548,824	\$ 463,824	\$ 9,953,797	\$ 2,746,382	\$ 1,807,941	\$ 14,508,120

## DEDICATED INFILTRATION INFLOW 4:1 PROJECTS

Infiltration and inflow (I/I) are extraneous quantities of water, which enter the sanitary sewer system and reduce the capacity of the system to transport sanitary sewage to a treatment plant. Infiltration is groundwater that leaks into the sanitary sewerage system through pipe joints and defects. Inflow refers to storm water that enters sewers through catch basins, sump pumps, downspouts, basement drains and defected manholes. Saltwater inflow can also enter the Sewer System through defective CSO tide gates that are subject to tidal inflow.

In 2004, the Massachusetts Department of Environmental Protection (“DEP”), in conjunction with the MWRA and its member communities implemented a program to help remove stormwater infiltration and inflow: I/I from the sewer system. Private developments may add substantial flows to the sewer collection system, requiring additional MWRA treatment.

Subsequently, at the July 28, 2005, Commission meeting, the Commission approved the establishment of a Dedicated Infiltration/Inflow (“DEDII”) account into which developers assessed a 4:1 I/I reduction requirement by the DEP would contribute funds to fulfill their requirements. These funds will be used by the Commission to fund I/I identification and reduction projects.

To date, the Commission has implemented thirteen contracts, which are funded by the 4:1 I/I Infiltration Inflow Reduction Mitigation Account. All costs are funded by the (“DEDII”) account and are 100% reimbursable; therefore, are not included in the 2023-2025 cashflow.

In 2004, the Massachusetts Department of Environmental Protection (DEP), in conjunction with the MWRA and its member communities, implemented a program to help remove stormwater infiltration and inflow (I/I) from the sewer system. Large projects that are constructed can contribute substantial additional flows to the sewer collection system and subsequently require additional MWRA treatment. In the 2004 program, the Massachusetts DEP recommended to the Massachusetts Environmental Policy Act Office, through the Executive Office of Energy and Environmental Affairs, that new developments be required to remove I/I from the sanitary sewer system, as part of the requirements by the Secretary of Energy and Environmental Affairs. A ratio of 4:1 is used for I/I removed to new wastewater added. For example, if a proposed project’s calculated new daily wastewater flow is 100,000 gallons per day (gpd), the developer must remove 400,000 gpd of I/I from the sewer system.

The Commission conducts investigations to identify sources of I/I to the Commission’s system. These projects identify both public and private sector sources of I/I. Commission staff initially planned on developing a database with locations of I/I sources which would be provided to a developer. The developer would correct sources from that list to fulfill their I/I removal requirement. However, Commission staff believed that this process would be unwieldy and unmanageable. Subsequently, at the July 28, 2005 Commission meeting, the Commission approved the establishment of a dedicated account into which developers assessed a 4:1 Infiltration/Inflow reduction requirement by the DEP could pay money to fulfill their requirements. The funds would then be used by the Commission to fund I/I identification and reduction projects.

In April 2014, the DEP promulgated new regulations. The Commission has a National Pollutant Discharge Elimination System (NPDES) Permit for its combined sewer overflows and is subject to these new regulations [314 CMR 12.00, section 12.04(2)(d)]. This section requires all new sewer connections with design flows exceeding 15,000 gpd to mitigate the impacts of the development by removing four gallons of I/I for each new gallon of wastewater flow. In this regard, any new connection or expansion of an existing connection that exceeds 15,000 gallons per day of wastewater shall assist in the I/I reduction effort to ensure that the additional wastewater flows are offset by the removal of I/I. Projects constructed in multiple phases may contribute 4:1 reduction 90 days before each phase

comes on-line. Phased construction may include flows under 15,000 gpd. Currently, a minimum ratio of 4:1 is used for I/I removal to new wastewater flow added.

#### **Process of 4:1 Infiltration Inflow Payments**

During private project design, Engineering Customer Services receives and reviews the Site Plan for conformance with the Commission's Engineering Design and Construction Standards. Engineering Customer Services will confirm if the project has been assessed a 4:1 compliance requirement by the MEPA.

Engineering Customer Service will notify the Planning Department of the most current estimated wastewater flow that has been submitted by the project developer. The developer shall coordinate with the Commission how to comply with the proposed assessment, either removing sources of I/I or making a requisite monetary contribution. The removal or contribution must be completed at least ninety days prior to the issuance of the Occupancy Permit by the Boston Inspectional Services Department. If the developer chooses to contribute monetarily to the Commission's I/I reduction program, the check is payable to the Commission. The check is submitted to the Finance Department for deposit into the Commission's dedicated I/I Reduction Account.

#### **A. Commission Contributions Generated to Date**

Most projects fulfilled their contribution requirement by monetary means. Overall, the Commission has collected \$51,910,413.88, through April 2022. From January 2021 to April 2022, the Commission collected \$9,546,785.65.

#### **B. Allocations, Expenditures and Money Remaining in Bank from Dedicated 4:1 I/I Reduction Mitigation Account**

The allocations, expenditures to date and the money remaining for each contract are as follows:

Thirteen contracts to date are funded by the dedicated account:

1. Roxbury Separation Design, Contract 10-206-005,
2. East Boston Separation, Contract 10-309-004,
3. Dorchester Brook Regulator Relocation, Contract 09-309-008,
4. Upper Roxbury Separation Design, Contract 14-206-002,
5. Inflow and Infiltration Analysis of Wastewater Collection System, Contract 15-206-001,
6. Dorchester Avenue Area Separation Planning & Design, Contract 16-206-003,
7. SSES Dorchester, Contract 17-206-004,
8. SSES Roslindale, Contract 18-206-004,
9. SSES Allston/Brighton, Contract 19-206-009,
10. SSES Mattapan, Contract 20-206-008,
13. SSES Jamaica Plain, Contract 21-206-001.

The allocations, expenditures to date and the money remaining for each contract are as follows:

<b>Contract No.</b>	<b>Allocations</b>	<b>Expenditures</b>	<b>Funds Remaining</b>
10-206-005	\$ 1,773,000.00	\$1,752,541.96	\$ 20,458.04
10-309-004	\$ 498,494.59	\$ 498,494.59	\$ 0.00
09-309-008	\$ 2,548,118.17	\$2,548,118.17	\$ 0.00
14-206-002	\$ 1,212,378.25	\$1,102,168.33	\$ 110,209.92
15-206-001	\$ 1,998,970.00	\$1,718,424.95	\$ 280,545.05
16-206-003	\$ 5,240,000.00	\$4,791,107.99	\$ 448,892.01
17-206-004	\$ 994,470.00	\$ 906,729.31	\$ 87,740.69
18-206-004	\$ 1,126,793.00	\$1,126,004.02	\$ 788.98
19-206-009	\$ 1,415,720.00	\$1,247,316.72	\$ 168,403.28
20-206-008	\$ 1,298,700.00	\$1,000,812.89	\$ 297,887.11
20-206-002	\$ 3,255,209.00	\$ 118,286.78	\$3,136,922.22
20-309-012	\$ 5,405,372.65	\$1,612,300.03	\$3,793,072.62
21-206-001	\$ 747,793.00	\$ 68,499.17	\$ 679,293.83
Contracts Subtotal	\$27,515,018.66	\$18,490,804.91	\$9,024,213.75

Unallocated Subtotal	\$24,395,395.22		
Collected Total	\$51,910,413.88		

#### **C. Projected Expenditures from Dedicated 4:1 I/I Reduction Mitigation Account**

- The following proposed contracts are projected to draw from the \$24,395,395.22 unallocated portion of the dedicated account:
- East Boston Separation 3 (Contract No. 19-309-002), approximately \$4,505,500,
- East Boston Separation Design (Contract No. 21-206-003), approximately \$8,500,000,
- SSES Charlestown (Contract No. TBD), approximately \$1,500,000,
- East Boston Separation Phase 4 (Contract Nos. 21-206-003), approximately \$30,000,000.

#### D. Deposits Versus Expenditures by Area

The deposits to the dedicated account and the expenditures by area are as follows:

Area	Deposits	Expenditures
Allston-Brighton	\$ 4,208,537.61	\$ 1,408,147.49
Boston Proper	\$17,801,081.58	\$ 123,893.63
Charlestown	\$ 1,001,836.60	\$ 49,726.44
Dorchester	\$16,217,195.46	\$ 10,310,411.79
East Boston	\$ 1,936,628.00	\$ 669,134.42
Roxbury/South End	\$ 6,877,075.79	\$ 3,101,359.30
West Roxbury	\$ 3,868,058.84	\$ 2,819,432.10

### New Contracts

**Engineering Design, 3 Year Services – Contract No. 22-206-008:** This contract includes engineering services for design citywide on as needed basis. Design Services include preliminary and final design for sewer separation, CSO reduction, SSO improvements and replacing aging water mains. This project will commence in November 2022 with services continuing to December 2025. The total three-year budget for this project is \$3,600,000.

**Engineering Design, 3 Year Services – Contract No. 22-206-009:** This contract includes engineering services for design citywide on as needed basis. Design Services include preliminary and final design for sewer separation, CSO reduction, SSO improvements and replacing aging water mains. This project will commence in November 2022 with services continuing to December 2025. The total three-year budget for this project is \$3,600,000.

**West Roxbury SSES:** The Massachusetts Department of Environmental Protection (DEP) developed regulations requiring sewer system operators to create and implement a long-term infiltration and inflow (I/I) reduction plan to remove extraneous flows from the wastewater collection system. The I/I Master Plan was completed in May of 2017. The I/I Master Plan recommends that the Commission conduct sewer system evaluation surveys in sections of the wastewater collection system exhibiting excessive flows. This project is intended to identify sources of extraneous flows in the wastewater collection system serving West Roxbury. This project involves engineering services to conduct a sewer system evaluation survey (SSES) in West Roxbury. The SSES project will identify sources of extraneous flow in the wastewater system and may include flow monitoring, manhole inspections, smoke testing, dyed water testing, and television inspection of sewer pipes to identify defects. Defects may include cracked or broken pipe that allow groundwater to enter the sewer system and drainage structures such as catch basins, yard drains and building roof drains that are connected to the sanitary sewer system. The defects found will be provided to the Commission in a report with recommendations for capital improvements to eliminate the sources of extraneous flows. Work will commence in July 2023. The completion date for this contract is February 2025. The three-year budget is \$2,000,000.

### Ongoing Contracts

**Charlestown SSES:** The Massachusetts Department of Environmental Protection (MassDEP) developed regulations requiring sewer system operators to conduct an infiltration and inflow (I/I) analysis of their wastewater collection system and implement a long-term plan to identify and remove extraneous flows. The I/I analysis was completed, and the final report was delivered to the Commission in May of 2017. The report's long-term plan divided the wastewater collection system into 11 regions and recommended that the BWSC conduct a sewer system evaluation survey (SSES) in one region each year. This project is initiated to identify sources of extraneous flows in the

Charlestown region of the wastewater collection system. This project will entail an Infiltration and Inflow Sewer System Evaluation Survey (SSES) to identify sources of extraneous flow in the Commission's wastewater collection system. The SSES will include flow monitoring, manhole inspection, smoke testing, dye testing, and television inspection of sewer pipes. Findings will be provided to the Commission in a report with recommendations for capital improvements to eliminate sources of extraneous flows. The planning stage will commence in July 2022. The completion date for this contract is November 2024. The three-year budget is \$1,500,000.

**Jamaica Plain SSES – Contract No. 21-206-001:** The Massachusetts Department of Environmental Protection (DEP) developed regulations requiring sewer system operators to create and implement a long-term infiltration and inflow (I/I) reduction plan to remove extraneous flows from the wastewater collection system. The I/I reduction plan was completed in May of 2017. The I/I reduction plan recommends that the Commission conduct sewer system evaluation surveys in sections of the wastewater collection system exhibiting excessive flows. This project is intended to identify sources of extraneous flows in the wastewater collection system serving Jamaica Plain. This continuing project entails an, Infiltration and Inflow, Sewer System Evaluation Survey (SSES) to identify sources of extraneous flow in Jamaica Plain. The SSES project include flow monitoring, manhole inspections, smoke testing, dyed water testing, and television inspection of sewer pipes. The finding will be provided to the Commission in a report with recommendation for capital improvements to eliminate the sources of extraneous flows. The contract for engineering services for the project was awarded to Wright-Pierce in October of 2021. The planning stage commenced in October 2021. The completion date for this contract is January 2023. The three-year budget is \$65,000.

**East Boston Sewer Separation – Phase IV Design Services Contract 21-206-003:** This project includes design services of sewer separation in a 230 acre area East Boston. Design commenced in September 2022 and is projected to be completed by December 2028. The three-year budget is \$3,500,000.

**South Boston Sewer Separation Contract 1 – Contract No. 20-309-012:** This project includes the construction of new storm drains to separate approximately 400 acres in South Boston along the Dorchester Avenue Corridor. The project also includes upgrades of the sanitary sewer and water main systems to continue providing the highest level of service to the community and to support the BPDA's initiative to foster future development along Dorchester Avenue. Construction Contract No. 1 is one of five (5) planned contracts to construct new storm drains to separate approximately 400 acres in South Boston along the Dorchester Avenue Corridor. Construction started in April 2021 and is projected to be completed by August 2023. The three-year budget is \$2,947,110.

**Construction Oversight of South Boston Sewer Separation – Contract No. 20-206-002:** This project includes the construction oversight of the South Boston Separation. This project commenced in September 2020. The three-year budget is \$594,760.



## South Boston Sewer Separation - Contract 1:

### Streets

STREETS	LIMITS
A ST	West Broadway to Dorchester Av
ATHENS ST	S Boston Bypass to C St
B ST	West Second St to Dorchester Av
BOLTON ST	S Boston Bypass to B St
C ST	West Second St to West Broadway
COSTELLO CIR	Entire
CROWLEY ROGERS WY	Delessio Ct to D St
DALESSIO CT	Entire
DORCHESTER AV	Entire
FLAHERTY WY	B St to D St
GOLD ST	A St to B St
JOYCE HAYES WY	Orton Marota Wy to West Seventh St
LINSKY-BARRY CT	Entire
OFF B ST	Orton Field
ORTON MAROTTA WY	B St to D St
PRIVATE RD	Entire
SILVER ST	Dorchester Av to B St
WEST BROADWAY	S Boston Bypass to C St
WEST FIFTH ST	Dorchester Av to B St
WEST FOURTH ST	Dorchester Av to B St
WEST SEVENTH ST	Dorchester Av to D St
WEST SIXTH ST	S Boston Bypass to B St
WEST THIRD ST	B St to C St

## PROJECT CASH FLOW

Table 19 on page 78 illustrates the cash flow expenditures for DEDII Projects for the period 2023-2025. The total expenditures for the DEDII program are \$17.8 million, of which \$7.2 million is allocated in 2023.

Table 19 - DEDII

Capital Improvement Program  
2023-2025  
Dedicated Infiltration Inflow 4:1 Projects

Description	Contract	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2023	2024	2025	Total 2023 - 2025
<b>New</b>																	
Infiltration/Inflow SSES (West Roxbury)	N/A									30,000	50,000	50,000	50,000	180,000	1,720,000	100,000	2,000,000
Engineering Services for Design Citywide	22-206-008	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	1,200,000	1,200,000	1,200,000	3,600,000
Engineering Services for Design Citywide	22-206-009					100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	800,000	1,400,000	1,400,000	3,600,000
<b>Ongoing</b>																	
Infiltration/Inflow SSES (Charlestown)	N/A	50,000	50,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	1,100,000	400,000		1,500,000
Infiltration/Inflow SSES (Jamaica Plain)	21-206-001	30,000	35,000											65,000	-	-	65,000
East Boston Sewer Separation Phase 4 Design Services	21-206-003	125,000	125,000	125,000	125,000	125,000	125,000	125,000	125,000	125,000	125,000	125,000	125,000	1,500,000	1,000,000	1,000,000	3,500,000
South Boston Separation Contract 1	20-309-012						306,730	306,730	306,730	306,730	306,730	306,730	306,730	2,147,110	800,000		2,947,110
Construction Oversight of South Boston Separation	20-206-002	16,230	16,230	16,230	16,230	16,230	16,230	16,230	16,230	16,230	16,230	16,230	16,230	194,760	200,000	200,000	594,760
<b>Totals</b>		<b>321,230</b>	<b>326,230</b>	<b>341,230</b>	<b>341,230</b>	<b>441,230</b>	<b>747,960</b>	<b>747,960</b>	<b>747,960</b>	<b>777,960</b>	<b>797,960</b>	<b>797,960</b>	<b>797,960</b>	<b>7,186,870</b>	<b>6,720,000</b>	<b>3,900,000</b>	<b>17,806,870</b>
DEDII		321,230	326,230	341,230	341,230	441,230	747,960	747,960	747,960	777,960	797,960	797,960	797,960	7,186,870	6,720,000	3,900,000	17,806,870
<b>Totals</b>		<b>321,230</b>	<b>326,230</b>	<b>341,230</b>	<b>341,230</b>	<b>441,230</b>	<b>747,960</b>	<b>747,960</b>	<b>747,960</b>	<b>777,960</b>	<b>797,960</b>	<b>797,960</b>	<b>797,960</b>	<b>7,186,870</b>	<b>6,720,000</b>	<b>3,900,000</b>	<b>17,806,870</b>

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# SUPPORT PROJECTS

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Various Support Projects are included in the 2023-2025 CIP, which the Commission firmly believes will improve the overall efficiency of Commission's functions and enhance its ability to collect revenues and track information. Funds are also allocated for software licenses and upgrades, hardware and peripheral equipment, metering, and vehicles.

