

Boston Water and Sewer Commission



2022 - 2021 *Annual Comprehensive Financial Report*

For the Years Ended December 31, 2022 and 2021

Boston, Massachusetts

BOSTON WATER AND SEWER COMMISSION

Boston, Massachusetts

Annual Comprehensive Financial Report
For the Years Ended December 31, 2022 and 2021



BOARD OF COMMISSIONERS

Michael J. Woodall, Chair
Thomas J. Keady, Jr., Commissioner
Christopher Cook, Commissioner

Henry F. Vitale
Executive Director and Treasurer

Prepared by the Finance Division

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Introductory Section

2022 - 2021

**Boston Water and
Sewer Commission**



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September 29, 2023

To the Customers and Board of Commissioners of the Boston Water and Sewer Commission:

It is our pleasure to submit to you this Annual Comprehensive Financial Report of the Boston Water and Sewer Commission for the years ending December 31, 2022 and 2021. Responsibility for the accuracy of the data and the completeness and fairness of the presentation, including all disclosures, rests with the Commission. To the best of our knowledge and belief, this report is accurate in all material respects and is reported in a manner designed to present fairly the financial position and results of operations of the Commission. All disclosures necessary to enable the reader to gain an understanding of the Commission's financial activities have been included.

The Commission was created by an act of the Massachusetts Legislature that requires an annual audit by independent certified public accountants. The Commission's audit committee has selected the independent audit firm WithumSmith+Brown, P.C. to perform the audit of the Commission's books for fiscal years ended December 31, 2022 and 2021.

The Management's Discussion and Analysis ("MD&A") follows the independent auditor's report and provides a narrative introduction, overview and analysis to accompany the basic financial statements. This letter of transmittal is intended to complement the MD&A and should be read in conjunction with it.

The Commission is required to assess whether an annual single audit in conformity with the provisions of Title 2 U.S. *Code of Federal Regulations* Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance) needs to be performed. In accordance with the Uniform Guidance, a Single Audit was not required because the Commission's federal expenditures were below the \$750,000 threshold.

About the Commission

The Boston Water and Sewer Commission (“the Commission” or “BWSC”) is a public instrumentality, a body politic and corporate and a political subdivision of the Commonwealth, separate and apart from the City of Boston (the “City”). It was established pursuant to a “home rule” petition enacted by the Massachusetts Legislature as the Boston Water and Sewer Reorganization Act of 1977, Chapter 436 of the Acts of 1977 (“the Enabling Act”), on July 18, 1977. In accordance with the Enabling Act, the Commission assumed ownership of and responsibility for the wastewater collection and storm water drainage system (collectively known as the sewer system) and the water distribution system. The Department of Public Works of the City previously provided these services.

Upon its creation, the Commission was granted the authority to independently set its rates and charges. These rates and charges must be set at a level and amount sufficient to meet the Commission's financial obligations including, but not limited to, operating expenses, debt service on all outstanding bonds, any reserve requirements specified in bond resolutions and assessments for bulk water supply, water distribution, wastewater treatment and sewerage collection services obtained by the Commission. These rates must comply with all applicable laws and statutes and must be set in a manner to ensure eligibility for any federal and state funding.

The Enabling Act also authorizes the Commission to operate, maintain and construct all necessary improvements to the systems and finance its operations and improvements through revenue collection and the sale of bonds and notes payable solely from the Commission’s revenues. The Act further dictates that any revenue surpluses 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 Act may be amended only by means of further “home rule” petitions of the City enacted by the Massachusetts Legislature, or by means of state legislation affecting generally all water and sewer districts within the Commonwealth.

Management Objectives

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 the systems. The Commission is committed to the following primary goals:

To maintain and improve the water distribution and wastewater collection systems. The Commission is committed to various improvements to the 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 or 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 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 achieved a reasonable balance between debt funding and rate funding of capital expenses.

To sustain the effectiveness of investments and to comply with 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 the Clean Water Act (“CWA”) with its National Pollutant Discharge Elimination System (“NPDES”) permitting obligations for both 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.

Commission Organization

The Boston Water and Sewer Commission is overseen by a three-member Board of Commissioners appointed by the Mayor of Boston, subject to the approval of the City Council. The primary responsibility of the Board is to ensure the sound economical and efficient operation and maintenance of the systems and to deliver the highest quality services to the City of Boston. The Board of Commissioners is also responsible for setting clear financial and operational policy directives.

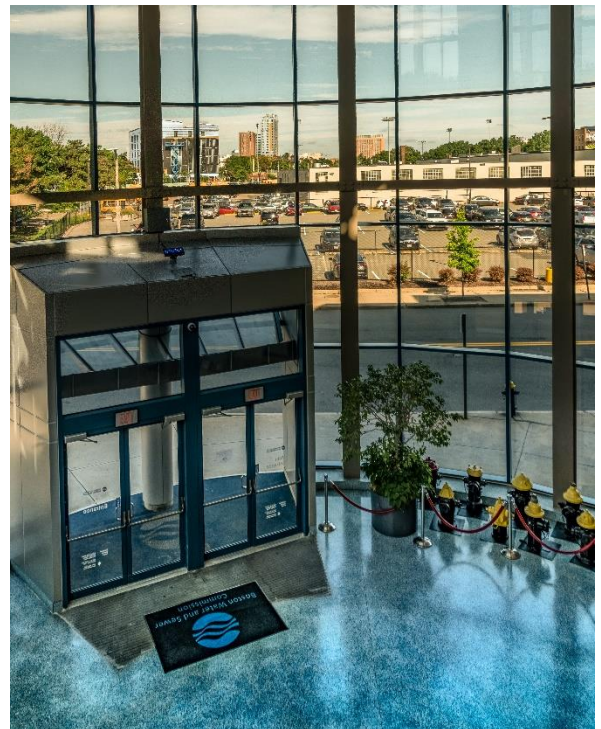
The Commission consists of five divisions: Executive, Operations, Engineering, Administration and Finance.

The *Executive Division* provides executive management, including policy formation and strategic planning, to the entire Commission. The Executive Division also represents the Commission in all legislative lobbying efforts pertaining to securing continued federal and state funded rate relief. This Division is also responsible for implementing and monitoring the Commission’s affirmative action plans and for ensuring the participation of women and minority-owned businesses in obtaining goods and services contracts. Additionally, the Executive Division provides its employees with proactive personnel services and safety management to the entire Commission and represents the Commission in all litigation. The Division is also responsible for the management and maintenance of the Commission’s automotive fleet. Furthermore, the Executive Division is responsible for the preservation of the Commission’s technical infrastructure and ensures that the Commission staff conduct themselves in a safe manner and receive the education necessary to do so.

The *Operations Division* ensures the ongoing maintenance and emergency repairs to the Commission’s water and sewer mains, service connections, hydrants and drains. The Operations Division is also responsible for inventory control.

The *Engineering Division* is responsible for high quality, reliable water, and sewer and drainage services. These services are achieved by effectively planning, designing, managing and providing contract compliance for the construction of the Commission’s Capital Improvement Projects.

The *Administration Division* provides the Commission and the Commission’s customers with administrative support services. The Administration Division also provides its employees with proactive personnel services. This Division is also responsible for representing the Commission at various public and community meetings, maintaining collections, customer services and the installation and repair of meters and the provision of facilities and support services.