## OBJECTIVES

### Primary Objectives of the 2023-2025 Support Category are as follows:

- Upgrade of Automatic Meter Reading System Data Base
- Replace HVAC System of Commission Headquarters
- Rooftop Upgrade Replacement
- Replacement of Commission Vehicles

Support Projects are divided into three sections. These sections are:

- Metering
- Information Technology
- Administrative Equipment

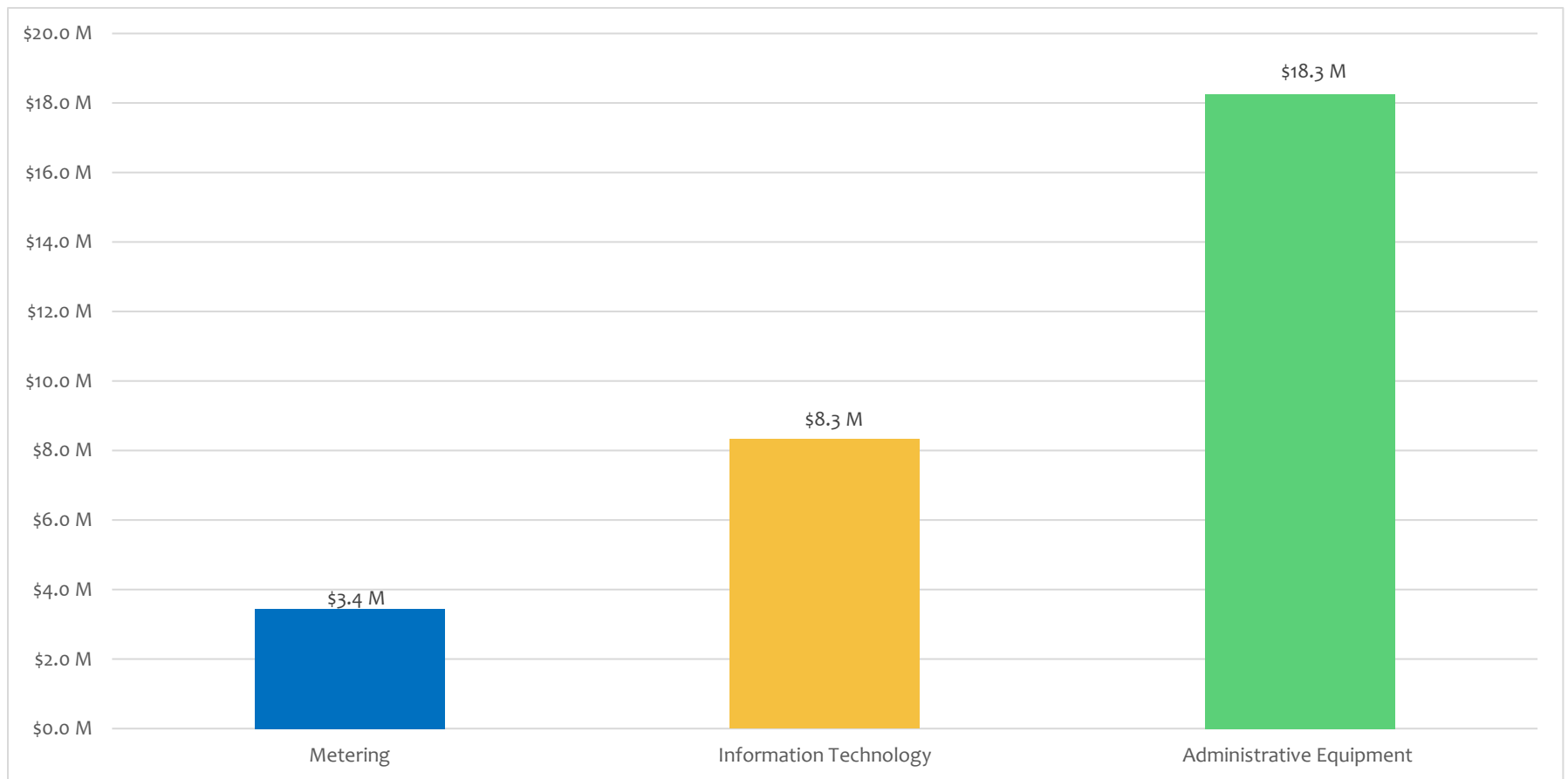
Table 20 on page 84 illustrates the Support Projects in the 2023-2025 Capital Improvement Program total \$30.0 million, of which \$14.4 million is allocated for 2023. Graph 11 on page 85 illustrates the Total Support expenditures for 2023-2025. Graph 12 on page 86 illustrates Support Distributions Spending by category for 2023.

**Table 20 - Support Category**

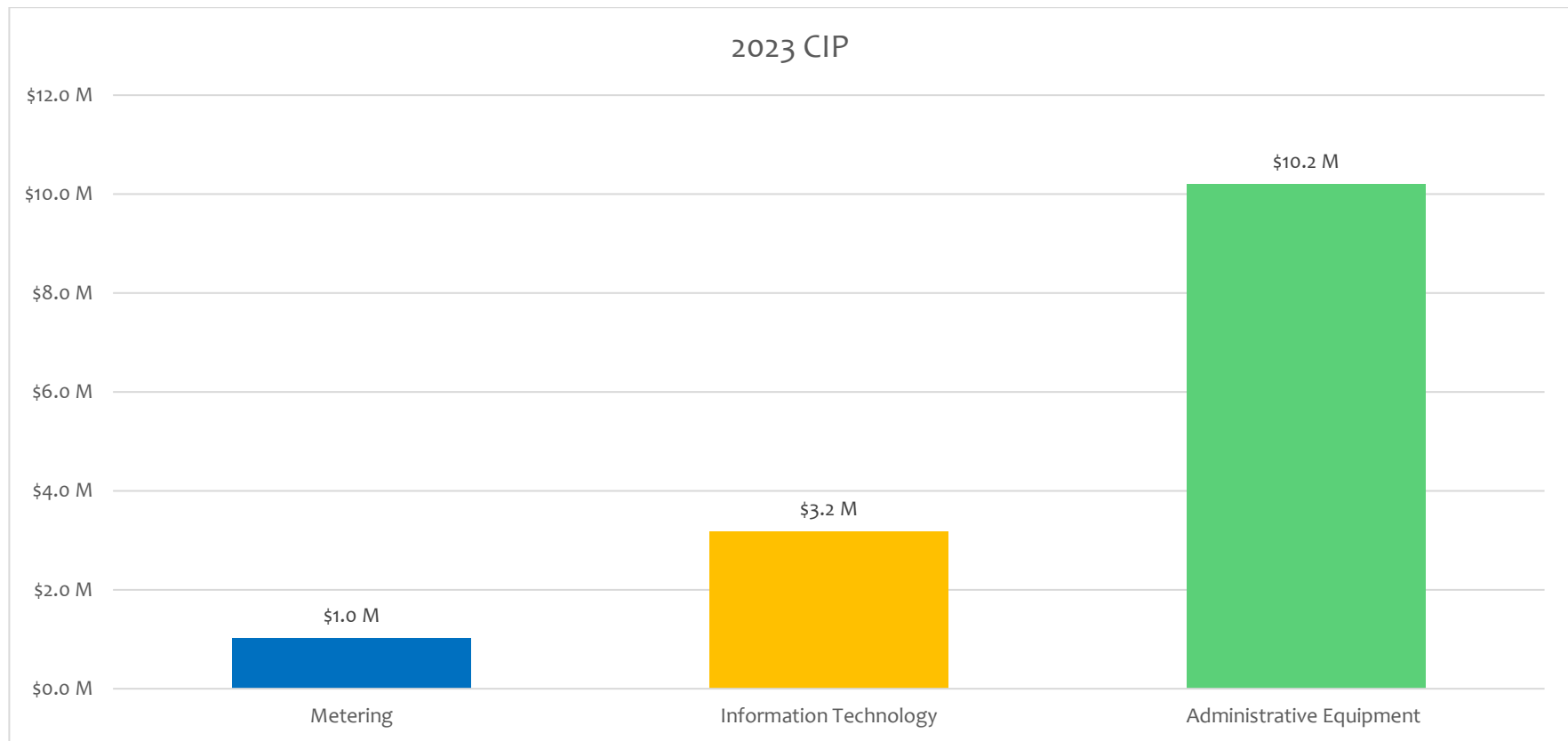
Capital Improvement Program 2023 - 2025 Support Total													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2023 2024 2025 Total 2023 - 2025
<b>Metering</b>													
Bonds	-	-	-	-	-	200,000	-	-	815,000	-	-	-	1,015,000 1,615,000 815,000 3,445,000
Rate	-	-	-	-	-	-	-	-	-	-	-	-	-
LWSAP	-	-	-	-	-	-	-	-	-	-	-	-	-
I/I	-	-	-	-	-	-	-	-	-	-	-	-	-
SRF	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals	\$0	\$0	\$ -	\$0	\$0	\$ 200,000	\$0	\$0	\$ 815,000	\$0	0	\$ -	\$ 1,015,000 \$ 1,615,000 \$ 815,000 \$ 3,445,000
<b>Information Technology</b>													
Bonds	225,000	210,000	320,000	250,000	225,000	260,000	300,000	275,000	360,000	250,000	275,000	220,000	3,170,000 2,850,000 2,300,000 8,320,000
Rate	-	-	-	-	-	-	-	-	-	-	-	-	-
LWSAP	-	-	-	-	-	-	-	-	-	-	-	-	-
I/I	-	-	-	-	-	-	-	-	-	-	-	-	-
SRF	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals	\$ 225,000	\$ 210,000	\$ 320,000	\$ 250,000	\$ 225,000	\$ 260,000	\$ 300,000	\$ 275,000	\$ 360,000	\$ 250,000	\$ 275,000	\$ 220,000	\$ 3,170,000 \$ 2,850,000 \$ 2,300,000 \$ 8,320,000
<b>Administrative Equipment</b>													
Bonds	360,000	840,000	-	970,000	-	840,000	325,000	1,825,000	1,000,000	1,525,000	1,520,000	1,000,000	10,205,000 6,550,000 1,500,000 18,255,000
Rate	-	-	-	-	-	-	-	-	-	-	-	-	-
LWSAP	-	-	-	-	-	-	-	-	-	-	-	-	-
I/I	-	-	-	-	-	-	-	-	-	-	-	-	-
SRF	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals	\$360,000	\$840,000	\$0	\$ 970,000	0	\$ 840,000	325,000	\$1,825,000	\$1,000,000	\$1,525,000	\$1,520,000	\$1,000,000	\$ 10,205,000 6,550,000 1,500,000 \$ 18,255,000
<b>Support Total</b>	<b>\$ 585,000</b>	<b>\$ 1,050,000</b>	<b>\$ 320,000</b>	<b>\$ 1,220,000</b>	<b>\$ 225,000</b>	<b>\$ 1,300,000</b>	<b>\$ 625,000</b>	<b>\$ 2,100,000</b>	<b>\$ 2,175,000</b>	<b>\$ 1,775,000</b>	<b>\$ 1,795,000</b>	<b>\$ 1,220,000</b>	<b>\$ 14,390,000 \$ 11,015,000 \$ 4,615,000 \$ 30,020,000</b>
Bonds	585,000	1,050,000	320,000	1,220,000	225,000	1,300,000	625,000	2,100,000	2,175,000	1,775,000	1,795,000	1,220,000	14,390,000 11,015,000 4,615,000 30,020,000
Rate	-	-	-	-	-	-	-	-	-	-	-	-	-
LWSAP	-	-	-	-	-	-	-	-	-	-	-	-	-
I/I	-	-	-	-	-	-	-	-	-	-	-	-	-
SRF	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Totals</b>	<b>\$ 585,000</b>	<b>\$ 1,050,000</b>	<b>\$ 320,000</b>	<b>\$ 1,220,000</b>	<b>\$ 225,000</b>	<b>\$ 1,300,000</b>	<b>\$ 625,000</b>	<b>\$ 2,100,000</b>	<b>\$ 2,175,000</b>	<b>\$ 1,775,000</b>	<b>\$ 1,795,000</b>	<b>\$ 1,220,000</b>	<b>\$ 14,390,000 \$ 11,015,000 \$ 4,615,000 \$ 30,020,000</b>

## GRAPH 13 -2023-2025 TOTAL SUPPORT EXPENDITURES

### \$30.0 MILLION



## GRAPH 14 -2023 SUPPORT DISTRIBUTION SPENDING \$14.4 MILLION



## METERING

### DESCRIPTION AND JUSTIFICATION

The Meter Services Department maintains the efficient operation of approximately 91,000 water meters and associated automatic meter reading devices in the system thus insuring accurate registration of consumption. Metering programs include meter downsizing, which involves the replacement of large meters with smaller meters, where hydraulically feasible. On an annual basis, the Meter Services Department repairs, replaces, tests and installs water meters and automatic reading devices and maintains all field components of the Commission's Automatic Meter Reading system. All meters that are removed are tested on a fully equipped test bench, which was purchased in 2009. Meters 3" and larger are field tested, based on size, at intervals of: every year (6" to 10", every other year (4") and every three years (3"), in accordance with American Water Works Association standards. In addition, usage is evaluated utilizing the AMR system and recommendations are made to downsize identified meters to more accurately account for low flow.

### NEW PROJECTS

No new projects.

### ONGOING PROJECTS

**MTU and DCU Maintenance/Repair/Replacements and Upgrades:** Having completed the upgrade of its AMR infrastructure in 2018, efforts will focus on quickly addressing any system issues with the intent of preserving the elimination of estimated bills which the system has achieved. In conjunction with Aclara, the Commission will perform a Propagation Study of the entire City of Boston based on all the new development over the last 10 years to ensure we have proper Data Collection Unit (DCU's) coverage which increases reading percentages. It may be necessary to move a few DCU's or install a few more to maintain a high read percentage. The three-year budget is \$1,600,000.

**Large Meter Work (Water):** The Commission closely follows AWWA recommendations and tests all large meters in accordance with AWWA parameters. In the course of its large meters work, the Commission prioritizes the repair/replacement of any malfunctioning parts and/or replaces large meters, as necessary. Wherever feasible, the Commission downsizes large meters to improve accuracy of registration. The three- year budget for this project is \$945,000.

**Residential Metering (Water):** The residential metering program is an ongoing project to replace approximately 4,000 residential meters sizes 5/8" through 2" annually. The three- year budget for this project is \$900,000.

Table 21 on page 88 illustrates cash flow for Metering projects for 2023-2025 CIP totals \$3.4 million, of which \$1.0 million is allocated for 2023.



## PROJECT CASH FLOW

Table 21 - Metering Category

Capital Improvement Program  
2023 - 2025  
Metering

Description	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2023	2024	2025	Total 2023 - 2025
<b>New Projects</b>																
No New Projects																
<b>Ongoing Projects</b>																
MTUs and Data Collection Units	-	-	-	-	-	200,000	-	-	200,000	-	-	-	400,000	1,000,000	200,000	1,600,000
Large Meters	-	-	-	-	-	-	-	-	315,000	-	-	-	315,000	315,000	315,000	945,000
Residential Meters	-	-	-	-	-	-	-	-	300,000	-	-	-	300,000	300,000	300,000	900,000
<b>Totals</b>	-	-	-	-	-	200,000	-	-	815,000	-	-	-	\$ 1,015,000	\$ 1,615,000	\$ 815,000	\$ 3,445,000
<b>Bonds</b>	-	-	-	-	-	200,000	-	-	815,000	-	-	-	1,015,000	1,615,000	815,000	3,445,000
Rate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LWSAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I/I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Totals</b>	-	-	-	-	-	200,000	-	-	815,000	-	-	-	1,015,000	1,615,000	815,000	3,445,000

## INFORMATION TECHNOLOGY

Effective use of the right technologies enables BWSC to provide more efficient and high-quality water and sewer services to the City of Boston. Strategic planning, careful selection of technological tools, and effective use of such tools has enabled BWSC to continue to improve the level of service associated with emergency responses, preventative maintenance, infrastructure improvements, and most importantly, quality customer service. Providing staff with appropriate training and utilizing the right mix of hardware and software is something BWSC continues to assess and act upon as new technologies continue to evolve.

A number of mission critical software applications are utilized to support BWSC's daily operations and provide for emergency response services 24 hours a day, 7 days a week. BWSC is actively upgrading and replacing various systems. The following are projects that have been completed to date and projects projected to be completed during the next several years.

- Upgrade the Geographic Information Systems and Asset Management System. This project will be completed in 2022.
- Replace the Construction Project Management System. The RFP will be completed in 2022. Expect to complete this project in 2024.
- Upgrade Virtualization hardware. Project to be completed in 2023.
- Upgrade Automatic Meter Reading software. Project will be completed in Q1 of 2023.

Cybersecurity: BWSC adheres to the NIST (National Institute of Standards and Technology) Cybersecurity Framework (the "NIST Framework"). As the Cybersecurity landscape evolves so does the NIST Framework. The only way to accelerate detection and response to sophisticated threats is to understand the behavior of all individual components of an attack across your organization. BWSC has selected security products from different vendors which integrate to offer an overlapping layered approach to security with multiple levels of protection. In the event of a breach BWSC has multiple levels of backups in place to mitigate data loss. Most of the deployed security products are now cloud based and rely on analysis of datasets to identify threats based on patterns. These products also include remote monitoring and response. BWSC has deployed security products to cover each functional level of the NIST Framework: Identify, Protect, Detect, Respond and Recover. BWSC has recently completed a cybersecurity assessment, which is compliant with the AWIA Cybersecurity and Resilience assessment requirement.

## NEW PROJECTS

There are no New Projects included in Software and Hardware line items found in the tables below.

## ONGOING PROJECTS

**Server / Network Hardware & Peripheral Equipment:** New Server/Network Hardware is used to upgrade and add to the Commission's Computing Infrastructure, which provides sufficient capacity and performance to support computing activities including: billing, HRIS, payroll, financials, work order system and GIS. The total three-year budget for this project is \$1,260,000. Hardware and upgrades consist of the following:

- Backup disk/tape
- Communications/Networking
- Server Upgrades
- B&W Network Printers
- Disaster Recovery Hardware
- Replace/Upgrade PC's
- Tablets/Ipads/Phones
- Laptops
- Peripherals (cables, adapters, cases etc.)

**Server/Network Software Licenses and Upgrades:** Funding is included for software upgrades and additions to the Commission's Computer Infrastructure. Software and related upgrades to support Commission computing activities include: Billing, HRIS, Payroll, Financials, Work Order system, GIS, Document Management and Construction Management System. The total three-year budget for this project is \$7,060,000. Software and upgrades consist of the following:

- Workorder Mgt. System (Cityworks)
- CIS
- Database Software
- Application Development Tools
- Construction Management Software
- Website
- GIS Software/Upgrade
- Management Portal
- Information Security
- Disaster Recovery Software & Services
- AutoCAD & Design Software/Upgrades

## PROJECT CASH FLOW

Table 22 on page 91 illustrates cash flow expenditures for IT projects for 2023-2025. Total three-year expenditure is \$8.3 million, of which \$3.2 million is allocated for 2023.

**Table 22 - Information Technology Category**

**Capital Improvement Program  
2023 - 2025  
Information Technology**

Description	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2023	2024	2025	Total 2023 - 2025
New																
No New Projects																
Ongoing																
Server/Network Hardware	25,000	10,000	20,000	50,000	25,000	50,000	50,000	25,000	50,000	50,000	75,000	20,000	450,000	405,000	405,000	1,260,000
Server/Network Software	200,000	200,000	300,000	200,000	200,000	210,000	250,000	250,000	310,000	200,000	200,000	200,000	2,720,000	2,445,000	1,895,000	7,060,000
<b>Totals</b>	<b>225,000</b>	<b>210,000</b>	<b>320,000</b>	<b>250,000</b>	<b>225,000</b>	<b>260,000</b>	<b>300,000</b>	<b>275,000</b>	<b>360,000</b>	<b>250,000</b>	<b>275,000</b>	<b>220,000</b>	<b>3,170,000</b>	<b>2,850,000</b>	<b>2,300,000</b>	<b>8,320,000</b>
<b>Bonds</b>	225,000	210,000	320,000	250,000	225,000	260,000	300,000	275,000	360,000	250,000	275,000	220,000	3,170,000	2,850,000	2,300,000	8,320,000
<b>Rate</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>LWSAP</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>I/I</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>SRF</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Totals</b>	<b>225,000</b>	<b>210,000</b>	<b>320,000</b>	<b>250,000</b>	<b>225,000</b>	<b>260,000</b>	<b>300,000</b>	<b>275,000</b>	<b>360,000</b>	<b>250,000</b>	<b>275,000</b>	<b>220,000</b>	<b>3,170,000</b>	<b>2,850,000</b>	<b>2,300,000</b>	<b>8,320,000</b>

# ADMINISTRATIVE EQUIPMENT

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## DESCRIPTION AND JUSTIFICATION

The projects contained in the administrative equipment category provide funding for improvements to administrative facilities and equipment. The Fleet department manages and coordinates all activities required for the efficient operation and maintenance of the Commission's fleet of vehicles including heavy equipment. To minimize fleet total cost of ownership (operating and capital cost) and ensure the ability to provide required customer services using reliable transportation and equipment, vehicles should be replaced at regular intervals, derived from optimal replacement cycle analyses. Vehicle replacement cycles provide the basis for long-term replacement plans for year-to-year replacement earmarking and budgeting. A recent study of the Commission's fleet by a professional management consulting firm has determined that optimum replacement cycles for all classes of vehicles range from 7 to 12 years with a weighted average replacement cycle of 8.8 years for all vehicles.

## NEW PROJECTS

**Solar Charging Stations in Garages:** This contract includes the installation of solar charging stations for electric vehicles. Construction will commence in July 2023 and be completed in November 2024. The total cost of this project is \$750,000.

**Elevator Access Cards:** This contract includes the upgrading of commission elevators to require elevator access cards for the security of commission property and safety of employees. Construction is expected to commence and to be completed in April 2023. The total cost of this project is \$75,000.

## ONGOING PROJECTS

**Exterior Work – 980 Harrison Avenue:** A summary review of building conditions undertaken in late 2017 noted several areas on the exterior of 980 Harrison Avenue that would require work over the near term. These included work on the buildings skin (limestone, composite and metal panels) and replacement of perimeter sealant. Twenty years of urban grime has left several exposed building exterior sections unsightly and in need of cleaning. Time has also had a negative effect on the sealant around building panels and at windows. The deterioration of sealant has allowed for leaks to occur when there is a driving rain. Certain building maintenance initiatives have dented some of the metal panels and additionally degraded associated seals around them. Construction will commence in the summer 2022 and be completed in the summer 2023. The total cost of this project is \$50,000.

**Gasket Replacement in 2<sup>nd</sup> Floor Garage:** The gasketing material at the expansion joint at the second floor garage has deteriorated and heaved out of its setting. The absence of the material does not allow the expansion joint to function as designed and presents a trip hazard to all traveling to and from vehicles parked

at this level. Construction is expected to commence and to be completed in August 2023. The total cost of this project is \$175,000.

**Owner's Project Manager (OPM):** There are pressing needs to undertake major repairs at Commission facilities. MGL Ch 149, requires that all building projects with a cost in excess of \$1.5 million have an OPM assigned to the project. Several of the projects required at Commission facilities trigger this threshold. Additionally, staff in the Facilities Department has a proven track record of capabilities in the maintenance of facilities. Construction of facilities is a separate skill set and existing Staff has little capacity to independently undertake large scale construction projects. The Commission has engaged an OPM to provide staff with expert advice for undertaking facilities construction projects toward the restoration of Commission physical plant. The projects commenced in the summer of 2020 and will be ongoing through the entire length of this capital plan and beyond. The total cost of OPM services through 2025 are projected to be \$250,000.

**Atrium Door Improvements:** This project allows for the Commission to replace the original front doors of 980 Harrison Avenue. The front doors located in the atrium of 980 Harrison Avenue are original to the building and are outdated and in need of repairs. The proposed new doors will allow for cohesive pedestrian traffic at the building's main entrance, including ADA improvements. This project is projected to commence in March 2023 and completed May 2023. The total budget is \$800,000.

**Selection of "House Doctors" for Facilities Projects:** Several of the major components of the Commission's headquarters building (roof, HVAC system, etc.) need replacement. The original components have been begun to deteriorate and must either be replaced or completely refurbished. House Doctor/design services are architectural/engineering services required for the design and development of plans and specifications to undertake upgrades to existing components of Commission's buildings and/or to build/renovate additional buildings on Commission owned property. The House Doctor will also be utilized to undertake an evaluation of flood protection systems for the Commission Headquarters, Materials Handling Facility and two above ground pump stations. In 2020, the Board approved \$850,000.00 for these services. It is expected that all architectural/engineering work at Commission facilities will be undertaken by the House Dr. However, there may be circumstances where it makes more sense for the Commission to engage a "specialized" design contract for a unique circumstance. This project is expected to commence in January 2023 and completed in June 2024. The total three-year budget is \$450,000.

**Roof Upgrade Replacement:** This project includes the upgrade and/or replacement of the Commission's Roof. The existing HVAC system is the system that came on-line with the Headquarters opening in 2001. As with most major building components, the system was installed well in advance of actual building opening. This project includes the replacement of existing heating/AC units throughout the Headquarters Facility. The project is scheduled to commence in June 2023 and is projected to be completed in June 2024. The estimated cost is \$10,000,000.

**Vehicles/Equipment:** The Fleet department manages and coordinates all activities required for the efficient operation and maintenance of the Commission's fleet of vehicles including heavy equipment. In order to, minimize fleet total cost of ownership (operating and capital costs) and sure the ability to provide required customer services using reliable transportation and equipment, vehicles should be replaced at regular intervals derived from optimal replacement cycle analyses. Vehicle replacement cycles provide the basis for long-term replacement plans for year-to-year replacement earmarking and budgeting. A recent study of the Commission's fleet by a professional fleet management consulting firm has determined that optimum replacement cycles for all classes of vehicles range from 7 to 12 years with a weighted average replacement cycle of 8.8 years for all vehicles. Funding is provided for the replacement of various vehicles for utility and operational purposes. The vehicles being replaced have reached their useful life. Vehicles purchases include 37 ev vehicles, 2 ram jets and a CB Vactor. The total amount budgeted for Vehicles total \$5,750,000.

## PROJECT CASH FLOW

The 2023-2025 cash flow is presented in Table 23 on page 95. Total three-year expenditure for administrative equipment is \$18.3 million, of which \$10.2 million is allocated for 2023.

Table 23 - Administrative Equipment Category

Capital Improvement Program  
2023 - 2025  
Administrative Equipment

Description	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2023	2024	2025	Total 2023 - 2025
<b>New Projects</b>																
Solar Charging Stations in Garage	100,000			100,000			100,000			450,000			750,000			750,000
Elevator Access Cards	10,000			20,000									30,000			30,000
<b>Ongoing</b>																
Exterior Work - 980 Harrison Avenue							25,000	25,000					50,000			50,000
Gasket Replacement 2nd Floor Garage	25,000			25,000			125,000						175,000			175,000
Owner's Project Manager (OPM)	25,000			25,000			25,000			25,000			100,000	100,000	50,000	250,000
Atrium Door Improvements	100,000			700,000									800,000			800,000
Selection of House Doctors for Facilities Projects	100,000			100,000			50,000			50,000			300,000	150,000		450,000
Rooftop Upgrade Replacement (Roof and HVAC)								1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	5,000,000	5,000,000		10,000,000
Vehicles/Equipment		840,000				840,000		800,000			520,000		3,000,000	1,300,000	1,450,000	5,750,000
<b>Totals</b>	<b>360,000</b>	<b>840,000</b>	<b>-</b>	<b>970,000</b>	<b>-</b>	<b>840,000</b>	<b>325,000</b>	<b>1,825,000</b>	<b>1,000,000</b>	<b>1,525,000</b>	<b>1,520,000</b>	<b>1,000,000</b>	<b>10,205,000</b>	<b>6,550,000</b>	<b>1,500,000</b>	<b>18,255,000</b>
<b>Bonds</b>	360,000	840,000	-	970,000	-	840,000	325,000	1,825,000	1,000,000	1,525,000	1,520,000	1,000,000	10,205,000	6,550,000	1,500,000	18,255,000
<b>Rate</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Grants</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>LWSAP</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>I/I</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Totals</b>	<b>360,000</b>	<b>840,000</b>	<b>-</b>	<b>970,000</b>	<b>-</b>	<b>840,000</b>	<b>325,000</b>	<b>1,825,000</b>	<b>1,000,000</b>	<b>1,525,000</b>	<b>1,520,000</b>	<b>1,000,000</b>	<b>10,205,000</b>	<b>6,550,000</b>	<b>1,500,000</b>	<b>18,255,000</b>



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# STORMWATER/GREEN INFRASTRUCTURE/LOW IMPACT DEVELOPMENT PROJECTS

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## DESCRIPTION AND JUSTIFICATION

Funding is provided in the 2023-2025 CIP for the implementation of the Commission's Stormwater Program. This program consists of studies of existing and new drainage infrastructure, best management practices and implementation of programs designed to improve water quality, the environment and manage stormwater resources.

The primary purpose of the Stormwater Program is to participate in the Boston Harbor pollution abatement projects, implement green infrastructure/low impact development to improve the water quality of discharges to the local receiving waters and promote public awareness of stormwater quality issues. The goal is also to study existing conditions and make recommendations for placement of new best management practices designed to promote improved water quality, ensure compliance with state and federal regulations, minimize flooding and manage stormwater throughout the City of Boston.

The Green Infrastructure/Low Impact Development ("GI/LID") category provides funding for ("GI/LID") projects as needed in collaboration with public improvements in the City of Boston.

The Commission was required by its Consent Decree with the U.S. EPA to develop a stormwater model to identify pollutant loadings (including phosphorus) from land areas that contribute stormwater runoff to the Commission's storm drain system. The Commission is under an obligation to meet the Phosphorus Total Maximum Daily Load ("TMDL") for the Lower Charles River Basin by reducing elevated levels of phosphorus discharged from its stormwater outfalls. In addition, the Commission has currently drafted a Best Management Practice ("BMP") Recommendations Report in compliance with the terms of the Consent Decree and has submitted it for review. The BMP Recommendations Report provides a scheduled plan for implementation of structural BMPs, Green Infrastructure and Low Impact Development ("LID") to reduce pollutant loadings discharged to the twenty-seven sub-watersheds of the City of Boston.

The BMP Recommendations Report provides a plan for the Commission's whole stormwater collection system. According to the interim findings, the cost to implement this plan could be substantial. The purpose of this program is to make available funding to implement GI/LID projects (in collaboration with other city departments and/or private landowners) in the City of Boston as they become available. This program will further the Commission's goal of compliance with the Consent Decree.

The Commission's separation projects involve the replacement of combined sanitary and storm sewers with two separate systems, one for sanitary sewage and one for stormwater. The purpose of the separation program is to reduce the frequency and volume of wet weather CSO discharges and ensure the continued compliance with state and federal permits. Combined systems will be separated where it is appropriate and cost effective to do so. Sewer

separation work most often involves converting the combined sewer to a separate sanitary sewer and constructing a new storm drain.

Since 1996, the Commission has spent approximately \$300 million on sewer separation projects. Projects were designed with the intent of eliminating combined sewer overflow (“CSO”) discharge, improving water quality in Boston Harbor and its tributaries and diverting stormwater from environmentally sensitive areas. The Commission’s ability to remove extraneous flow from its sewers will result in a reduction in its metered wastewater flow and wholesale sewer charges. Thus far, these projects have reduced annual discharge of CSO by 124.3 million gallons.

In addition to addressing CSO concerns, the Commission is identifying sanitary sewage that is being discharge into the storm drain system. Between 1986 and December 31, 2021, the Commission removed more than 1,882 illegal connections, eliminating the discharge of an estimated 868,000 gallons of wastewater per day to the storm drainage system and receiving waters. In 2021 alone, the Commission eliminated 13 illicit sanitary sewer connections to storm drains, removing an estimated 3,356 gallons per day of sewage from the drainage system and receiving waters.

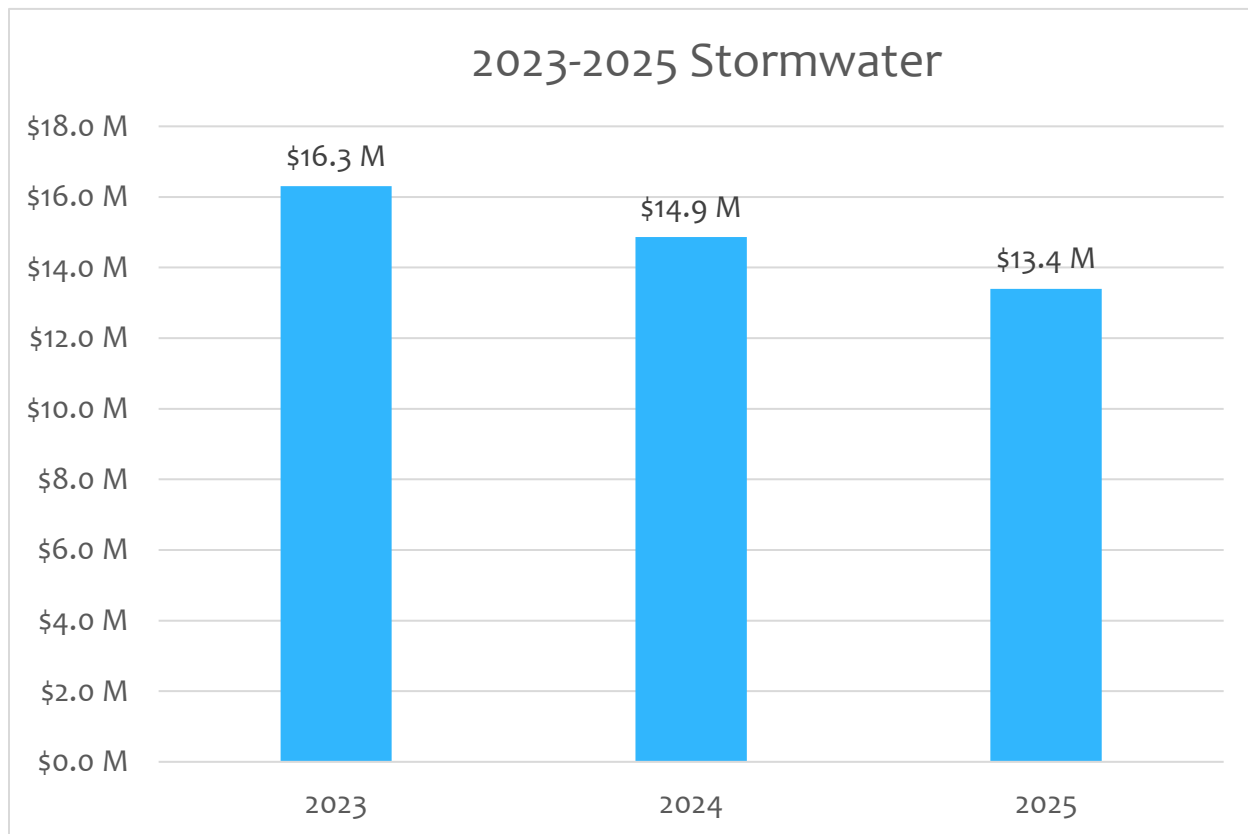
The Commission regularly inspects, cleans and maintains its catch basins citywide. Cleaning restores the effective capacity of catch basins, thereby allowing for greater solids removal from stormwater flows. Hoods and traps are replaced on catch basins as needed. The Commission’s site plan review process has been upgraded and enhanced in recent years. The Commission now exercises greater control over non-stormwater discharges and ensures that construction sites and new development projects conform to its requirements, as well as state and federal requirements for stormwater management.

Table 24 on page 99 illustrates Stormwater by category. Three-year total expenditures are \$44.6 million, of which \$16.3 million is anticipated to be spent in 2023.

**Table 24 - Stormwater**

Capital Improvement Program 2023 - 2025 Stormwater																
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2023	2024	2025	Total 2023 - 2025
Stormwater																
Bonds	83,000	100,971	131,817	225,308	197,933	245,703	233,499	243,499	253,499	348,449	263,499	245,749	2,572,926	3,231,659	2,597,615	8,402,200
Rate	429,216	429,216	536,393	407,833	462,485	558,606	729,012	590,239	932,080	910,413	949,138	655,926	7,590,557	6,143,686	4,205,039	17,939,282
PAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I/I	-	-	375,000	375,000	375,000	546,428	546,428	546,428	471,430	471,428	582,658	471,430	4,761,230	2,000,000	3,792,095	10,553,325
SRF	-	-	25,000	30,000	35,000	185,000	185,000	185,000	185,000	185,000	185,000	185,000	1,385,000	3,490,000	2,800,000	7,675,000
Total	512,216	530,187	1,068,210	1,038,141	1,070,418	1,535,737	1,693,939	1,565,166	1,842,009	1,915,290	1,980,295	1,558,105	16,309,713	14,865,345	13,394,749	44,569,807
Stormwater Total	512,216	530,187	1,068,210	1,038,141	1,070,418	1,535,737	1,693,939	1,565,166	1,842,009	1,915,290	1,980,295	1,558,105	16,309,713	14,865,345	13,394,749	44,569,807
Bonds	83,000	100,971	131,817	225,308	197,933	245,703	233,499	243,499	253,499	348,449	263,499	245,749	2,572,926	3,231,659	2,597,615	8,402,200
Rate	429,216	429,216	536,393	407,833	462,485	558,606	729,012	590,239	932,080	910,413	949,138	655,926	7,590,557	6,143,686	4,205,039	17,939,282
LWSAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I/I	-	-	375,000	375,000	375,000	546,428	546,428	546,428	471,430	471,428	582,658	471,430	4,761,230	2,000,000	3,792,095	10,553,325
SRF	-	-	25,000	30,000	35,000	185,000	185,000	185,000	185,000	185,000	185,000	185,000	1,385,000	3,490,000	2,800,000	7,675,000
Totals	512,216	530,187	1,068,210	1,038,141	1,070,418	1,535,737	1,693,939	1,565,166	1,842,009	1,915,290	1,980,295	1,558,105	16,309,713	14,865,345	13,394,749	44,569,807

**Graph 15 - 2023-2025 Total Stormwater Expenditures \$44.6 Million**



#### **CLIMATE CHANGE PREPARATIONS**

As the frequency and intensity of wet weather events continue to increase due to climate change, the potential for flooding during large storm events will also increase. Sea level rise will further exacerbate flooding issues as it will impede the ability of storm drains to discharge to the ocean during higher tides and storm surge. BWSC is coordinating and sharing data with various City of Boston departments, state agencies such as Mass DOT, MWRA and the MBTA, local communities such as Cambridge and Somerville, and organizations such as Boston Harbor Now and the Mystic River Collaborative to develop resilient solutions to prepare for impacts caused by climate change. BWSC is also collaborating with institutions such as the Woods Hole Research Center and UMASS Boston to incorporate their work on rising sea levels and coastal impacts into plans and projections for mitigating the impacts of climate change.

To address the issues associated with climate change BWSC has undertaken several projects:

**Stormwater Detention Facilities:** BWSC has completed a study to identify sites where stormwater runoff can be temporarily stored during large storm events. Storing stormwater at these locations will free up conveyance capacity in the storm drainage system and reduce the potential for flooding. The detained stormwater will be slowly released back to the storm drain system after storms have ended and capacity in the storm drain system is back to normal. The study included the preliminary design of the detention facilities that could be installed at these locations.

**Coastal Stormwater Impact Analysis:** Due to the expected higher sea levels and tides it is predicted that storm drain outfalls located along Boston's coast will be impeded in their ability to discharge. The Coastal Stormwater Discharge Analysis will identify where BWSC's coastal outfalls will be impacted, develop plans and strategies, evaluate the feasibility and costs of alternatives, and prepare conceptual plans for structural solutions to mitigate the impacts. Plans and strategies developed pursuant to the BWSC's Coastal Analysis will be consistent with the Mayor's Resilient Harbor Vision, which builds on the City's Climate Ready Boston analysis.

**Stormwater Retention-Arnold Arboretum / Boston Nature Center:** BWSC prepared conceptual designs for a large constructed wetland that could be installed at the Arnold Arboretum and a stormwater detention design for an area near the Boston Nature Center. The wetland will retain and treat stormwater, thereby maintaining the conveyance capacity of BWSC's storm drain system and reducing the potential for upstream and downstream flooding. An additional benefit of the wetland is that it will be designed to improve stormwater quality by reducing the City's stormwater phosphorus load to the Charles River. The Commission is working with agencies to determine what process could be taken to move these concepts to design.