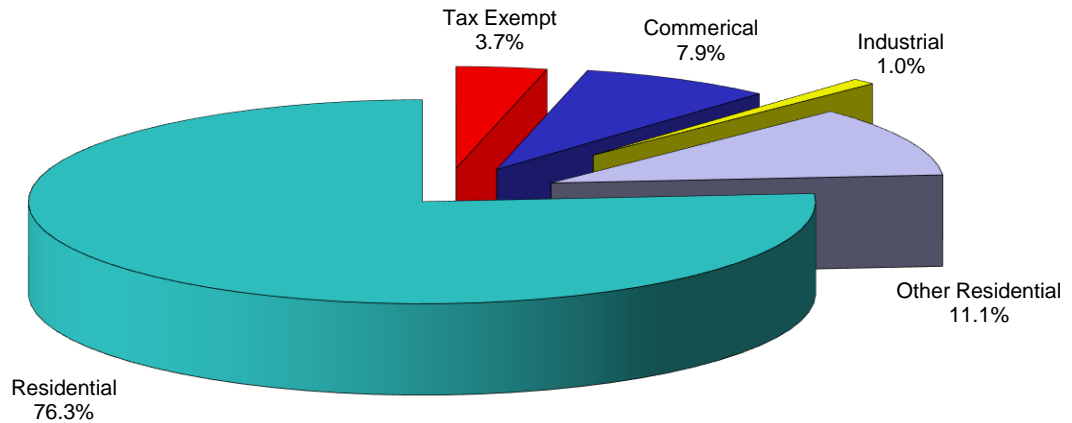
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The *Finance Division* provides effective management of the Commission’s revenues and all its resources. The Finance Division accomplishes this goal through its financial budgeting, rate setting, accounting and cash management, billing and adjustments. This Division is also responsible for financing debt, managing investment, providing procurement, investigating, documenting and resolving meter problems and erratic consumption.

Customer Base

2022 Distribution of Customers by Account Type

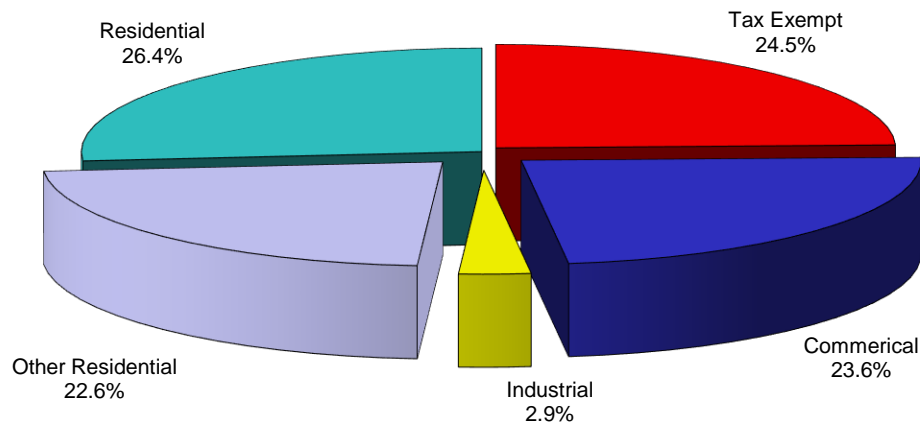
ACCOUNT TYPE BY LAND CODE	NUMBER OF ACCOUNTS	% OF TOTAL ACCOUNTS
Residential	67,277	76.3%
Other Residential	9,811	11.1%
Commercial	6,997	7.9%
Tax Exempt	3,280	3.7%
Industrial	850	1.0%
Total by Consumption	88,215	100.0%



The Commission provides water and sewer services to residential, commercial, industrial, public, private and non-profit institutional properties throughout the City. The above table and graph show the distribution of the Commission’s 88,215 accounts in 2022 as followed: 76.3% were one-to-three-family dwellings; other residential dwellings accounted for 11.1%; commercial customers represented 7.9%; tax-exempt customers accounted for an additional 3.7%; the remaining 1.0% of the customer base was made of the industrial customers. It should be noted that the Boston Housing Authority, which is tax exempt and the Commission’s largest customer, falls into the classification “other residential.”

2022 Distribution of Customers by Consumption

ACCOUNT TYPE BY CONSUMPTION	SALES IN CUBIC FEET (000)	% OF TOTAL CONSUMPTION
Residential	657,379	26.4%
Other Residential	561,014	22.6%
Commercial	586,250	23.6%
Tax Exempt	610,291	24.5%
Industrial	72,073	2.9%
Total by Consumption	2,487,007	100.0%