**Fort Point Channel Storage Feasibility:** BWSC is evaluating the feasibility of having a flood control gate structure installed at the harbor end of the Fort Point Channel to mitigate the impacts of tidal surge and increased wet weather discharges from outfalls located within the channel. When a large storm event is anticipated the gate would be closed, and waters in the channel pumped out, thus providing storage capacity for the stormwater discharges from outfalls located within the Channel. After storms have passed stormwater detained in the storage basin would be pumped out and the gates reopened to allow for normal discharges and tidal flow. Preliminary analysis indicates that installation of a gate structure will prevent flooding in almost 10 percent of the City of Boston, including significant portions of the critical downtown, South End and seaport districts during a 10 year design event. To handle storms larger than this design storm, pumps within the dam structure would maintain levels within the channel until the higher tides recede.

**Installation and Inspection of Tide Gates on Outfall Pipes:** BWSC continues to install new tide gates on coastal storm drain outfall pipes where they will be needed in the future, but don't currently exist. The tide gates will prevent back-water flow resulting from higher tides and storm surge from entering BWSC's storm drain system and causing inundation of inland low-lying areas. New tide gates will be installed in storm drains outfalls located in the City Proper, East Boston, South Boston, Charlestown, and Dorchester.

## NEW PROJECTS

### **Future CCTV of Sewers & Storm Drains/CMOM Contracts 24-309-009, 24-309-010, 25-309-009 & 25-309-010:**

These projects entail the inspection of sewers and drains through the use of closed circuit TV cameras utilizing the SCREAM coding system in order to assess the structural condition of the pipes. Approximately ninety (90) miles annually of various sized pipes will be cleaned and inspected with a goal of completing the entire system over a 10 year period. These contracts complete 60 miles annually. Construction is expected to commence in March 2024 and to be complete by March 2025. The three year budget for this project is \$2,000,000.

**Storm Drain Improvements Citywide – Contract No. 23-309-003:** This contract includes sewer and drain replacement and rehabilitation where SSOs and other issues have occurred in order to mitigate future overflows. Construction is expected to commence in July 2024 and to be complete by June 2025. The three-year budget for this project is \$460,840.

**Storm Drain Improvements in Dorchester, Mattapan, and Roxbury – Contract No. 23-309-005:** This contract includes sewer and drain replacement and rehabilitation in Dorchester, Mattapan and Roxbury. Construction is expected to commence in July 2024 and to be complete by June 2025. The three-year budget for this project is \$32,130.

**Dorchester R & R Clean and Rehabilitation of Large Drain Conduit (DotBlock) – Contract No. 23-309-006:** The intent of this project is to protect (with rehabilitation) the 72-inch pipe that runs underneath the Dotblock development. Construction is expected to commence in May 2023 and to be complete by November 2023. The three-year budget for this project is \$1,250,000.

**CCTV of Sewers and Storm Drains/CMOM – Contract No. 23-309-009:** This project entails the inspection of sewers and drains using closed-circuit TV cameras utilizing the SCREAM coding system to assess the structural condition of the pipes. Approximately 30 miles of various sized pipes will be cleaned and inspected. Construction is expected to commence in March 2023 and is expected to be completed by March 2024. The three-year budget is \$435,000.

**CCTV of Sewers and Storm Drains/CMOM – Contract No. 23-309-010:** This project entails the inspection of sewers and drains using closed-circuit TV cameras utilizing the SCREAM coding system to assess the structural condition of the pipes. Approximately 30 miles of various sized pipes will be cleaned and inspected. Construction is expected to commence in March 2023 and is expected to be completed by March 2024. The three-year budget is \$435,000.

**Future Emergency Sewer Repair Contracts:** The three-year budget is 2,000,000.

## ONGOING PROJECTS

**Green Infrastructure – Contract No. TBD:** This line item is for funds for BWSC contributions to the construction of Green Infrastructure opportunities within BPWD projects. The city has identified projects where some collaboration on Green Infrastructure may be feasible. Construction is anticipated to commence on these projects in 2023 and is expected to be completed in 2025. The three-year budget is \$1,500,000.

**Storm Drain Improvements w/ East Boston Sep Ph IV – Contract No. 23-309-002:** This contract includes CSO reduction in conjunction with MWRA. Construction is projected to commence in April 2025 and be completed by April 2027. The total three-year budget for this project is 2,000,000.

**Storm Drain Replacement Citywide – Contract No. 22-308-002:** This project includes the replacement of old water mains that have reached the end of their useful life and water mains with a history of water main breaks and/or leaks Citywide. Construction is projected to commence in January 2024 and be completed by December 2025. The total three-year budget for this project is \$500,000.

**Storm Drain Replacement in Georgetowne Neighborhood – Contract No. 22-308-003:** This project includes the replacement of rehabilitation of sewer mains in the Georgetowne Neighborhood of West Roxbury. Construction is

expected to commence in May 2023 and is expected to be completed by December 2024. The three-year budget is \$100,000.

**Drain Work in Upper Roxbury – Contract No. 22-309-003:** This project includes the replacement and rehabilitation of failing 1800s combined sewers where SSOs have occurred to mitigate future overflows. Construction is expected to commence in January 2024 and is expected to be completed by December 2025. The three-year budget is \$792,095.

**Sewerage & Drainage Works Rehabilitation – Contract No. 22-309-004:** This project includes television inspection and cleaning of sewer pipes in the City of Boston for streets, where water main work is programmed, to assess the need for sewer and/or drain replacement. Work commenced in May 2022 and is expected to be completed by November 2022. The three-year budget is \$11,543.

**Harambee Park Drainage Structure Replacement – Contract No. 22-309-005:** This project involves the replacement of the existing drainage overflow structure at Harambee Park and installation of phosphorus removal technology within the proposed drainage structure. Construction commenced in October 2022 and is scheduled to be completed in February 2023. The three-year budget for this project is \$696,648.

**CCTV of Sewers and Storm Drains/CMOM – Contract No. 22-309-009:** This project entails the inspection of sewers and drains using closed-circuit TV cameras utilizing the SCREAM coding system to assess the structural condition of the pipes. Approximately 30 miles of various sized pipes will be cleaned and inspected. Work commenced in March 2022 and is expected to be completed by March 2023. The three-year budget is \$150,000.

**CCTV of Sewers and Storm Drains/CMOM – Contract No. 22-309-010:** This project entails the inspection of sewers and drains using closed-circuit TV cameras utilizing the SCREAM coding system to assess the structural condition of the pipes. Approximately 30 miles of various sized pipes will be cleaned and inspected. Work commenced in March 2022 and is expected to be completed by March 2023. The three-year budget is \$150,000.

**South Boston Sewer Separation – Contract 3 – Contract No. 22-309-012:** This project includes Construction of new storm drains to separate approximately 400 acres in South Boston along the Dorchester Avenue Corridor. The project also includes upgrades of the sanitary sewer and water main systems to continue highlight level service to the community and support future development along Dorchester Avenue. Construction is projected to commence in April 2024 and completed in April 2026. The three-year budget is \$500,000.

**Sewer and Drain Models – Update & Maintenance:** The purpose of this program is to utilize the updated Commission's Sewer and Drain Models to update the inundation model and add new LIDAR data and coastal sea level and storm surge data and rerun the inundation model as needed to determine if areas of the city will change based upon implementation of flood barriers. The Commission has made a significant investment in both the Sewer Model and the Drain model. The Commission will benefit from the maintenance of the models with the most modifications and updates to the Commission's sewer and drain systems. The planning phase will commence in January 2024 and will be completed by December 2026. The three-year budget is \$1,125,000.

**Inundation Model – Update & Maintenance:** The purpose of this program is to utilize the updated Commission's Sewer and Drain Models to update the inundation model and add new LIDAR data and coastal sea level and storm surge data and rerun the inundation model as needed to determine if areas of the city will change based upon implementation of flood barriers. The Commission has made a significant investment in both the Sewer Model and



the Drain model. The Commission will benefit from the maintenance of the models with the most modifications and updates to the Commission's sewer and drain systems. The planning phase will commence in January 2024 and will be completed by December 2026. The three-year budget is \$300,000.

**Construction of Stormwater Detention Facilities Phase I:** This project includes Construction of stormwater detention facilities at various locations in the city. The detention facilities will be constructed at locations that have the potential to store sufficient quantities of stormwater to relieve flooding in downstream areas during severe rainfall events. The work may include earthworks, construction of outlet and inlet control structures, and site amenities. The Wastewater and Storm Frain Facilities Plan included recommendations for temporary surface storage of stormwater to alleviate the hydraulic street on the storm drain system from increased rainfall volumes and peak intensities that may be experienced due to climate change. This project is designed to store stormwater runoff and slowly release it into the storm drain system after the storm has ended. A co-benefit at stormwater detention sites with existing water bodies is the potential to reduce phosphorus in the stormwater. Construction will commence in July 2025 and to be completed in May 2026. The three-year budget for this project is \$750,000.

**Sewer & Storm Drain Improvements in Hyde Park – Contract No. 21-309-001:** This project includes Sewer and Storm Drain Improvements in Hyde Park based on the findings of the CMOM group which identified sewer and drain defects in this area. The contract also includes associated water relay for pipes within project limits that have reached the end of their lifespan. Construction is projected to commence in April 2023 and is expected to be completed by October 2025. The three-year budget is \$106,618.

**South Boston Sewer Separation – Contract 2 – Contract No. 21-309-012:** Construction Contract No. 2 is one of five planned contracts. Construction of new storm drains to separate approximately 400 acres in South Boston along the Dorchester Avenue Corridor. The project also includes upgrades of the sanitary sewer and water main systems to continue highlight level service to the community and support future development along Dorchester Avenue. Construction is projected to commence in April 2023 and completed in April 2025. The three-year budget is \$6,050,000.

**Storm Drain Rehabilitation in South Boston & Dorchester – Contract No. 21-308-001:** This project includes rehabilitation and replacement of damaged sewers and drainpipes in South Boston and Dorchester. Construction commenced in October 2022 and is expected to be completed by November 2026. The three-year budget is \$711,780.

**Sampling and Metering for Storm Drain Model Validation – Contract No. 20-206-003:** This project entails collection of flow metering and stormwater quality data to update the Commission's Stormwater Model. Under the Commission's 2012 Stormwater Model Project stormwater quality was monitored at 20 locations over two 12-week periods in 2011 and 2012. The data collected for the 2012 Project reflected conditions at the time. The monitoring data collected under this Program will be compare with the previously collected data to determine whether improvements in stormwater quality have occurred since 2012. For example, over 700 illicit sanitary discharges have been eliminated removing and an estimated 200,000 gallons of sewage per day from the drain system. Also, over 2,700 infiltration devices have been installed by developers, thus reducing the concentrations of phosphorus in stormwater runoff. The data collected under this Program will enable the Commission to evaluate whether stormwater quality has improved since 2012, due to these measures. The data will also be used to determine whether the Commission's Stormwater Model requires re-validation. Planning commenced in May 2020 and a completion date in February 2024. The budget is \$112,000.

**Coastal Stormwater Impact Analysis – Contract No. 20-206-004:** The purpose of this project to conduct an analysis of areas along the coast in Boston that will be unable to discharge stormwater due to potential higher tides and develop a strategy for addressing the impact. This project to conduct an analysis of areas along the coast in Boston that will be unable to discharge stormwater due to potential higher tides and develop a strategy for addressing the impact. The project will review topographic changes and low-lying areas to identify areas where stormwater will gather if it is unable to discharge to receiving waters due to higher tides. The project will develop recommendations for addressing the potential inundation issues. This phase of this project commenced in November 2020 and is projected to be completed in March 2023. The three-year budget for this project is \$300,000.

**Storm Drain Improvements Shawmut Ave, South End – Contract No. 20-308-002:** This project includes Water Relay for 6,330 feet of 12- and 16-inch water mains on Shawmut Avenue, Waltham, Hanson and Bond Street in the South End. As part of the design work, associated sewers and drains found in disrepair will be structurally rehabilitated or replaced if found damaged beyond rehabilitation. At this time, the project also includes the lining of 1,600 linear feet of 10" thru 24" sewer pipe and the rehabilitation of 590 linear feet of 15" and 18" drainpipe. Construction is expected to commence in April 2024 and be completed in December 2025. The three-year budget is \$179,013.

**Drain Rehabilitation in Charlestown and Back Bay – Contract No. 20-308-004:** This project includes sewer replacement & rehabilitation of pipes that are in disrepair in City Proper and Charlestown. Construction commenced in August 2022 and be completed in December 2023. The three-year budget is \$204,071.

**Sewer & Drain Rehab in City Proper, Hyde Park, Jamaica Plain – Contract No. 20-308-005:** This project includes sewer replacement & rehabilitation of pipes that are in disrepair in City Proper and Mission Hill. Construction commenced in April 2022 and is expected to be completed in November 2023. The three-year budget is \$66,631.

**Sewer & Storm Drain Improvements in Charlestown – Contract No. 20-309-002:** This contract includes sewer and Storm Drain Improvements in the City Square area of Charlestown. These improvements are based on the findings of the CMOM group which identified sewer and drain defects in this area with associated water relay. Construction is projected to commence in April 2023. The three-year budget is \$547,973.

**Sewer and Drain Rehabilitation City Wide – Contract No. 20-309-004:** This Project includes Sewer and Storm Drain Improvements City wide. These improvements are based on the findings of the CMOM group which identified sewer and drain defects in this area. Construction is projected to commence in February 2023 and is expected to be completed by November 2023. The three-year budget is \$1,260,000.

**Sewer and Drain Rehabilitation City Wide – Contract No. 20-309-006:** This Project includes sewer replacement/rehabilitation based on findings of the CMOM group, some water main replacement. Construction is expected to commence in February 2024 and be completed in July 2025. The three-year budget is \$1,055,700.

**South Boston Separation – Contract No. 20-309-012:** Contract No. X is one of five planned contracts which includes upgrades to the water main systems within the project limits. Construction commenced in July 2021 and is projected to be completed by December 2023. The three-year budget is \$1,200,000.

**Emergency Sewer & Storm Drain Replacement 2020 – Contract No. 20-309-014:** This project includes the replacement of sewers and storm drains in critical condition, citywide. These improvements are based on the findings of the CMOM group which identified sewer and drain defects, with associated water relay. Construction

commenced in September 2022 and is expected to be completed by December 2023. The three-year budget is \$970,000.

**City-Wide Correction of Illicit Sanitary Building Connections – Contract No. 20-309-015:** This contract involves disconnection of sanitary sewer laterals from storm drains and reconnection of laterals to sanitary sewers. Sanitary sewer laterals connected to storm drains allow untreated sewage to discharge to storm drains and from there to rivers, streams, wetlands and Boston Harbor. Sanitary sewer laterals connected to storm drains are prohibited under the Commission's NPDES Stormwater Permit and the Consent Decree. This project commenced in April 2023 and will be completed by October 2023. The three-year budget is \$187,021.

**South End Storm Drain Improvements Phase I – Contract No. 19-308-001:** This project includes Water Relay for 7,585 feet of 12- and 16-inch water mains on Washington Street, East Berkeley and Mystic Street in the South End. As part of the design work, eroded lining in the concrete pipe was found in the sewers in East Berkeley Street. It was therefore decided to structurally line these large pipes and others to prevent further system degradation. The project also includes the rehabilitation of 2,635 liner feet of 10" thru 12"x18' pipe of which 970 is large diameter trunk sewer. Construction is projected to commence in December 2022 and be completed in December 2024. The three-year budget is \$ 37,800.

**Storm Drain Improvements in Charlestown – Contract No. 19-308-002:** This project includes sewer replacement & rehabilitation. in Charlestown. Construction is projected to commence in April 2023 and be completed in November 2025. The three-year budget is \$1,838,130.

**Storm Drain Improvements City Wide – Contract No. 19-308-003:** This project includes Replacement and laying of approximately 6,650 linear feet of water mains, rehabilitation of approximately 525 linear feet of water main, replacement of approximately 2,795 linear feet of sewer and storm drain, rehabilitation of approximately 3,200 linear feet of sewer and storm drains, and multiple point repairs. Construction commenced in September 2022 and be completed in October 2024. The three-year budget is \$479,236.

**City Proper Drain Pipe Improvements – Contract No. 19-308-004:** This project includes water relay on various streets in Beacon Hill, including Boston Common and Cambridge Street adjoining Massachusetts General Hospital. Water mains in this Contract are old and have a history of breaks and leaks. Construction is projected to commence in April 2024 and completed September 2026. The three-year budget is \$300,000.

**Sewer & Storm Drain Improvements Associated with East Boston Sewer Separation Phase III – Contract No. 19-309-002:** This project is the third phase in a multi-year plan to separate East Boston combined sewers to reduce combined sewer overflows and improve water quality in the Boston Harbor. The project also includes upgrades of the sanitary sewer systems to continue a high level of service to the community. Construction commenced in September 2019 and is projected to be completed by July 2023. The three-year budget is \$561,230.

**Storm Drain Improvements in Allston/Brighton – Contract No. 19-309-004:** This project includes sewer and storm drain rehabilitation replacement as well as the replacement of water mains in Allston/Brighton. Construction is projected to commence in October 2023 and be completed by May 2025. The three-year budget is \$985,634.

**Storm Drain Improvements in Dorchester – Contract No. 18-308-003:** This project includes the replacement & rehabilitation of sanitary sewer and drain pipes in Dorchester. Sewers serving the area were found damaged and undersized. The work in this contract also includes the replacement of 670 feet of 8" clay pipe with new 10" sewer

pipe. Construction commenced in August 2021 and completed in September 2022. The three-year budget is \$10,920 due to close-out payments.

**Storm Drain Improvements in Fenway – Contract No. 18-309-001:** This project includes the replacement and rehabilitation of sanitary sewer; storm drain and combined sewer pipes in the Fenway area. Construction is projected to commence in May 2023 and be completed in November 2025. The three-year budget is \$1,706,773.

**Storm Drain Improvements in Roslindale, Hyde Park, and Mattapan – Contract No. 18-309-003:** This project includes replacement of sanitary sewer and drain pipes in Roslindale, Hyde Park & Mattapan. Construction is projected to commence in March 2023 and be completed by November 2024. The three-year budget is \$1,100,000.

**Storm Drain Work in Beacon Hill – Contract No. 17-308-006:** This project includes sanitary sewer & drain replacement and rehabilitation in Back Bay/Beacon Hill and City Proper. Construction commenced in September 2019 and will be completed by December 2022. The three-year budget is \$ 61,021.

**Storm Drain Improvements in Upper Roxbury Phase III – Contract No. 17-309-011:** This project includes the installation of sewers and drains for sewer separation in Upper Roxbury. Construction commenced in July 2022 and is projected to be completed by March 2024. The three-year budget is \$5,000,000.

**Design of Stormwater Detention Facilities Phase II:** The Wastewater and Storm Drainage System Facilities Plan included recommendations for temporary surface storage of stormwater to alleviate the hydraulic stress on the Commission's storm drain system from increased rainfall volumes and peak intensities that may be experienced during future storms. Under Contract 18-206-002, the Stormwater Detention Investigation, identified potential sites for stormwater storage. The design project will include records research, site investigations, field survey, permitting and preparation of bid documents for the final design of facilities designed to detain stormwater and slowly release it into the storm drain system. Construction cost estimates for the new facilities will be developed as part of the design. The design phase of this project is estimated to commence in October 2024 and is projected to be completed in August 2025. The three-year budget for this project is \$900,000.

**Design of Stormwater Detention Facilities Phase I:** BWSC has completed a study to identify sites where stormwater runoff can be temporarily stored during large storm events. Storing stormwater at these locations will free up conveyance capacity in the storm drainage system and reduce the potential for flooding. The detained stormwater will be slowly released back to the storm drain system after storms have ended and capacity in the storm drain system is back to normal. The design project will include records research, site investigations, field survey, permitting and preparation of bid documents for the final design of facilities designed to detain stormwater and slowly release it into the storm drain system. Construction cost estimates for the new facilities will be developed as part of the design. The design phase of this project is expected to commence in March 2023 and the design phase is projected to be completed in March 2024. The three-year budget for this project is \$850,000.

**Constructed Wetland in Stormwater Tributary at Daisy Field:** This project is to construct a vegetated subsurface gravel filter and bioretention feature to treat stormwater runoff in tributary area of Daisy Field. Construction of the gravel filter and bioretention feature to treat stormwater runoff will improve the stormwater quality entering the Charles and Muddy rivers. The construction phase is set to commence in April 2023 and is expected to be completed by November 2024. The three-year budget is \$1,500,000.

# PROJECT CASH FLOW

Table 25 on page 108 illustrates Stormwater by Category. Three-year total expenditures are \$44.6 million , of which \$16.3 million is anticipated to be spent in 2023.

*Green Infrastructure in Central Square*





Table 25 – Stormwater

STORMWATER/GREEN INFRASTRUCTURE/LOW IMPACT DEVELOPMENT																				Total					
Description		Contract	Acct	Fund	Org	Prog	Class	Proj	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2023	2024	2025	2023 - 2025	
New	CCTV of Sewers & Storm Drains - CMOM	23-309-010	721400	200	000000	40100	RATE	3321230202				35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	315,000	120,000		435,000	
	CCTV of Sewers & Storm Drains - CMOM	23-309-009	721400	200	000000	40100	RATE	3321230201				35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	315,000	120,000	-	435,000	
	Rehab of Large Drain Conduits in Dorchester	23-309-006					RATE										357,143	357,143	357,143		1,250,000			1,250,000	
	Storm Drain Improvements in Dorchester, Mattapan, and Roxbury	23-309-005					RATE															20,885	11,245	32,130	
	Storm Drain Improvements Citywide	23-309-003					RATE															299,546	161,294	460,840	
	Future Emergency Sewer Repair Contracts		721400	200	000000	40100	RATE														-	1,000,000	1,000,000	2,000,000	
	CCTV of Sewers & Storm Drains - CMOM Future Contracts		721400	200	000000	40100	RATE														-	1,000,000	1,000,000	2,000,000	
Ongoing																									
	Construction of Stormwater Detention Facilities Phase I	N/A	722400	200	000000	40100	CP06A	3242210301															750,000	750,000	
	Construction of Daisy Field Green Infrastructure	N/A	722400	200	000000	40100	CP06A	3241170204													-	1,500,000		1,500,000	
	Design of Stormwater Detention Facilities Phase II	N/A	722400	200	000000	40100	CP06A	3241210301														30,000	870,000	900,000	
	Sewer & Drain Models Update & Maintenance	N/A	722400	200	000000	40100	SRF				25,000	30,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	335,000	490,000	300,000	1,125,000	
	Inundation Model Update & Maintenance	N/A	722400	200	000000	40100	CP06A															200,000	200,000	400,000	
	Design of Stormwater Detention Facilities Phase I	N/A	722400	200	000000	40100	CP06A	3241200304					30,000	50,000	50,000	60,000	70,000	70,000	80,000	80,000	490,000	360,000		850,000	
	Storm Drain Improvements w/ East Boston Sep Ph IV	23-309-002					MWIR														-		2,000,000	2,000,000	
	South Boston Separation Contract 3	22-309-012					SRF														-		500,000	500,000	
	CCTV of Sewers & Storm Drains - CMOM	22-309-010	721400	200	000000	40100	RATE	3321220202	50,000	50,000	50,000										150,000			150,000	
	CCTV of Sewers & Storm Drains - CMOM	22-309-009	721400	200	000000	40100	RATE	3321220201				50,000	50,000	50,000							150,000			150,000	
	Harambee Park Drainage Structure Replacement	22-309-005	721400	200	000000	40100	RATE	3241220101	232,216	232,216	232,216										696,648			696,648	
	Sewerage & Drainage Works Rehabilitation	22-309-004					CP06A			9,235		2,308										11,543			11,543
	Drain Work in Upper Roxbury	22-309-003					MWIR														-		792,095	792,095	
	Storm Drain Replacement in Georgetown Neighborhood	22-308-003					RATE														-	100,000		100,000	
	Storm Drain Replacement Citywide	22-308-002					RATE														-	239,130	260,870	500,000	
	South Boston Separation Contract 2	21-309-012					SRF														-		2,000,000	6,050,000	
	East Boston Separation Ph IV	21-309-002					MWIR						150,000	150,000	150,000	150,000	150,000	150,000	150,000	1,050,000	3,000,000		1,000,000		
	Sewer & Storm Drain Improvements in Hyde Park	21-309-001					RATE														-		106,618	106,618	
	Storm Drain Rehabilitation in South Boston & Dorchester	21-308-001					CP06A														-		308,415	711,780	
	Correction of Illicit Sanitary Building Connections	20-309-015					RATE		12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	144,000	43,021		187,021	
	Emergency Sewer Repair 2020	20-309-014	721400	200	000000	40100	RATE	3341200301	85,000	85,000	85,000	85,000	85,000	85,000	100,000	85,000	85,000	85,000	63,333	63,333	63,334	970,000			970,000
	South Boston Separation Contract 1	20-309-012					MWIR							17,428	171,428	171,428	171,428	171,430	171,428	171,428	-		1,200,000	1,200,000	
	Sewer and Drain Rehabilitation City Wide	20-309-006					CP06A														-	586,500	469,200	1,055,700	
	Sewer and Drain Rehabilitation City Wide	20-309-004					CP06A														-			1,260,000	
	Sewer & Drain Improvements in Charlestown	20-309-002					RATE															291,450	256,523	547,973	
	Sewer & Drain Rehab in City Proper, Hyde Park, Jamaica Plain	20-309-005					RATE				16,852	16,852	17,625			15,302						66,631		66,631	
	Drain Rehabilitation in Charlestown and Back Bay	20-308-004					RATE				47,177	47,177	47,177	47,177								188,708	15,363	204,071	
	Storm Drain Improvements Shawmut Ave, South End	20-308-002					RATE														-	89,507	89,506	179,013	
	Coastal Storm Water Impact Analysis	20-206-004	722400	200	000000	40100	CP06A	3241200303	75,000	75,000	75,000	75,000										300,000		300,000	
	Sampling and Metering for Storm Drain Model Validation	20-206-003	722400	200	000000	40100	CP06A		8,000	8,000			8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000		96,000	16,000	-	112,000
	Storm Drain Improvements in Brighton	19-309-004					RATE				60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000		600,000	385,634		985,634
	Storm Drain Improvements in East Boston	19-309-002					MWIR				75,000	75,000	75,000	75,000	75,000	75,000						561,230		561,230	
	City Proper Drain Pipe Improvements	19-308-004					RATE															150,000	150,000	300,000	
	Storm Drain Improvements City Wide	19-308-003					CP06A					17,749	35,499	35,499	35,499	35,499	35,499	35,499	35,499			248,492	230,744	479,236	
	Storm Drain Improvements in Charlestown	19-308-002					RATE					133,921	89,281	89,281	89,281	89,281	89,281	89,281	89,281	44,640		674,966	606,582	606,582	1,858,130
	South End Storm Drain Improvements Phase I	19-308-001					RATE						37,800									37,800		37,800	
	Storm Drain Improvements in Roslindale, Hyde Park, and Mattapan	18-309-003					RATE				52,381	52,381	52,381	52,381	52,381	52,381	52,381	52,381	52,381			471,429	628,571	1,100,000	
	Storm Drain Improvements in Fenway	18-309-001					RATE				81,275	81,275	81,275	81,275	81,275	81,275	81,275	81,275	81,275	52,381		568,925	568,924	568,924	1,706,773
	Storm Drain Improvements in Dorchester	18-308-003					CP06A						2,164									10,920			10,920
	Storm Drain Improvements in Upper Roxbury Phase III	17-309-011					MWIR		8,736				300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000		3,000,000	2,000,000	5,000,000	
	Storm Drain Work in Beacon Hill	17-308-006					CP06A				48,817			12,204								61,021		61,021	
	Green Infrastructure																								
	Totals		721400	200	000000	40100	RATE	3241170304														750,000	500,000	250,000	1,500,000
									512,216	530,187	1,068,210	1,038,141	1,070,418	1,535,737	1,693,939	1,565,166	1,842,009	1,915,290	1,980,295	1,258,105		16,309,713	14,865,345	13,394,749	44,569,807
Bonds																									
	Rate								125,000	134,235	232,177	184,485	107,177	107,177	60,000	60,000	60,000	154,950	60,000	60,000	2,041,849	989,412	4,685,033	7,716,294	
	WASAP								105,000	105,000	205,200	245,000	296,852	772,201	864,784	736,011	655,711	634,042	875,272	649,404	10,808,098	11,619,057	7,540,416	29,967,571	
SRF																									

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# APPENDIX A - GLOSSARY

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**ARB:** A trademark for Schlumberger remote meter reader interfaces. See also R.M.I.

**Board of Commissioners:** The three-member governing board of the Commission.

**Bond:** A written promise to pay a specific sum of money (called the face value or principal amount) at a specific date or dates in the future (called the maturity dates), together with periodic interest at a specific or variable rate.

**Bond Resolution:** A document that contains terms and conditions relating to the issuance and sale of bonds and sets forth the obligations to bondholders.

**BWSC:** The Boston Water and Sewer Commission.

**Capital Improvement Program (CIP):** A plan which identifies and estimates the nature, schedule, cost, priority, and financing of long-term assets that the Commission intends to build or acquire during a specific period.

**Cleaning and Lining:** A process to improve unlined but structurally sound, older cast iron mains. The mains are cleaned and lined with cement (while still in place) to improve hydraulic capacity and extend useful life.

**Collection System:** The pipes, conduits, pumping stations and appurtenances involved in the collection and transport of wastewater and storm-water.

**Combined Sewer:** A sewer designed to receive both sanitary sewage and storm-water runoff.

**CSO (Combined Sewer Overflow):** The discharge from combined sewers which collect both sanitary sewage and storm-water runoff for wastewater treatment under normal (dry) weather conditions. During rainstorms, the system becomes overloaded and the excess is discharged directly into neighboring waterways from CSO outlets. In the City of Boston area there are 37 permitted combined sewer overflow outlets.

**Current Expense Budget (CEB):** A financial plan which estimates the revenues and expenses associated with the Commission's operations for a fiscal year.

**Debt Service:** In a given fiscal year, the amount of money necessary to pay interest and principal on outstanding debt instruments.

**DEP (Department of Environment Protection):** The Massachusetts agency that regulates water pollution control, water supplies, drinking water quality and waterways and certifies projects for eligibility under the Water Pollution Abatement Trust Loan programs.

**Department:** A sub-unit of a division.

**Division:** A major organizational unit within the Commission, encompassing the activities and resources for providing a major service or function.



**Drain:** A pipe or conduit which conveys storm-water.

**Enabling Act:** Chapter 436 of the Acts of the Commonwealth of Massachusetts of 1977, the legislation which established the BWSC and defined its purpose and responsibilities as of August 5, 1977.

**EPA (Environmental Protection Agency):** The federal government agency responsible for environmental enforcement and investigation. The EPA enforces the provisions of the Safe Drinking Water Act and the Clean Water Act.

**Expenditures:** Actual payment within a specified period for goods and services received.

**Fiscal Year:** The 12-month financial period used by the Commission which begins January 1 and ends December 31 of the same calendar year.

**General Revenue Bonds:** Bonds which are general obligations of the issuer where the full faith and credit of the issuer is pledged to the payment of the principal and interest thereon utilizing the revenue to be generated through the sale of a particular commodity, service or toll.

**Hydrant:** A device connected to a public water main for the purpose of providing water for firefighting or other authorized purposes.

**Illegal Connection:** A sanitary sewer service which is connected to a storm drain system, thus contributing sewerage.

**Infiltration/Inflow:** Extraneous sources of water that enter the sanitary system and are transported unnecessarily to the treatment facility. Infiltration is groundwater that leaks into the sanitary sewerage system through pipe joints and defects. Inflow refers to water that enters sewers from improperly connected catch basins, sump pumps, downspouts, basement drains and defective manholes. Inflow also enters through defective harbor CSO tide-gates when the tide is high.

**Interceptors:** The large pipes or culverts that convey wastewater from the localized collection system to the treatment plant.

**Meter:** An instrument for measuring the flow of water.

**Meter Pit:** An underground vault enclosing a meter.

**MWRA (Massachusetts Water Resources Authority):** An agency created by the Massachusetts Legislature through the passage of Chapter 372 of the Acts of 1984, responsible for providing wholesale potable water and wastewater collection, transport, delivery and treatment services to user Communities in Eastern Massachusetts. The Communities provide retail services directly to their customers or end users.

**NPDES (National Pollutant Discharge Elimination System):** A permit issued by EPA in conjunction with DEP to govern discharges into waterways.

**Potable Water:** Water fit for human consumption in conformance with the regulations of the Environmental Protection Agency and the Massachusetts Department of Environmental Protection.

**Program:** An organized group of activities and the resources to carry them out, aimed at achieving related goals.

**Public Water Main:** The piping and associated valves, hydrants and appurtenances installed in a public way, Commission-owned easement, or private way open to public travel, for the purpose of supplying water to one or more customers or for public fire protection.

**R.M.I:** Remote Meter Interface. A device for reading water meters using a hand held computer which is plugged into an outside box wired to the meter.

**Rate Revenue:** Income received in a specified period from user charges for providing water and sewer services.

**Rehabilitation:** Any process which serves to extend the useful life of a pipe or structure which is in need of repair.

**Residential Meter:** A meter two inches in size or smaller used to measure the flow of water to predominantly residential properties.

**Sanitary Sewage:** Liquid and water-carried human and domestic wastes from buildings, exclusive of ground, storm and surface water.

**Sanitary Sewers:** In a separated system, pipes that carry only domestic or commercial sanitary sewage as opposed to rainwater runoff.

**Sewer:** A pipe or conduit that carries wastewater

**Sewer System:** The combined Wastewater System and Storm Drainage System.

**Storm Drain:** A pipe or conduit designed to carry storm-water or surface water runoff.

**Storm Drainage System:** Storm drains, tidegates, flow regulators, catch basins, storm-water pumping stations and appurtenant facilities.

**Storm Sewers:** Storm drains or storm drainage system.

**Stormwater:** Any water resulting from rainfall or other precipitation that runs off surfaces during or after a storm.

**Unaccounted-for Water:** The difference between the volume of water withdrawn from the source of supply and the volume of water billed to customers. Unaccounted for water is caused by system losses, fire protection and construction activities.

**Valve:** A device used in water systems to control the flow of water.

**Wastewater:** The spent water of a community, which may be a combination of the liquid and water-carried domestic or industrial wastes from buildings, together with any groundwater and stormwater that may be present

**Wastewater System:** The totality of the devices, equipment or works used in transportation, pumping, storage, treatment, recycling, or reclamation of wastewater or in the disposal of the effluent.

**Water Service Pipe:** The connection, piping and associated valves and appurtenances that extend from a public water main to a building or property for the purpose of supplying water.

## APPENDIX B - KEY ABBREVIATIONS

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SIZE	DESCRIPTION
4 W/ 8	4" PIPE IS REPLACED WITH 8" PIPE
6 W/ 8	6" PIPE IS REPLACED WITH 8" PIPE
8 W/ 12	8" PIPE IS REPLACED WITH 12" PIPE

TYPE	TYPE OF SEWER PIPE
D	STORM DRAIN
S	SEWER
W	WATER

## APPENDIX C – STREET LISTING

Contract 22-308-001

Street	Limits	Neighborhood	Length	Size	Type
Tyler St	Kneeland St to Beach St	Downtown	250	18, 39x36, 12	S
Tyler St	Kneeland St to Beach St	Downtown	360	12	W
Kneeland St	Tyler St to Harrison Ave	Downtown	20	15	S
Hudson St	Kneeland St to Beach St	Downtown	605	8"; 12"	W
Pemberton Sq	Somerset St to Somerset St	Downtown	900	12	W
Huntington Ave	Belvidere St to Massachusetts Ave	Fenway/ Kenmore	1625	8	W
Exeter St	At Commonwealth Ave	Back Bay	250	16	W
Bowker St/ Hawkins St	New Chardon St to New Sudbury St	Downtown	1650	8, 12	W
Water			5,390		
Sewer			270		

Contract 22-308-002

Street	Limits	Neighborhood	Length	Size	Type
Norton St	River St to Readville St	Hyde Park	1230	8	W
Dunns Ter	End to Minot St	S. Dorchester	230	4	W
Arborcrest Ter	Gladeside Ave to Ridgeview Ave	Mattapan	490	8	W
Gladeside Ter	End to Gladeside Ave	Mattapan	225	6	W
Westmount Ave	LaGrange St to Mount Vernon St	W. Roxbury	640	8	W
Pleasant Ave	Westmount Ave to Dead End	W. Roxbury	160	8	W
Eustis St	Magazine St to Dearborn	Roxbury	2050	8	W
Roslindale Ave	West Roxbury Pkwy to Beech St	Roslindale	680	8	W
Hillis Rd	End to Church St	Hyde Park	230	6	W
Hardwick St	Bigelow St to Dunboy St	Allston/Brighton	770	8	W
Hardwick Ter	Hardwick St to End	Allston/Brighton	125	6	W
Water			6,830		

Contract 22-308-003

Street	Limits	Neighborhood	Length	Size	Type
Willers St	Edgemere Rd to Fensmere Rd	W. Roxbury	215	8	W
Georgetowne Dr	Willers St to Dedham Blvd	W. Roxbury	3120	12	W

Margaretta Dr	Georgetowne Dr to End	W. Roxbury	1120	8	W
Georgetowne Pl	Georgetowne Dr to End	W. Roxbury	875	8	W
Water			5,330		