While the graph on the previous page highlights the distribution of the Commission’s customer base by account type, the graph above illustrates the distribution of customers by consumption. Although one-to-three-family dwellings accounted for 76.3% of the total accounts, the actual consumption was much lower, using only 26.4%. Other residential customers accounted for an additional 22.6%. The non-residential segment of the customer base (commercial, industrial and tax-exempt) represented only 12.6% of customer accounts but generated 51.0% of retail water sales. These accounts are financially strong entities for which water and sewer charges typically represent a relatively small portion of their operating budget. The high percentage of annual consumption by a relatively small number of accounts has had a positive financial impact on the Commission. These accounts, which include hospitals, universities, commercial and industrial businesses, provide the necessary stability and diversity to the customer base while creating a steady stream of revenue on a monthly basis. The composition of the Commission’s customer base is highly regarded by credit rating agencies as a major financial strength. Together with the Commission’s proven record of financial management, we have achieved excellent credit ratings. As of December 31, 2022, the Commission has received the following ratings from credit agencies:

- “AAA” – S&P Global Ratings
- “Aa1” – Moody’s Investor Services
- “AA+” – Fitch Ratings for all bonds issued before 2016.

Economic Outlook

In the last four decades, the world economy and the U.S. economy have been undergoing various fundamental shifts. For example, the industrial and manufacturing sectors in the United States have drastically declined due to the growing levels of automation and off-shoring jobs to countries with low-wage workers. The City of Boston, on the other hand, with its unique concentration of institutions of higher education, hospitals, research firms and financial services, has persisted through many recent economic changes. Boston continues to be the regional center for financial, governmental, higher educational and medical services for the entire geographical area of New England. With 30+ colleges and universities and 20+ hospitals, the City has more than four times the national average concentration of private hospitals and higher education employment. Boston is also a well-educated multicultural city with 52.1% of the population at the age of 25 and over having at least a bachelor's degree and 55.9% of the population made up of minority or ethnic groups.

In the spring of 2020, COVID-19, a contagious disease caused by severe acute respiratory syndrome coronavirus 2, spread throughout the world and led to a global pandemic. Throughout 2020 and early 2021, Boston enacted various restrictions to control the spread of the virus and created many social assistance programs to help its residents. On May 29, 2021, after confirming downward trends in the number of cases and high vaccination rates among residents, both the state of Massachusetts and Boston lifted all restrictions.

Boston saw a significant increase in the unemployment rate of up to 15.8% during the onset of Covid-19 shutdown. As of December 2022, Boston's strong economic recovery and steady job growth helped bring the unemployment rate down to its pre-pandemic level of 3.0%. Boston's unemployment rate is the lowest compared to the national unemployment rate of 3.5%, Massachusetts' unemployment rate of 3.7% and New England's unemployment rate of 3.5% in the same period. Boston's 2022 Gross City Product was not available as of this writing, but the Boston Planning and Development Agency ("BPDA") predicted that it would be in line with the moderate growth of 2.1% at the national level and 2.0% at the state level. Similarly, Boston's inflation rate shared the same trend with the national level. The national inflation rate reached 8.6% in May 2022 and went down to 6.4% as of January 2023. Boston's inflation rate went up to 8.1% in September 2022 and settled at 6.4% in January 2023. However, Boston saw higher price increases in the energy sector due to the ongoing Russian-Ukrainian conflict: energy cost from January 2022 to January 2023 increased by 8.7% on the national level but went up by 22.8% for Boston in the same period.

In 2022, Boston added over 18,000 jobs and reached 0.8% below the February 2020 employment level before Covid-19 restrictions went into effect. According to the BPDA, Accommodation and Food Services sectors added 9,404 jobs in 2022 and now have recovered roughly 80.1% of the jobs lost between February and April 2020. However, the BPDA predicted a slowdown in the in-person service sectors such as Accommodation and Food Services, Arts, Entertainment and Recreation, and Transportation and Warehousing, and remained unclear when they will be able to return to pre-pandemic levels. The continuation of hybrid work schedules and lower levels of commutes to the Downtown area were the contributing factors to this recovery slowdown in the in-person service sectors.