Contract 22-309-003

Streets	Limits	Neighborhood	Pipe Length	Size	Type
Thornton St	Cedar St to Guild St	Roxbury	800	8	W
Thornton St	Cedar Sq to Guild St	Roxbury	520	8	CS
Thornton St	Cedar Sq to Guild St	Roxbury	400	12, 15, 18	SD
Lambert Av	Cedar St to Bartlett St	Roxbury	1255	12	W
Lambert Av	Logan St to Norfolk St	Roxbury	745	12 to 15	CS
Lambert Av	Logan St to Norfolk St	Roxbury	750	TBD	SD
Logan St	9 Logan St to 23 Logan St	Roxbury	110	10	CS
Logan St	23 Logan St to Thornton St	Roxbury	210	8	CS
Juniper St	Cedar Sq to Cedar St	Roxbury	180	12	CS
Juniper St	Juniper Ter to Cedar St	Roxbury	475	TBD	SD
Cedar St	Juniper St to Washington St	Roxbury	150	TBD	SD
Rockledge St	4 Rockledge St to Thornton St	Roxbury	330	10	CS
Rockledge St	25 Rockledge to Thornton St	Roxbury	75	TBD	SD
Guild St	Thornton St to Washington St	Roxbury	330	12	CS
Guild St	Thornton St to Washington St	Roxbury	260	TBD	SD
Highland St	Cedar St Intersection	Roxbury	45	12	CS
Highland St	Millmont St to Cedar St	Roxbury	440	12	CS
Highland Av	Highland St to Centre St	Roxbury	440	12	CS
Centre St	Highland Av to Highland St	Roxbury	595	15	CS
Centre St	Highland Av to Highland St	Roxbury	460	TBD	SD
Eliot Ter	Entire St	Roxbury	90	6	W
Morley St	Entire St	Roxbury	230	8	W
Morley St	Entire St	Roxbury	210	12	CS
Highland St	Morley St to Norfolk St	Roxbury	150	12	CS
Highland St	Norfolk St to 18 Highland St	Roxbury	40	12	CS
Highland St	Norfolk St to Centre St	Roxbury	355	TBD	SD
Bartlett St	Dudley St to Blanchard St	Roxbury	115	9 to 10	CS
Bartlett St	Blanchard St to Bartlett Station Dr	Roxbury	455	TBD	SD
Kenilworth St	13 Kenilworth St to Dudley St	Roxbury	255	12	CS
Kenilworth St	13 Kenilworth St to Dudley St	Roxbury	255	TBD	SD
Dudley St	Lambert Av to Shawmut Av	Roxbury	735	TBD	SD

Water	2375					
Sewer	4715					
Drain	4370					

Contract III 22-309-012

Street	Limits	Neighborhood	Length	Size	Type
Bowen St	D St to Dorchester St	South Boston	1,230	12,15	D
Bowen St	D St to Dorchester St	South Boston	1,415	10,15	S
Bowen St	D St to Dorchester St	South Boston	990	8,12	W
D St	# 215 to W. Seventh St	South Boston	760	12,24	D
D St	# 215 to W. Seventh St	South Boston	265	10,15	S
D St	# 215 to W. Seventh St	South Boston	1,465	12,30	W
E St	W. Broadway to W. Seventh St	South Boston	1,180	12	D
E St	W. Broadway to W. Seventh St	South Boston	600	10,12	S
E St	W. Broadway to W. Seventh St	South Boston	1,205	12	W
F St	Silver St to Bowen St to West Seventh St	South Boston	810	12,15,18,30	D
Gold St	D St to Dorchester St	South Boston	1,230	12	D
Gold St	D St to Dorchester St	South Boston	1,030	15	S
Gold St	D St to Dorchester St	South Boston	1,030	8	W
Lilly St		South Boston			
Lovis St		South Boston			
Silver St	D St to Dorchester St	South Boston	960	12,15	D
Silver St	D St to Dorchester St	South Boston	1,150	10,12	S
Tudor St	D St to #156 and F St to Dorchester St	South Boston	130	12,15	D
Tudor St	D St to #156 and F St to Dorchester St	South Boston	645	10	S
W Fifth St	D St to Dorchester St	South Boston	1,545	12,30	D
W Fifth St	D St to Dorchester St	South Boston	1,115	8,12	W
W Fourth St	D St to Dorchester St	South Boston	1,245	12,24,30	D
W Fourth St	D St to Dorchester St	South Boston	1,965	8,20	W
Seventh St	D St to Dorchester St	South Boston	1,500	18,36,42	D
Seventh St	D St to Dorchester St	South Boston	545	24	S
W Sixth St	D St to Dorchester St	South Boston	1,160	12	D
W Sixth St	D St to Dorchester St	South Boston	545	24	S
W Sixth St	D St to Dorchester St	South Boston	540	8	W
Water			8,310		
Sewer			6,195		
Drain			11,750		

Contract 21-308-001

Street	Limits	Neighborhood	Length	Size	Type
Dorchester Avenue	Von Hillern to Columbia Road	Dorchester	1700	12	W
Norwell St	Park to Carmen	Dorchester	2300	12	W
Columbia Road	Mercer to Farragut	South Boston	7200	16	W
Farragut Road	East Third Street to Columbia Road	South Boston	1300	16	W
East Fifth Street	O St to P St	South Boston	525	8	W
East Sixth Street	K St to L S	South Boston	615	12	W
Marine Road	Paige Ave to L St	South Boston	565	12	W
K Street	Marine Rd to William J Day Blvd	South Boston	300	8	W
M Street	Marine Rd to Columbia Rd	South Boston	210	8	W
M Street	East Sixth St to East Seventh St	South Boston	245	8	W
Farragut Road	East Third Street to Columbia Road	South Boston	303	15	SS
East Fourth Street	P St to F919 East Fourth St	South Boston	200	12	SS
East Sixth Street	O Street to Farragut Rd	South Boston	990	12	SS
East Sixth Street	K St to L S	South Boston	270	12	SS
East Sixth Street	518 East Sixth to Webb Pk	South Boston	140	16x24	SS
East Seventh Street	Viking St to M St	South Boston	285	12x18	SS
Water			14,960		
Sewer			2,188		

Contract 21-308-003

Street	Limits	Neighborhood	Length	Size	Type
North St	Union St to Blackstone St	City Proper	45	12	D
North St	Union St to Blackstone St	City Proper	160	12	W
Clinton St	North St to Commercial St	City Proper	780	12	W
Clinton St	North St to Commercial St	City Proper	280	15	S
Essex St	Washington St to Kingston St	City Proper	1,820	12	W
Essex St	Lincoln St to South St	City Proper	145	12	W
Chauncy St	Ave. De Lafayette to Summer St	City Proper	535	12, 10	S
Chauncy St	Ave. De Lafayette to Summer St	City Proper	510	12	W
Congress St	Milk St to Purchase St	City Proper	1,350	15,18,24	W
Pearl St	Milk St to Purchase St	City Proper	1,020	12	S
Hanover St	Congress St to Blackstone St	City Proper	120	12	W
Water			4,885		
Sewer			1,835		

Drain			45		
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Contract 21-309-001

Street	Limits	Neighborhood	Length	Size	Type
Coniston Rd (Easement)	#104 Walther Street to Roslindale Wetlands	Roslindale	785	12, 15	SS
Waumbeck St	#101 to Wabeno St	Roxbury	700	10,12	SS
Humboldt Ave	Waumbeck Street to Townsend St	Roxbury	625	12	SD
Hollander St	Harold St to Crawford St	Roxbury	345	18	SS
Walnut Ave	Harrisof St to Holworthy St	Roxbury	245	12, 18	SD
Thwing St (Easement)	#55 (rear) to 43 Beech Glen (rear) Thwing (easement)	Roxbury	465	8,10	SS
Sanford Street	#15 Sanford to Vallaro Rd	Hyde Park	20	18	SS
Manilla Ave (Easement)	Norton St to Neponset Valley Pkwy	Hyde Park	195	18	SD
Westinghouse Plaza	Readville Ave to parking lot #1 Westinghouse Pz	Hyde Park	275	20	SS
Readville St	Como Rd to Albemarle St	Hyde Park	870	10	SD
Chesterfield St	Epson Rd to Manilla Ave	Hyde Park	300	10	SD
Danny Rd	#52 Danny Rd to #32 Danny Rd	Hyde Park	205	8	SS
Como Rd	#40 Como Rd to Readville St	Hyde Park	400	10	SS
Ernest Ave	Marion St to Como Rd	Hyde Park	90	8	SS
Denison St	Hailey St to End	Roxbury	680	12	SS
Denison St	Hailey St to End	Roxbury	400	12	SS
Drain			2235		
Sewer			4365		

Contract 21-309-002

Streets	Limits	Pipe Length	Size	Type	Year
Bennington St	Porter St To Brooks St	811.57	12	Pit Cast Iron	1903
Bennington St	Porter St To Brooks St	659.60	12	Pit Cast Iron	1915
Bremen	Porter To Sumner St	995.77	10	Pit Cast Iron	1906
Bremen	Porter To Sumner St	475.50	8	Pit Cast Iron	1908
Brooks St	Bremen St To White St	194.09	10	Pit Cast Iron	1888
Eutaw St	Marion St To White St	458.34	8	Cast Iron Cement Lined	1951
Eutaw St	Marion St To White St	671.65	8	Ductile Iron Cement Lined	1970
George R Visconti Rd	Chelsea St To London St	637.76	8	Cast Iron Cement Lined	1952
Gove St	Havre St To Bremen St	54.26	12	Pit Cast Iron	1898



Gove St	Havre St To Bremen St	621.83	8	Pit Cast Iron	1901
Gove St	Havre St To Bremen St	8.30	10	Pit Cast Iron	1906
Lexington St	Marion St To Putnam St	1299.54	10	Pit Cast Iron	1921
Marion Street	Lexington St To Bremen St	34.16	8	Pit Cast Iron	1885
Paris St	Maverick St To Porter St	262.78	10	Pit Cast Iron	1903
Paris St	Maverick St To Porter St	6.28	10	Pit Cast Iron	1915
Paris St	George R Visconti Rd To Brooks St	14.832149	12	Pit Cast Iron	1915
Paris St	George R Visconti Rd To Brooks St	1183.34	10	Pit Cast Iron	1915
Paris St	George R Visconti Rd To Brooks St	27.08	12	Pit Cast Iron	1916
Paris St	George R Visconti Rd To Brooks St	26.89	8	Cast Iron Cement Lined	1952
Princeton St	Meridian St To Putnam St	22.66	8	Pit Cast Iron	1885
Saratoga St	Meridian St To Putnam St	2083.74	8	Pit Cast Iron	1906

Contract II 21-309-012

Street	Limits	Neighborhood	Length	Size	Type
Baxter St	C St to E St	South Boston	626	12, 15, 18	D
Baxter St	C St to E St	South Boston	321	12	S
Baxter St	C St to E St	South Boston	1,125	8	W
Bell Ct	At D St	South Boston	25	12	S
C St	Old Colony Ave to West Seventh St	South Boston	144	12	S
C St	Old Colony Ave to West Seventh St	South Boston	310	12	W
D St	Dorchester Ave to West Seventh St	South Boston	1,217	30,36,42,60	D
D St	Dorchester Ave to West Seventh St	South Boston	1,250	18,24	S
D St	Dorchester Ave to West Seventh St	South Boston	2,495	12,30	W
Damrell St	Dorchester Ave to Old Colony Ave	South Boston	732	15,18	D
Damrell St	Dorchester Ave to Old Colony Ave	South Boston	802	12	S
Damrell St	Dorchester Ave to Old Colony Ave	South Boston	830	12	W
E St	Old Colony Ave to West Seventh St	South Boston	732	15,18	D
E St	Old Colony Ave to West Seventh St	South Boston	802	12	S
E St	Old Colony Ave to West Seventh St	South Boston	590	8,10	W
Earl St	Old Colony Ave to West Ninth St	South Boston	161	12	S
Earl St	Old Colony Ave to West Ninth St	South Boston	160	6,8	W
Ewer St	Damrell St to West Ninth St	South Boston	368	18	D

Ewer St	Damrell St to West Ninth St	South Boston	88	12	S
Ewer St	Damrell St to West Ninth St	South Boston	585	8	W
Glover Ct	Woodward St to End	South Boston	179	12	D
Glover Ct	Woodward St to End	South Boston	4	12	S
Gustin St	Old Colony Ave to End	South Boston	151	12	D
Gustin St	Old Colony Ave to End	South Boston	56	10	S
Middle St	Dorchester Av to Dorchester St	South Boston	791	12	D
Middle St	Dorchester Av to Dorchester St	South Boston	801	12	S
Middle St	Dorchester Av to Dorchester St	South Boston	845	8	W
Old Colony Ave	Dorchester Av to Dorchester St	South Boston	145	12,24	D
Old Colony Ave	Dorchester Av to Dorchester St	South Boston	1,096	12,15	S
Old Colony Ave	Dorchester Av to Dorchester St	South Boston	2,655	8,10,12	W
Tuckerman St	Middle St to No. 18 Tuckerman St	South Boston	91	12	D
Tuckerman St	Middle St to No. 18 Tuckerman St	South Boston	23	10	S
West Eight St	East St to End	South Boston	94	12	D
West Eight St	East St to End	South Boston	463	12,15	S
West Eight St	East St to End	South Boston	855	8	W
West Ninth St	D St to E St	South Boston	540	36,42	D
West Ninth St	D St to E St	South Boston	542	12,15,24	S
West Seventh St	At D St	South Boston	66	42,48	D
West Seventh St	At D St	South Boston	83	18,42	S
West Seventh St	At D St	South Boston	110	12,30	W
Woodward St	Dorchester Av to Dorchester St	South Boston	356	12	D
Woodward St	Dorchester Av to Dorchester St	South Boston	345	10,12,15	S
Woodward St	Dorchester Av to Dorchester St	South Boston	680	4,8	W
Water			11,240		
Sewer			7,006		
Drain			6,088		

Contract 20-308-001

Streets	Limits	Neighborhood	PIPE LENGTH	SIZE	TYPE
Harrison Avenue	Melnea Cass Blvd to East Berkley	South End	5,335.00	16", 12", 30"	W
Harrison Avenue	Melnea Cass Blvd to East Berkley	South End	1,250.00	12", 18"	SS
Traveler Street	Washington Street to Harrison Avenue	South End	330	12"	W
Union Park Street	Washington Street to Harrison Avenue	South End	460	8"	W
Washington Street	Talbot Street to Park Street	Dorchester	1,935.00	12"	W

Washington Street	at Fendale Street	Dorchester	35	12"	SS
Washington Street	Richmond Street to Morton Street	Dorchester	230	12"	SS
Washington Street	Rugdale Road to 1014 Washington Street	Dorchester	180	12"	SS
Washington Street	1058 Washington Street to Saint Gregory Street	Dorchester	120	12"	SS
Water			8060		
Sewer			1815		

Contract 20-308-002

Streets	Limits	Neighborhood	Pipe Length	Size	Type
Shawmut Avenue	Milford Street to West Brookline (SL)	South End/ City Proper	1,700	12	WREL
Waltham Street	Tremont Street to Washington Street (SL)	South End/ City Proper	1,130	12	WREL
Hanson Street	Tremont Street to Shawmut Avenue (SL)	South End/ City Proper	650	8	WREL
Shawmut Avenue	Melnea Cass to Massachusetts Avenue (SL)	South End/ City Proper	1,650	16	WREL
Shawmut Avenue	Massachusetts Turnpike to E. Berkeley Street (SL)	South End/ City Proper	1,000	12	WREL
Bond Street	Milford Street to Hanson Street (SL)	South End/ City Proper	200	8	WREL
Shawmut Avenue	Pelham Street to Upton Street	South End/ City Proper	65	24	SLIN
Shawmut Avenue	West Dedham to Drapers Lane	South End/ City Proper	135	15	DLIN
Shawmut Avenue	Massachusetts Turnpike to E. Berkeley Street	South End/ City Proper	155	15	SLIN
Shawmut Avenue	Kendall Street to Lenox Street	South End/ City Proper	220	10	SLIN
Shawmut Avenue	Upton Street to Union Park Street	South End/ City Proper	145	18	DLIN
Shawmut Avenue	Paul Place to Emerald Court	South End/ City Proper	100	10	SLIN
Shawmut Avenue	West Brookline Street to San Juan Street	South End/ City Proper	235	10	SLIN
Hanson Street	Tremont Street to Ringold Street	South End/ City Proper	310	18	DLIN
Hanson Street	Tremont Street to Ringold Street	South End/ City Proper	315	12	SLIN
Waltham Street	Shawmut Avenue Washington Street	South End/ City Proper	205	10	SLIN

Waltham Street	Rear 275-291 Shawmut Avenue	South End/ City Proper	115	12	SLIN
Waltham Street	Bradford Street at Waltham Street	South End/ City Proper	190	12	SLIN
Water			6330		
Sewer			1600		
Drain			590		

Contract 20-308-003

Street	Limits	Neighborhood	Length	Size	Type
New Rutherford Ave	Cambridge St to Austin St	Charlestown	3,800	16	W
New Rutherford Ave	Cambridge St to Dunstable St	Charlestown	2,800	8	W
New Rutherford Ave	West School St to Front St	Charlestown	1,700	8	W
New Rutherford Ave	Cambridge St to Front St	Charlestown	2,400	12 to 78	SS, SD
Austin St	New Rutherford St to Warren St	Charlestown	1,000	8	W
Caldwell St	29JV132 (at Maffa Way)	Charlestown	50	24	W
Water			9,350		
Drain			2,400		

Contract 20-308-004

Street	Limits	Neighborhood	Length	Size	Type
Monument St	Bunker Hill to Medford	Charlestown	625	12	W
Tufts St	Bunker Hill to Medford	Charlestown	725	8	W
Corey St	Vine to Medford	Charlestown	825	12	W
Moulton St	Vine to end	Charlestown	100	8	W
David G Mugar Way	Beacon to Back	Back Bay/Beacon Hill	200	12	W
Berkeley St	Beacon to Back	Back Bay/Beacon Hill	200	12	W
Exeter St	Beacon to Back	Back Bay/Beacon Hill	1	HYD	W
Charlesgate East	Beacon to Back	Back Bay/Beacon Hill	200	12	W
Raleigh St	Baystate to Back	Back Bay/Beacon Hill	160	12	W
Water			<b>3,036</b>		

Contract 20-308-005

Street	Limits	Neighborhood	Length	Size	Type
Smith St	Worthington to Huntington Av	Mission Hill	150	12	W

Calumet St	St. Alphonsus to Darling	Mission Hill	700	8	W
Charles St South	Stuart St to Tremont St	City Proper	600	10	W
Warrenton Place	Charles St South to Warrenton St	City Proper	200	8	W
Warrenton Pl	Charles St South to Warrenton St.	City Proper	200	8	W
Warrenton St	Stuart to Warrenton Pl	City Proper	450	12	W
Warrenton St	Stuart to Warrenton Pl	City Proper	450	12	W
Stuart St	Charles St South to Warrenton St	City Proper	200	12	W
Charles St South	Stuart St to Tremont St	City Proper	34	12	S
Calumet St	St Alphonsus to Darling	Mission Hill	2,223	12 to 36	S, SD
Fairfield St	Beacon to Back	Back Bay/Beacon Hill	200	12	W
Gloucester St	Beacon to Back	Back Bay/Beacon Hill	200	12	W
Hereford St	Beacon to Back	Back Bay/Beacon Hill	200	12	W
Mass Ave	Beacon to Back	Back Bay/Beacon Hill	200	12	W
Sewer & Drain			<b>2257</b>		
Water			<b>3750</b>		

Contract 20-309-002

Streets	Limits	Neighborhood	Pipe Length	Size	Type
Adams Street	Winthrop Street to Chestnut Street	Charlestown	470	8"	W
Adams Street	Winthrop Street to Chestnut Street	Charlestown	245	10"	SS
Adams Street	Winthrop Street to Chestnut Street	Charlestown	125	18"	SD
Common Street	Adams Street to Park Street	Charlestown	285	8"	W
Common Street	Adams Street to Park Street	Charlestown	290	15"	SS
Park Street	Common Street to City Square	Charlestown	435	8"	W
Park Street	Common Street to City Square	Charlestown	220	12",24"	SD
City Square	Park Street to Harvard Street	Charlestown	80	16"	W

City Square	Park Street to Harvard Street	Charlestown	275	24",30"	SD
Winthrop Street	Adams Street to Main Street	Charlestown	830	8"	W
Winthrop Street	Adams Street to Main Street	Charlestown	155	12"	SD
Winthrop Street	Adams Street to Main Street	Charlestown	595	12"	SS
Monument Avenue	Main Street to Monument Square	Charlestown	825	8"	W
Monument Avenue	Main Street to Monument Square	Charlestown	340	12",15"	SD
Monument Avenue	Main Street to Monument Square	Charlestown	745	12",15"	SS
Pleasant Street	Warren Street to High Street	Charlestown	445	12" 18"	SS
Pleasant Street	Warren Street to High Street	Charlestown	145	12"	SD
Pleasant Street	Warren Street to High Street	Charlestown	65	8"	W
Union Street	# 20 to Rutherford Avenue	Charlestown	235	12"	SS
Lynde Street	#44 to Union Street	Charlestown	345	12",15"	SS
New Rutherford Avenue	Cross Country from Union Street	Charlestown	185	12"	SS
New Rutherford Avenue	Rutherford Avenue to 200' on Rutherford Avenue	Charlestown	130	12"	SS
Warren Street	Church Street to Pleasant Street	Charlestown	325	10",15"	SS
Prescott Street	# 25 Prescott to Devens Street	Charlestown	385	12"	SS
Prescott Street	# 25 Prescott to Devens Street	Charlestown	90	15"	SD
Thompson Street (Easement)	Main Street to Warren Street	Charlestown	185	6"	W
Thompson Street (Easement)	Main Street to Warren Street	Charlestown	160	10"	SS
Soley Street	# 6 Soley Street to Warren Street	Charlestown	20	12"	SS
Main Street	at Austin Street	Charlestown	35	24"	SS
Water	3175		3175		
Sewer			4140		
Drain			1350		

Contract 20-309-004

Streets	Limits	Neighborhood	PIPE LENGTH	SIZE	TYPE
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A Street	#8 To Fulton Street	Hyde	230	10	S
Ashmont Street	Easement Rear #585 Ashmont St To Coffey St	S. Dorchester	80	12	S
Ashmont Street	Easement Rear #585 Ashmont St To Coffey St	S. Dorchester	325	12, 15	S
Austin Street	#12 Austin St To Gordon Ave	Hyde Park	260	8	S
Belgrade Avenue	#102 To #189	Roslindale	730	10	S
Belgrade Avenue	#134 To Metcalf Street	Roslindale	1535	12	D
Blue Hill Avenue	From Fairway St To River St	Mattapan	370	15	S
Chilton Road	#42 To Maple St	W. Roxbury	150	12	D
Coffey Street	From Newhall St To Neponset Av	S. Dorchester	395	12, 15	S
Cummins Highway	At Greenfield Rd And #748 To Favre St	Mattapan	265	10, 15	D
Cummins Highway	From Harvard St To Blue Hill Av	Mattapan	1175	10, 12, 18	S
Dove Street	#1 To Dacia St	Roxbury	220	10	S
Dyer Street	#10 To #19	Mattapan	200	8	S
Emrose Terrace	Magnolia St To End	Roxbury	185	8	S
Fairway Street	From Cummins Hwy To Blue Hill Av	Mattapan	90	10	D
Farmington Road	From Garnet Rd To Manthorne Rd	W. Roxbury	240	12	S
Favre Street	#12 To Cummins Highway	Mattapan	175	18	S
Florian Street	From Wachusett St To Hyde Park Av	Roslindale	280	30	S
Garnet Road	#31 To #47	W. Roxbury	200	12	S
Gordon Avenue	#57 To #61	Hyde Park	120	10	S
Hartford Street	#55 To Hartford Ct.	Roxbury	10	8	S
Hebron Street	#179 To Cummins Highway	Mattapan	195	10	S
Hebron Street	#178 To Cummins Highway	Mattapan	180	15	D
Howard Avenue	From Wayland St To Cunningham St	Roxbury	135	15	S
Howard Avenue	#81 To #38 Brookford St	Roxbury	300	12	S
Hyde Park Avenue	#335 To #249	Hyde Park	1250	30	S
Independence Drive	#209 To #212	W. Roxbury	190	24	D
Independence Drive	Sherman Rd To #291	W. Roxbury	460	12	S

Magnolia Street	#108 To #127	Roxbury	155	12	S
Manthorne Road	Farmington Rd To #248	W. Roxbury	200	15	D
Maple Street	#650 Vfw To Avalon Rd.	W. Roxbury	250	36	D
Margin Street	From Hyde Park Av To Fulton St	Hyde Park	230	8	S
Marvin Street	From Shawmut Av To Washington St	Roxbury	185	10	S
Middleton Street	Easement From #35 To #59 Willowood St	Mattapan	190	24	D
Middleton Street	#19 To Wildwood St	Mattapan	165	12	D
Mountain Avenue	From Woodrow Av To Ballou Av	Mattapan	710	10	D
Mountain Avenue	From Woodrow Av To Ballou Av	Mattapan	310	12	S
Myrtlebank Avenue	#76 To Milton St	S. Dorchester	195	12	D
Myrtlebank Avenue	#88 To Hilltop Ave	S. Dorchester	165	10	S
N Street	From East Broadway To East Fourth St	S. Boston	10	8	S
Neponset Avenue	From Tolman St To Mckone St	S. Dorchester	265	18	D
Peacevale Road	#11 To Norfolk St And #42 To End	S. Dorchester	340	8, 10	S
Regis Road	From Chester Park To Blue Hill Av	Mattapan	130	12	D
Rexford Street	#32 To #60	Mattapan	385	12	S
River Street	At Cummins Hwy To #1667 Blue Hill Ave	S. Dorchester	85	12	S
Rockway Street	From Regis Rd To Rexford St	Mattapan	235	10	S
Ruskindale Road	Easement From Mariposa St To #24	Hyde Park	210	12	S
Sargent Street	#12 To #23	Roxbury	230	12	D
Sargent Street	#18a To #39	Roxbury	460	12	S
Standard Street	From Woodbole Av To Woodgate St	Mattapan	245	10	S
Talbot Avenue	#15 To Joseph E. Lee School	S. Dorchester	1655	15	S
Theodore Street	#24 To Middleton St	Mattapan	170	12	D
Tileston Street	From Radcliffe Rd To Mercer St	Hyde Park	190	24	D
Tileston Street	From Radcliffe Rd To Winborough St	Hyde Park	455	12, 15	S
Tolman Street	#11 To Neponset Ave	S. Dorchester	160	12	S



Ufford Street	Dyer St To #25	Mattapan	240	10	D
Ufford Street	#21 To #25	Mattapan	120	8	S
Vernon Street	From Shawmut Av To Washington St	Roxbury	355	12, 15	S
Vfw Parkway	Farmington Rd To Independence Dr And Independence Dr To #639	W. Roxbury	835	12	S
Vfw Parkway	#291 Independence Dr. To Vfw Pkwy	W. Roxbury	225	30	D
Wachusett Street	From Southbourne Rd To Florian St	Roslindale	400	30	S
Westover Street	#54 To #68	W. Roxbury	200	12	S
Whitby Terrace	Pleasant St To End	N. Dorchester	270	8	S
Willowwood Street	From Harwood St To Norfolk St	Mattapan	555	15, 18	S
Willowwood Street	From Harwood St To Woodrow Av	Mattapan	170	30	D
Woodhaven Street	#51 To Messinger St	Mattapan	265	10	S
Woodhaven Street	#51 To #63	Mattapan	155	12	D
Woodrow Avenue	From Willowwood St To Irma St	Mattapan	265	18	S
Sewer			16085		
Drain			5895		

Contract 20-309-006

Streets	Limits	Neighborhood	Pipe Length	Size	Typ e
Gordon Avenue (Hyde Park)	#61 Gordon Avenue To Child Street	Hyde Park	185	10	Ss
Windham Road (Roslindale)	Sherrin Avenue To #85 Windham Avenue	Roslindale	460	12	Ss
Belgrade Avenue (Roslindale)	Walworth Street To #142 Belgrade Avenue	Roslindale	175	10	Ss
Woodhaven Street (Neponset/Mattapan)	Messinger Street To #51 Woodhaven Street	Neponset/Ma ttapan	155	12	Sd
Easement (Tyndale Street Roslindale)	#104 Tyndale Street To #261 Belgrade Avenue	Tyndale Street Roslindale	360	12	Ss
Tyndale Street (Roslindale)	#11 Tyndale Street To Walworth Street	Roslindale	235	12	Ss
Easement (Ruskindale Road Neponset/Mattapan)	#24 Ruskindale Road To #80 Mariposa Street	Ruskindale Road Neponset/Ma ttapan	60	12	Ss
Rockingham Road (Neponset/Mattapan)	#22 Rockingham Road To Cummins Highway	Neponset/Ma ttapan	245	12	Ss

Rockingham Road (Neponset/Mattapan)	#22 Rockingham Road To Cummins Highway	Neponset/Mattapan	170	12	Sd
River Street (Neponset/Mattapan)	River Street At Cummins Highway	Neponset/Mattapan	20	12	Ss
Easement (Livermore Street Neponset/Mattapan)	Livermore Street To Kennebec Street	Livermore Street Neponset/Mattapan	225	10	Ss
Neponsent Avenue (Roslindale)	Wyvern Street To Byrd Avenue	Roslindale	230	12	Ss
Neponsent Avenue (Roslindale)	Wyvern Street To Byrd Avenue	Roslindale	250	12	W
Wyvern Street (Roslindale)	Hyde Park Avenue To Florian Street	Roslindale	170	12	Sd
Canterbury Street (Roslindale)	Paine Street To American Legion Highway	Roslindale	120	12	Ss
Balfour Street (Roxbury/Mission Hill)	Wayland Street To Dalkeith Street	Roxbury/Mission Hill	100	10	Ss
Dove Street (Roxbury/Mission Hill)	Blue Hill Avenue To Dacia Street	Roxbury/Mission Hill	230	12	Sd
Whitby Terrace (Dorchester)	Pleasant Street To End (#23 Whitby Street)	Dorchester	270	8	Ss
Hartford Street (Roxbury/Mission Hill)	#43 Hartford Street To Sargent Street	Roxbury/Mission Hill	210	8	Ss
Hartford Street (Roxbury/Mission Hill)	#43 Hartford Street To Chamblet Street	Roxbury/Mission Hill	190	12	Cs
Vfw Parkway (West Roxbury)	#623 Vfw Parkway To Brucewood Street	West Roxbury	460	12	Ss
George Street (Hyde Park)	Danbury Road To River Street	Hyde Park	625	12	Ss
Tileston Street (Hyde Park)	Radcliffe Road To Winborough Street	Hyde Park	480	12	Ss
Tileston Street (Hyde Park)	Mercer Street To Winborough Street	Hyde Park	245	24	Sd
Peacevale Road (Dorchester)	Norfolk Street To #11 Peacevale Road	Dorchester	155	10	Ss
Easement (Jones Avenue Dorchester)	#49 Jones Avenue To #134 Woodrow Street	Jones Avenue Dorchester	335	12	Ss
Mountain Avenue (Neponset/Mattapan)	Dumas Street To #72 Mountain Avenue	Neponset/Mattapan	115	12	Sd
Theodore Street (Neponset/Mattapan)	Middleton Street To #21 Theodore Street	Neponset/Mattapan	175	12	Sd
Middleton Street (Neponset/Mattapan)	Theodore Street To Wildwood Street	Neponset/Mattapan	220	15	Sd
Hildreth Street (Neponset/Mattapan)	Wildwood Street To #15 Hildreth Street	Neponset/Mattapan	125	18	Sd
Sargent Street (Roxbury/Mission Hill)	Hartford Street To Howard Avenue	Roxbury/Mission Hill	465	12	Sd

Sargent Street (Roxbury/Mission Hill)	Hartford Street To Howard Avenue	Roxbury/Mission Hill	400	12	Ss
G Street (South Boston)	Thomas Park To Columbia Road	South Boston	760	8	Cs
G Street (South Boston)	East Eighth Street To Columbia Road	South Boston	300	12	W
Water			550		
Sewer			6300		
Drain			2070		

Contract I 20-309-012

Street	Limits	Neighborhood	Length	Size	Type
Athens St	S Boston Bypass to C St	South Boston			
B St	W. Second St to Dorchester Ave	South Boston			
Bolton St	S Boston Bypass to B St	South Boston			
Costello Cir		South Boston			
Crowley Rogers Wy	Dalessio Ct to D St	South Boston			
Dalessio Ct		South Boston			
Dorchester Ave		South Boston			
Flaherty Wy	B St to D St	South Boston			
Joyce Hayes Wy	Orton Marota Wy to W Seventh St	South Boston			
St Cashmir St		South Boston			
W. Fourth St	Dorchester Ave to B St	South Boston			
W. Seventh St	Dorchester Ave to D St	South Boston			

Contract 19-308-001

Streets	Limits	Neighborhood	PIPE LENGTH	SIZE	TYPE
Washington Street	#1487 Washington to Union Park Street (North) (SL)	South End/City Proper	650	12	WREL
Mystic Street	Washington St to #46 Mystic Street	South End/City Proper	135	12	WREL
Washington Street	20" Valve Replacement at Mystic (South) (SL)	South End/City Proper	60	20	WREL
Washington Street	MSG Reynolds Way to East Berkely (South) (SL)	South End/City Proper	1,805	12	WREL
Washington Street	Union Park Street to #1200 Washington (North) (SL)	South End/City Proper	915	12	WREL
Washington Street	E. Berkeley St to Traveler (SH) (replace HDPE)	South End/City Proper	280	8	WREL

Washington Street	E. Berkeley St to William E. Mullins Way (SL)	South End/ City Proper	700	16 w/12	WREL
Washington Street	William E. Mullins Way (SL) to Herald Street	South End/ City Proper	300	16 w/12	WREL
East Berkeley Street	Tremont St to Washington St (SH)	South End/ City Proper	1,230	12	WREL
East Berkeley Street	Washington St to Albany St (SH)	South End/ City Proper	1,100	16 w/12	WREL
East Berkeley Street	Harrison St to Albany St (South) (SL)	South End/ City Proper	365	12	WREL
Paul Place	at Herald Street	South End/ City Proper	45	12	WREL
East Berkeley Street	Washington Street to Harrison Avenue	South End/ City Proper	390	36	SLIN
East Berkeley Street	Harrison Avenue to Albany Street	South End/ City Proper	530	36	SLIN
East Berkeley Street	at Albany Street	South End/ City Proper	50	42	SLIN
East Berkeley Street	at Shawmut Avenue	South End/ City Proper	35	15	SLIN
East Berkeley Street	at Tremont Street	South End/ City Proper	35	12	SLIN
Paul Place	Herald to Shawmut Ave.	South End/ City Proper	540	10	SLIN
Paul Place	Herald to Shawmut Ave.	South End/ City Proper	280	15	DLIN
West Brookline Street	Washington Street to #63 West Brookline	South End/ City Proper	175	12	SLIN
Easement (former Waterford Street)	Shawmut Ave to Washington Street	South End/ City Proper	200	12	SLIN
Herald Street	#100 Shawmut Ave to Washington Street	South End/ City Proper	200	12x18	SLIN
Tremont Street	East Berkeley to #100 Shawmut Ave	South End/ City Proper	200	12	SLIN
		TOTAL	7,585		WREL
			2,355		SLIN
			280		DLIN

Contract 19-308-002

Streets	Limits	Neighborhood	PIPE LENGTH	SIZE	TYPE
Water Replacement					
Vine St	Chelsea Street to Bunker Hill	Charlestown	790	8	W
Bunker Hill St	Lowney Way to Allston	Charlestown	3,130	8, 8w12	W

Chelsea St	Constitution to Medford	Charlestown	2,300	12	W
School St	Main Street to Bunker Hill Street	Charlestown	1,350	16w8, 8	W
Bartlett Street	Monument Sq. to Pearl Street	Charlestown	3,260	10w12 SH/NL	W
		TOTAL W	10,830		
Sewer Replacement					
Vine St	at Moulton Street	Charlestown	25	12	SS
Bunker Hill St	Sackville Street to Lowney way	Charlestown	480	20w21,24	SS
Chelsea St	Constitution to Medford	Charlestown	940	12,15,18,30x39	SS
School St	Bunker Hill Street to Main Street	Charlestown	475	8,12w10	SS
		TOTAL SWREL	1,920		
Sewer Line					
Bunker Hill St	Lowney Way to Allston	Charlestown	670	12, 18, 20	SS
Vine Street	Chelsea Street to Bunker Hill	Charlestown	975	15, 39x41	SS
School St	Bunker Hill Street to Main Street	Charlestown	200	12	SS
		TOTAL SWLIN	1,845		
Drain Replacement					
Bunker Hill St	Lowney Way to Allston	Charlestown	310	18, 21	SD
Chelsea St	Constitution to Medford	Charlestown	700	12	SD
School St	Main to Bunker Hill	Charlestown	170	12	SD
		TOTAL DRREL	1180		
Drain Line					
Bunker Hill St	Lowney Way to Allston	Charlestown	395	15, 18	SD
Bartlett Street	Monument Sq. to Pearl Street	Charlestown	585	10,12,15	SD
School St	Bunker Hill Street to Main Street	Charlestown	325	24	SD
		TOTAL DRLIN	1,305		

Contract 19-308-003

Streets	Limits	Neighborhood	PIPE LENGTH	SIZE	TYPE
Burbank Street	Hemenway Street to Edgerly Road	Fenway/Kenmore		12	W
Pierre Lallemant Bike Path (rear of Columbus Avenue)	Camden Street to Northampton Street	South End			
Dry Dock Avenue	Summer Street to Tide Street	South Boston		16	W
Edgerly Road	Haviland Street to Westland Avenue	Fenway/Kenmore		12, 8w12	
Playstead Road	Springdale Street to Savin Hill Avenue	Dorchester			
Savin Hill Avenue	Hubbardton Road to Caspian Way	Dorchester		8, 12	W
Tide Street	Dry Dock Avenue to FID Kennedy Avenue	South Boston			
Design Center Place	Dry Dock Avenue to Black Falcon Avenue	South Boston		16	W
Edgerly Road	Haviland Street to Westland Avenue	Fenway/Kenmore		12	SS
Savin Hill Avenue	Hubbardton Road to Grampian Way	Dorchester		15	SS
Dry Dock Avenue	Design Center Place to Tide Street	South Boston		12	SS
Tide Street	Northern Avenue to FID Kennedy Avenue	South Boston		12	SS

Contract 19-308-004

Streets	Limits	PIPE LENGTH	SIZE	TYPE
Beacon Street	From Charles St To Joy St	1200	48	W
Beacon Street	From Joy St	300	12x16, 12x18	S
Beacon Street	From Walnut St To Spruce St	535	12	S
Beacon Street	From Walnut St To Charles St	945	12, 15	S
Beacon Street	From Walnut St To Charles St	1250	12	W
Beacon Street	From Charles St To Park St	575	15x15, 15	S
Blossom Street	From Charles St To Cambridge	2125	16,12	W