Boston saw the greatest job growth in the Professional and Technical Services where 5,891 jobs were added in 2022, which brought this sector's employment level to 9.1% higher than its employment level in February 2020. Boston's tourism sector also had a great recovery: as of December 2022, the numbers of visitors to the City were 98.2% of December 2019 levels. Similarly, both the hotel occupancy rates and numbers of seated-dining customers almost reached their pre-pandemic levels.

Boston is a major hub of healthcare and biotechnological institutions, and thus the City benefited from the increased demand for medical supplies and research for diseases. In 2022, hospitals, research institutes, and universities in Boston received 4,329 awards for a total of \$2.4 billion funding from the National Institutes of Health, the second highest amount in the nation and only behind New York City. In the same fiscal year, the BPDA approved 2,647 units of housing, and 44% of these units will be in the income-restricted category. Boston has proven its resiliency against economic downturns in the past and the unprecedented effects of Covid-19 global pandemic. Supported by the high concentration of world-class colleges and universities, research institutions, tech companies, and hospitals, the City is poised to overcome challenges in the year 2023 and beyond.

Throughout the year 2022, the Commission remained committed to providing continuous delivery of drinking water and sewer services which are critical to daily life and public health. Because of strong management initiatives, a solid financial foundation and the use of cutting-edge technology, the Commission will continue to meet the needs of Boston residents with reliable wastewater removal and efficient water supply well into the future.

Sources: *United States Quick Facts*, US Census Bureau
Labor Force Statistics, Bureau of Labor Statistics
Boston's Economy 2023, Boston Planning and Development Agency

Major Initiatives and Achievements

Certificate of Achievement for Excellence in Financial Reporting Award

The Commission's 2021-2020 Annual Comprehensive Financial Report received the Government Finance Officers Association's ("GFOA") Certificate of Achievement for Excellence in Financial Reporting. The 2021-2020 annual report was judged based on its conformity to Generally Accepted Accounting Principles ("GAAP") and its compliance with other finance related legal and contractual provisions. The Certificate of Achievement is the highest form of recognition in governmental accounting and financial reporting, and its attainment represents a significant accomplishment for any municipality or governmental agency. This accomplishment marks the thirtieth consecutive year in which the Commission has received this recognition.

Distinguished Budget Presentation Award

For more than 25 consecutive years, the Commission has received the GFOA's Distinguished Budget Presentation Award. This is the highest form of recognition in governmental budgeting. This award recognized that the Current Expense Budget ("CEB") met the GFOA program criteria as a policy document, an operations guide, a financial plan and a communications device.

J.D. Power's Water Utility Residential Customer Satisfaction Study

In 2022, the Commission received the J.D. Power's Customer Satisfaction Award for placing first among midsize public water utilities in the Northeast. This award is based on six factors: quality and reliability, price, conservation, billing and payment, communications, and customer service. The Commission is proud to have won for the second time in recent years the J.D. Power's Customer Satisfaction Award.

ACEDONE Award

In 2022, the Commission received an award from African Community Economic Development of New England ("ACEDONE") for the continual support of the organization over the past two decades. Based in Roxbury, ACEDONE's core mission is to support refugees and immigrants to become vital members of the Boston community and thrive socially and economically. The award from ACEDONE recognized the Commission for its outstanding contributions in advancing diversity and inclusion.

Improved Integration of UMAX 365

UMAX 365 combines multiple disconnected systems into one comprehensive customer information system, allowing for modernized and streamlined processes and workflows across multiple divisions and departments. The successful implementation of UMAX 365 in 2019 ensured accurate data entry, maintained better billing information tracking and supported higher productivity for end users. Throughout 2022, the Commission continued to improve on the integration of UMAX 365 by examining possible technical issues and creating thorough and efficient solutions. UMAX 365 represents one of the various investments made by the Commission in its effort to deliver outstanding customer service to the residents of Boston.

Environmental Protection Agency and the Consent Decree

In August 2012, the Commission entered in a Consent Decree with the EPA and Conservation Law Foundation (“CLF”). 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. As part of the CMOM Corrective Action Plan filed with the EPA, the Commission must increase its inspection and assessment of its sewer and drainage systems. The program presents progressive increases in the quantity of pipes cleaned and televised with an end goal of completing approximately 10% of the system annually. The Consent Decree offers an unprecedented opportunity for the Commission to increase its role as an environmental steward of 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.

As a result of the Commission’s efforts, the Boston Harbor and Boston’s waterways have been restored to a level where they are accessible for public use 90% of the time. South Boston’s beaches are recognized as one of the cleanest urban beaches in the United States. The Charles River also has been recognized by the EPA as one of the cleanest urban rivers in the country. The Commission’s illicit discharge detection protocol and sampling program have been cited as a standard example by the EPA. The Commission will continue to invest in sewer and stormwater infrastructure and improve the quality of Boston’s waterways.

In 2013, as required under the Consent Decree, the Commission submitted to the EPA, MassDEP and CLF a Phase I Best Management Practices (“BMP”) Implementation Plan. The Phase I BMP Implementation Plan contained recommendations and schedules for the implementation of specific BMP and Green Infrastructure (“GI”) demonstration projects at Central Square (in East Boston), Audubon Circle (in Beacon Street/Park Drive area) and Boston City Hall Plaza. Construction of the Central Square project was completed in 2018, and construction of the Audubon Circle was completed in 2019. The Commission approved the design submitted by the City for the Plaza in 2020, and construction commenced in 2021. The final design of City Hall Plaza includes the installation of almost 23,000 square feet of permeable pavers and an infiltration reservoir capable of storing approximately 24,434 cubic feet of stormwater. The new City Hall Plaza opened in November 2022 with increased public accessibility, play spaces, interactive public arts and gathering spaces that could accommodate thousands of people.

Debt Plan

The Commission issues General Revenue Bonds to finance portions of its Capital Improvement Program (“CIP”). The Commission’s 2023-2025 CIP, which totals \$238.9 million, anticipates that projects totaling \$105.9 million, or 44.3%, will be funded from bond proceeds. The 2023 budget for debt service is \$49.7 million including \$43.5 million for bonds. The Commission currently has nine series of General Revenue Bonds outstanding at the end of 2022:

\$ 5.6 million	1994 Series A
7.9 million	2012 Series A
58.0 million	2014 Series A
72.8 million	2015 Series A
40.6 million	2016 Series A
48.6 million	2016 Series B
66.9 million	2018 Series A
155.6 million	2021 Series A
40.2 million	2021 Series B

Capital Improvement Program

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

Introductory Section

facility for approved discharge. In addition, the CIP includes projects to improve the overall efficiency of the Commission and to enhance the Commission’s ability to provide services to its customers. The projects included in the current CIP are intended to accomplish these objectives in the most efficient and cost-effective manner.

The new Stormwater Category was created in 2017 to focus on stormwater management. The primary purpose of the Stormwater Category in the 2023-2025 CIP is to engage 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 new 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.

Recently, various major enhancements to the Commission’s water and sewer systems have been implemented. These include the following:

- Cleaning and Inspections of Sewers and Storm Drains
- Construction of Daisy Field Green Infrastructure
- Customization of SCREAM and CMOM
- Design and Construction of Stormwater Detention Facilities
- Installation of Tide Gates Citywide
- Installation of Stormwater Treatment Vault on Talbot Avenue
- Investigation of Citywide Illegal Connections
- Projects affiliated with the Consent Decree
- Rehabilitation of the New Boston Main Interceptor
- Sampling and Metering for Storm Drain Model Validation
- Sewer Renewal and Replacement in Hyde Park, Mattapan, Roslindale and Upper Roxbury
- Sewer Separation and System Improvements in South Boston
- South End Water Pipe Improvements Phase 1
- Storm Drain Improvements in Charlestown and Fenway
- Upgrades to Union Park Pumping Station and Satellite Stations
- Water Main Rehabilitation in Dorchester and South Boston
- Water Main Valve Replacement

The following tables show the funding sources and cash flows for the 2023-2025 periods:

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

**2023-2025 Capital Improvement Program
Cash Flows**

Program Source	2023	2024	2025	2023-2025
<i>Water</i>	\$ 30,275,940	\$ 28,563,646	\$ 25,828,607	\$ 84,668,193
<i>Sewer</i>	38,546,854	21,468,545	19,609,185	79,624,584
<i>Support</i>	14,390,000	11,015,000	4,615,000	30,020,000
<i>Stormwater</i>	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 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.