Willow Street	From Mt Vernon To Chestnut	400	8,12	W
Cedar Lane Way	From Chestnut St To Mount Vernon St	210	12	S
Charles Street	Rear Of #130-142 Charles Street	Tbd	Tbd	S
Charles Street	From Cambridge Street Ramp To Blossom St	1100	16	W
Garden Street	From Phillips St To Cambridge St	285	24x30, 15	S
Grove Street	From Myrtle St To Cambridge St	540	12x16	S
Phillips Street	From West Cedar St To Irving St	185	12	S
Phillips Street	From West Cedar St To Irving St	1000	8, 10	W
Pinckney Street	From Louisburg Sq To Joy St	135	16	S
Pinckney Street	From Louisburg Sq To Joy St	975	12	W
Pinckney Street	From Louisburg Sq To Joy St	530	12,15	S
Pinckney Street	From Anderson St To Joy St	250	15	S
Revere Street	From Grovel To David G Mugar Wy	900	8	W
West Cedar Street	From Cambridge St To Chestnut St	1500	10, 12	W
Water		10,450		
Sewer		4,490		

Contract 18-308-001

Street	Limits	Neighborhood	Length	Size	Type
Boylston St	Charlesgate East to Haviland St	Fenway	370	12	S
Hemenway St	Boylston St to Haviland St	Fenway	175	12	S
Sewer			545		

Contract 18-308-003

Street	Limits	Neighborhood	Length	Size	Type
Neponset Ave	Minot St to Chickatawbut St	Dorchester	210	15	D
Neponset Ave	Chickatawbut St to # 369 Neponset Ave	Dorchester	150	15	D

Neponset Ave	#417 Neponset under (I-93) Expressway to #815 Gallivan	Dorchester	580	36" x 48"	D
Neponset Ave	Neponset under (I-93 Expressway) and in Highway Median (3a)	Dorchester	50	18/24	D
Drain			990		

Contract 17-308-007

Street	Limits	Neighborhood	Length	Size	Type
Lincoln St	Tufts Street to Essex Street	City Proper	1400	8	W
Water			1400		

Contract 19-309-002

Street	Limits	Neighborhood	Length	Size	Type
Maverick Street	Orleans St to Cottage St	East Boston	750	16	W
Sumner Street	Bremen St to Clippership Ln	East Boston	650	12	W
Maverick St	Bremen St to Orleans St	East Boston	115	12	S
Maverick St	Frankfort St to Orleans St	East Boston	131	15	S
Maverick St	McKay PL to Cottage St	East Boston	215	15	S
Maverick St	McKay PL to Cottage St	East Boston	65	15	S
Maverick St	McKay PL to Frankfort St	East Boston	120	15	S
Maverick St	Cottage St to Geneva St	East Boston	40	12	S
Sumner St	Seaver St to Lamson St	East Boston	160	12	S
Orleans St	Gove St to Maverick St	East Boston	600	15	S
McKay PL	Maverick St to End	East Boston	65	10	D
Cottage Street	Porter St to Maverick St	East Boston	1,150	60x60	D
Cottage Street	Maverick St to Sumner St	East Boston	525	24	D
Orleans Street	Maverick St to Summer St	East Boston	525	24	D
Maverick St	Bremen St to Orleans St	East Boston	150	12	D
Maverick St	Frankfort St to Cottage St	East Boston	500	18	D
Everett Street	Orleans St to # 10 Everett St	East Boston	100	12	D
Everett Street	Cottage St to #124 Everett St	East Boston	575	18	D
Sumner Street	Orleans St to #292 Sumner St	East Boston	25	18	D
Sumner Street	#292 Sumner St to Wilbur Ct	East Boston	210	12	D
Sumner Street	Seaver St to Cottage St	East Boston	725	18	D



Sumner Street	Maverick Sq to Clippership Ln	East Boston	310	30	D
West Eagle Street	Meridian St to Brooks St	East Boston	850	15	D
Porter Street	Chelsea St to Porter St	East Boston	N/A	N/A	D
WATER			1,400		
SEWER			1,446		
DRAIN			5,710		

Contract 19-309-004

Street	Limits	Neighborhood	Length	Size	Type
Lake St	Lakeshore Road to Glenmont Road	Allston/Brighton	52	54	D
Lake St	Lakeshore Road to Glenmont Road	Allston/Brighton	20	24	D
Lake St	Lakeshore Road to Glenmont Road	Allston/Brighton	60	24	S
Lake St	Lakeshore Road to Glenmont Road	Allston/Brighton	100	24	S
Lake St	Lakeshore Road to Glenmont Road	Allston/Brighton	80	15	S
Lake St	Lakeshore Road to Glenmont Road	Allston/Brighton	375	12	W
Adamson St	Franklin Street to Eric Road	Allston/Brighton	125	24	D
Adamson St	Eric Road to Seven Pine Street	Allston/Brighton	120	24	D
Adamson St	Franklin Street to Seven Pine Street	Allston/Brighton	135	24	D
Adamson St	Franklin Street to Eric Road	Allston/Brighton	135	24	D
Adamson St	Eric Road to Seven Pine Street	Allston/Brighton	1	12	S
Adamson St	Seven Pine Street to Everett Street	Allston/Brighton	1	15	D
Adamson St	Seven Pine Street to Everett Street	Allston/Brighton	1	15	D
Adamson St	Everett Street to Franklin Street	Allston/Brighton	1174	12	W
Alcott St	Mansfield Street to Franklin Street	Allston/Brighton	220	24	D
Alcott St	Mansfield Street to Franklin Street	Allston/Brighton	512	16	W
Aldie St	Franklin Street to Athol Street	Allston/Brighton	1	12	S
Arden St	Hooker Street to Coolidge Road	Allston/Brighton	1	18	D
Brentwood St	Appian Way to Athol Street	Allston/Brighton	200	12	S
Brentwood St	Appian Way to Athol Street	Allston/Brighton	185	12	S
Cambridge St	Hooker Street to Coolidge Road	Allston/Brighton	200	12	S
Franklin St	Raymond Street to North Harvard Street	Allston/Brighton	135	12	S
Franklin St	Lincoln Street to Bradbury Street	Allston/Brighton	240	12	S
Haskell St	Hooker Street to Coolidge Road	Allston/Brighton	220	18	D
Haskell St	Hooker Street to Coolidge Road	Allston/Brighton	580	8	W
Hooker St	Arden Street to Haskell Street	Allston/Brighton	1	10	S
Hooker St	Royal Street to Holman Street	Allston/Brighton	160	18	D
Hooker St	Holman Street to Arden Street	Allston/Brighton	170	18	D
Hooker St	Royal Street to Holman Street	Allston/Brighton	100	18	D
Hooker St	Royal Street to Arden Street	Allston/Brighton	75	18	D

Hooker St	Holman Street to Arden Street	Allston/Brighton	175	18	D
Hopedale St	Seattle Street to Windom Street	Allston/Brighton	205	18	D
Hopedale St	West Sorrento Street to Windom Street	Allston/Brighton	250	18	D
MA Turnpike	Seattle Street to MA Turnpike Ramp	Allston/Brighton		12	S
Mansfield St	Lincoln Street to Bradbury Street	Allston/Brighton	270	15	S
North Harvard St	Coolidge Road to Easton Street	Allston/Brighton	180	18	S
North Harvard St	Kingsley Street to Rena Street	Allston/Brighton	135	15	S
North Harvard St	Bayard Street to Rena Street	Allston/Brighton	60	18	S
Rena St	North Harvard Street to Travis Street	Allston/Brighton	350	18	S
Royal St	Hooker Street to Coolidge Road	Allston/Brighton	1	18	D
Royal St	Cambridge Street to Hooker Street	Allston/Brighton	1	10	S
Seattle St	Hopedale Street to Western Avenue	Allston/Brighton	250	10	S
Seattle St	Amboy Street to Mass Turnpike	Allston/Brighton	220	15	S
Windom St./Amboy	Hopedale Steet to Amboy Street	Allston/Brighton	405	44545	S
Soldiers Field Rd	Leo Birmingham Parkway to N Beacon	Allston/Brighton	1600	8	W
Soldiers Field Rd	Leo Birmingham Parkway to N Beacon	Allston/Brighton	545	10	S
Soldiers Field Rd	Leo Birmingham Parkway to N Beacon	Allston/Brighton	1	10"	S
Soldiers Field Rd	Leo Birmingham Parkway to N Beacon	Allston/Brighton	1	15"	D
Soldiers Field Rd	Leo Birmingham Parkway to N Beacon	Allston/Brighton	825	15"/18"	D
Soldiers Field Rd	Leo Birmingham Parkway to N Beacon	Allston/Brighton	650	10"	S
Englewood Ave	Chestnut Hill Avenue to Chiswick Road	Allston/Brighton	250	12	S
Englewood Ave	Chestnut Hill Avenue to Chiswick Road	Allston/Brighton	120	10	D
Englewood Ave	Chestnut Hill Avenue to Chiswick Road	Allston/Brighton	115	10	D
Soldiers Field Rd	North Harvard to 900' west	Allston/Brighton	1000	12	W
Bennett St	Parsons to Leicester	Allston/Brighton	200	8	W
Water			5,441		
Sewer			4,520		
Drain			3,227		

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Streets	Limits	Neighborhood	Pipe Length	Size	Type
Kilmarnock St	Boylston St to Park Drive	Fenway	750	10,8	W
Jersey St	Boylston St to Park Drive	Fenway	1000	12	W
Peterborough St	Park Drive to Park Drive	Fenway	2000	12	W
Queensberry	Park Drive to Park Drive	Fenway	1800	8	W
Boylston Street	Kilmarnock St to Jersey St	Fenway	724	32x42	SS
Kilmarnock St	Boylston St to Park Drive	Fenway	656	15x22	SS

Jersey St	Boylston St to Park Drive	Fenway	845	18, 30x36	SS
Peterborough St	Park Drive to Park Drive	Fenway	619	30x36	SS
Queensberry	Park Drive to Park Drive	Fenway	255	15x18,30x36	SS
Private Alley 914	Jersey St to Queensberry St	Fenway	232	12	SS
Private Alley 925	Kilmarnock St to Jersey St	Fenway	252	15x18, 18	SS
Private Alley 926	Kilmarnock St to Jersey St	Fenway	297	15	SS
Private Alley 930	Peterborough St to Queensberry St	Fenway	343	15x18	SS
Boylston Street	Jersey St to Kilmarnock	Fenway	1389	12,15,18,24	SD
Queensberry	Park Drive to Park Drive	Fenway	1745	15, 18, 30x30	SD
Peterborough St	Park Drive to Park Drive	Fenway	1027	12, 17	SD
Private Alley 914	Jersey St to Queensberry St	Fenway	232	18	SD
Private Alley 925	Kilmarnock St to Jersey St	Fenway	221	18x24	SD
Private Alley 930	Peterborough St to Queensberry St	Fenway	304	36x36	SD
Water			5,550		
Sewer			4,223		
Drain			4,918		

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Streets	Limits	Neighborhood	PIPE LENGTH	SIZE	TYPE
Bradlee St/Navarre	End under American Legion Hwy	Hyde Park	360	18	SS
Clare Ave	Collins St to American Legion Hwy	Hyde Park	105	6	SS
Coronado Rd	Belnel Rd to End	Hyde Park	225	10	SS
Cummins Hwy	Harding Rd to American Legion Hwy	Roslindale	175	8	SS
Cummins Hwy	Sycamore St to Florence St	Roslindale	105	12	SD
Destefano Rd	Hyde Park Ave to End	Roslindale	330	10	SS
Harding Rd	Stella Rd to Hadwin Wy	Roslindale	165	10	SD
Hawthorne Ter	Hawthorne St to End	Roslindale	175	10	SD
Hawthorne St	Florence St to End	Roslindale	415	15, 18	SD/SS
Herbertson Rd	Eldridge Rd to Northnourne Rd	Roslindale	105	10	SS
Huntington Ave	Collins St to Thatcher St	Roslindale	215	12	SS
Hyde Park Ave	#497 to #515 Hyde Park Ave	Roslindale	115	12	SS
Morton St	Blue Hill Ave to Leston St	Mattapan	340	12	SDReplace
Neponset Ave	Charme Ave to Byrd Ave	Roslindale	650	10	SDReplace

Philbrick St	Neponset Ave to Mount Hope St	Roslindale	205	10	SSReplace
Rodman St	Wachusett St to Patten St	Roslindale	295	12	SSReplace
Rowe St	Seymour St to Cummins Hwy	Roslindale	255	12	SSReplace
Sycamore St	Hawthorne St to Cummins Hwy	Roslindale	300	12	SSReplace
Verrill St	Woolson St to Morton St	Mattapan	205	10	SSReplace
Wachusett St	Rodman Rd to Patten St	Roslindale	315	10, 12	SDReplace
Wellington Hill St	Duke St to Hillsboro Rd	Mattapan	330	10	SSReplace
Wildwood St	Woolson St to Morton St	Mattapan	725	12	SSReplace
Wilkins Pl	Sycamore St to End	Roslindale	195	6	SSReplace
Wyvern	Grover Ave to Florian St	Roslindale	430	10	SSReplace
Destefano Rd	Hyde Park Ave to End	Roslindale	460	8	WReplace
Harding Rd (Roslindale)	Stella Rd to Hadwin Wy	Roslindale	400	10	WReplace
Cummins Hwy (Roslindale)	Harding Rd to American Legion Hwy	Roslindale	345	16	WReplace
Rowe St (Roslindale)	Seymour St to Cummins Hwy	Roslindale	514	8	WReplace
Huntington Ave (Hyde Park)	Collins St to Thatcher St	Hyde Park	1486	8	WReplace
Hawthorne Ter (Roslindale)	Hawthorne St to End	Roslindale	163	8	WReplace
Hawthorne St (Roslindale)	Hawthorne Ter to Heathcote St	Roslindale	205	10	WReplace
Hawthorne St (Roslindale)	Sycamore St to Florence St	Roslindale	632	8	WReplace
Brown Ave (Roslindale)	Cummins Hwy to Allen St	Roslindale	310	12	WReplace
Cummins Hwy (Roslindale)	Sycamore St to Florence St	Roslindale	378	16	WReplace
Wellington Hill St (Mattapan)	Duke St to Hillsboro Rd	Mattapan	509	12	WReplace
Morton St (Mattapan)	Blue Hill Ave to Leston St	Mattapan	500	12	WReplace
Wildwood St (Mattapan)	Woolson St to Morton St	Mattapan	596	12	WReplace
Verrill St (Mattapan)	Woolson St to Morton St	Mattapan	529	12	WReplace
Coronado Rd (Hyde Park)	Belnel Rd to End	Hyde Park	359	8	WReplace
Water			7386		
Sewer			4570		

Drain			2165		
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Contract 17-309-001

Street	Limits	Neighborhood	Length	Size	Type
Courthouse Wy	Northern Ave to End	South Boston	310	10	D
Courthouse Wy	Northern Ave to End	South Boston	330	10 & 12	D
Northern Ave	Courthouse Way to Seaport Blvd	South Boston	760	15	D
Courthouse Way	Northern Ave to End	South Boston	1090	12	W
Water			1090		
Drain			1400		

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Street	Limits	Neighborhood	Length	Size	Type
Anthony Rip Valenti Way	Canal St to Beverly St	CENT	777	60, 66, 57x60	S
Cross St	Cooper St to Fulton St	CENT	1545	48, 66	S
Hanover St	Blackstone St to JFF Surface Rd	CENT	36	36	S
Hanover St	Congress St to Union St	CENT	165	30x36	S
Hanover St	Union St to Blackstone St	CENT	155	30x36	S
Hanover St	Union St to Cross St	CENT	8	30x36	S
JFF Surface Rd	Sudbury St to New Chardon St	CENT	238	36, 48	S
JFF Surface Rd	Market St to Hanover St	CENT	362	48, 66	S
North Washington St	Medford St to Anthony Rip Valenti Way	CENT	291	48	S
Blackstone St	North St to Hanover St	CENT	478	15-18	S
North St	Union St to Blackstone St	CENT	342	15	S
Sewer			4397		

Contract 19-309-001

Location	Limits	Neighborhood	Length	Size
Beverly St	Lovejoy Place to Causeway St	City Proper	N/A	N/A
Neponset Ave	Gallivan Boulevard to Taylor St (Neponset Circle)	Dorchester	N/A	N/A
Seaport Blvd	Seaport Blvd at B St.	South Boston	N/A	N/A
Seaport Blvd	Seaport Blvd at Sleeper St	South Boston	N/A	N/A

Street	Limits	Neighborhood	Length	Size	Type
Alaska St	Blue Hill Ave to #25	Roxbury	210	12	D
Alaska St	Blue Hill Ave to #25	Roxbury	215	12	S
Aspen St	Copeland St to Dunreath St	Roxbury	20	15	D
Aspen St	Copeland St to Dunreath St	Roxbury	20	12	S
Blue Hill Ave	Dudley St to Maywood St	Roxbury	3,445	15, 18, 24, 30, 36, 42	D
Blue Hill Ave	Dudley St to Maywood St	Roxbury	3,480	12,15,18,24	S
Brookford St	Blue Hill Ave to Rand St	Roxbury	325	12	D
Brookford St	Blue Hill Ave to Rand St	Roxbury	320	12	S
Clifford St	At Blue Hill Ave	Roxbury	35	12	D
Clifford St	At Blue Hill Ave	Roxbury	40	12	S
Copeland Pl	At Copeland St	Roxbury	20	10	S
Copeland St	Moreland St to Langford Park	Roxbury	530	18, 24	D
Copeland St	Moreland St to Langford Park	Roxbury	250	12	S
Edgewood St	Blue Hill Ave to #23	Roxbury	275	12	D
Edgewood St	Blue Hill Ave to #23	Roxbury	30	12	S
Irwin Ave	At Blue Hill Ave	Roxbury	35	10	S
Julian St	Blue Hill Ave to Cottage Ct	Roxbury	415	12	D
Julian St	Blue Hill Ave to Cottage Ct	Roxbury	405	10	S
Langford Park	Copeland St to End	Roxbury	135	12	D
Langford Park	Copeland St to End	Roxbury	195	10	S
Langford Park	Copeland St to End	Roxbury	210	4	W
Maywood St	Blue Hill Ave to #27	Roxbury	255	12, 15	D
Maywood St	Blue Hill Ave to #27	Roxbury	245	12	S
Maywood St	Blue Hill Ave to #27	Roxbury	705	8	W
Montrose St	Moreland St to Warren St	Roxbury	20	10	S
Moreland St	Blue Hill Ave to Warren St	Roxbury	890	18, 30, 36	D
Moreland St	Blue Hill Ave to Warren St	Roxbury	925	12, 15	S
Moreland St	Blue Hill Ave to Warren St	Roxbury	20	12	W
Perrin St	Moreland St to Waverly St	Roxbury	30	15	D
Perrin St	Moreland St to Waverly St	Roxbury	30	15	S
Rand St	Entire Street	Roxbury	25	12	D
Rand St	Entire Street	Roxbury	90	12	S
Southwood St	Blue Hill Ave to #21	Roxbury	450	12, 15	D
Waverly St	Blue Hill Ave to #26	Roxbury	910	12, 15	D
Waverly St	Blue Hill Ave to #26	Roxbury	940	10	S
West Cottage St	Blue Hill Ave to #80	Roxbury	370	10	S

Winthrop St	Blue Hill Ave to Cleveland St	Roxbury	80	30	D
Woodbine St	Blue Hill Ave to #30	Roxbury	530	12	D
Woodbine St	Blue Hill Ave to #30	Roxbury	550	10	S
Water			935		
Sewer			8,180		
Drain			8,560		

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Boston Water and Sewer Commission

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