As shown in the first table, funding for the CIP is provided through four sources: Commission general revenue bonds, current year rate revenues, two grant/loan programs provided by the Massachusetts Water Resources Authority (“MWRA”) and state revolving funds (“SRF”). 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, or 44.3% of the total funding requirement. In 2023, bonds will make up \$51.0 million, or 51.3% of the funding required for that year.

Based on the second table, 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%. Stormwater projects account for \$44.6 million, or 18.7% of the expenditures.

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 total \$14.4 million, or 14.5%. Stormwater projects account for \$16.3 million, or 16.4% of the 2023 expenditures.

As in the past, the 2023-2025 CIP programs will fund renewal and replacement (“R&R”) projects from current rate revenues. Renewal and replacement projects include water main relining, water main replacement (only replacement with the same size pipe) and sewer pipe rehabilitation. The 2023-2025 CIP outlines R&R expenditures of \$64.4 million over the three years of the program. In 2023, approximately \$29.8 million, or 29.9%, will be expended out of current rate revenues for CIP projects.

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. Over the last five years, the Commission has completed a total of \$122.5 million in water distribution improvements. These improvements have resulted in the replacement of 28.1 miles of water mains. The projects scheduled for initiation in 2023 will result in the replacement of approximately 8.5 miles of water mains.

The primary objectives of the 2023-2025 Water Distribution Systems CIP are:

- To ensure a continued supply of high quality, portable water at adequate pressure for consumption by the 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

The 2023-2025 CIP has four major programs for the Sewer System: the sewer renewal and replacement program, the increased capacity program, the Infiltration/Inflow program and sewer special program. Projects in the Sewer System CIP include the rehabilitation or replacement of approximately 7.0 miles of deteriorated or collapsed sanitary sewers and storm drains per year in addition to the television inspection of approximately 90.2 miles of sewer pipe. Also included are drainage improvements and the replacement of faulty tide gates. The primary objectives of the 2023-2025 Sewer CIP are:

- To implement and manage contracts affiliated with the Consent Decree
- To implement Green Infrastructure Projects
- To comply with the requirements of the Commission's NPDES and Municipal permits
- To minimize infiltration and inflow into the sanitary system, which will increase system capacity and decrease treatment costs
- To reduce combined sewer overflows by reducing wet weather discharges and minimizing sea water intrusions
- To provide sufficient hydraulic capacity for current and projected flows
- To protect the structural integrity of the wastewater collection and storm drainage systems
- To coordinate sewer system improvements with related projects of other public agencies

Each year the Commission participates in the MWRA Infiltration/Inflow 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 Infiltration/Inflow 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.

In 2010, the MWRA Board voted to authorize the development of a loan program to assist its member communities in the performance of water system improvement projects. This program is the MWRA Local Water System Assistance Program ("LWSAP"), and it offers interest-free loans payable over a ten-year period and is designed to improve water quality in local distribution systems. The amount of funding available from the program is \$34.3 million per year with Boston receiving a share of approximately \$5.3 million per year. Projects costs incurred on or after January 1, 2010 have been considered for eligibility in application under the LWSAP program. As of December 31, 2022, the Commission has received \$59.6 million in LWSAP funding of which there currently is an outstanding balance of \$27.1 million. It is anticipated that for the 2023-2025 CIP, \$18.4 million will be funded using the LWSAP program.

In 2016, the MWRA Board voted to authorize the Lead Loan Program ("LLP") as an enhancement to the existing LWSAP program. This LLP program provides up to \$100 million in 10-year zero-interest loans to help communities in fully replacing lead service lines. As of December 31, 2022, the Commission has received \$3.5 million in LLP funding, of which there currently is an outstanding balance of \$3.2 million.

Sources: *2023 Current Expense Budget*, Boston Water and Sewer Commission.
2023-2025 Capital Improvement Program, Boston Water and Sewer Commission.

Financial Information

Administrative Control

Internal controls are procedures designed to protect assets from loss, theft or misuse, to check the accuracy of accounting data, to promote operational efficiency, to facilitate the preparation of financial statements, to satisfy other reporting requirements and to encourage compliance with managerial policies.

The Commission is responsible for establishing a system of internal controls and provides reasonable assurance that these objectives are met. The concept of reasonable assurance stipulates that (1) the cost of a control should not exceed the benefits likely to be derived and (2) the valuation of cost and benefits requires estimates and judgments by management. Federal and State financial assistance programs require recipients to comply with several laws and regulations. Administrative controls are procedures designed to ensure compliance with these programs. The Commission has established a system of administrative controls to ensure compliance with the requirements of the programs under which it receives financial assistance.

As with other internal controls, this system is subject to periodic review and evaluation by management or by the Commission's independent auditor. Additional enhancements to the Commission's accounting, administrative and operational controls have taken place and are described below.

Budgeting Systems and Controls

The Commission establishes its annual CEB on a rate basis that is consistent with generally accepted rate-setting practices of the utility industry. The financial statements contained in the financial section of this report, however, are presented on a basis that is consistent with GAAP for regulated utilities.

The Commission identifies operating, fixed and capital costs and prepares an annual CEB and three-year CIP. The Commission's Enabling Act requires that the Commission recover its costs of operation through fees, rates, rents, assessments and special charges. The CEB defines the operational activities and other costs that must be funded from these revenue sources during the fiscal year. The budget includes the costs of operations, maintenance and repair programs, MWRA charges for water supply and wastewater treatment, the Safe Drinking Water Act ("SDWA") assessment and Renewal & Replacement projects funded from current revenues, insurance, debt service and additional reserves.

The Commission has developed this integrated financial plan to encompass all its current expenses and capital improvement needs. It also helps provide for the efficient, financially self-sustaining operation of the water and sewer systems and allocates costs to all our customers in a fair and equitable manner.

Long Term Financial Planning

The Enabling Act designated the Commission with the responsibility for the operation and maintenance of the water distribution and the wastewater collection and storm-water drainage systems which serve the City of Boston. Complying with the requirements of the Enabling Act and the General Bond Resolution, the Commission is presenting its CIP totaling \$238.9 million for the three-year period 2023-2025. The CIP is made up of Water, Sewer, Support and Stormwater Programs.

The Commission's Water Program for 2023-2025 accounts for \$84.7 million, or 35.4%, of the total CIP expenditures. The Sewer Program accounts for \$79.6 million, or 33.3%, of the CIP. The Support Program accounts for \$30.0 million, or 12.6%, of the CIP. The Stormwater Program accounts for \$44.6 million, or 18.7% of the CIP.

Monies allocated for the 2023 programs total \$99.5 million. The amount mentioned is distributed as followed: Water \$30.3 million, or 30.4%; Sewer \$38.5 million, or 38.7%; Support \$14.4 million, or 14.5%; Stormwater \$16.3 million, or 16.4% of the 2023 expenditures.

Credits

The cover of this Annual Comprehensive Financial Report has been designed using a Freepik.com image from the creator TravelScape.

Acknowledgements

The staff of the Finance Division is responsible for the preparation of this Annual Comprehensive Financial Report. We wish to acknowledge the staff's dedicated effort in bringing together information from numerous sources to produce this document.

Respectfully submitted,



Henry F. Vitale
Executive Director and Treasurer



Luciano Petruzzello
Chief Financial Officer

Board of Commissioners

Michael J. Woodall, Chair

Thomas J. Keady, Jr., Commissioner

Christopher Cook, Commissioner

Senior Management

Henry F. Vitale, Executive Director and Treasurer

Luciano Petruzzello, Chief Financial Officer

John P. Sullivan, P.E., Chief Engineer

Nelson W. Piacenza, Chief of Strategic Management and Business Performance

Irene F. McSweeney, P.E., Chief of Operations

Robert M. LaMarca, General Counsel

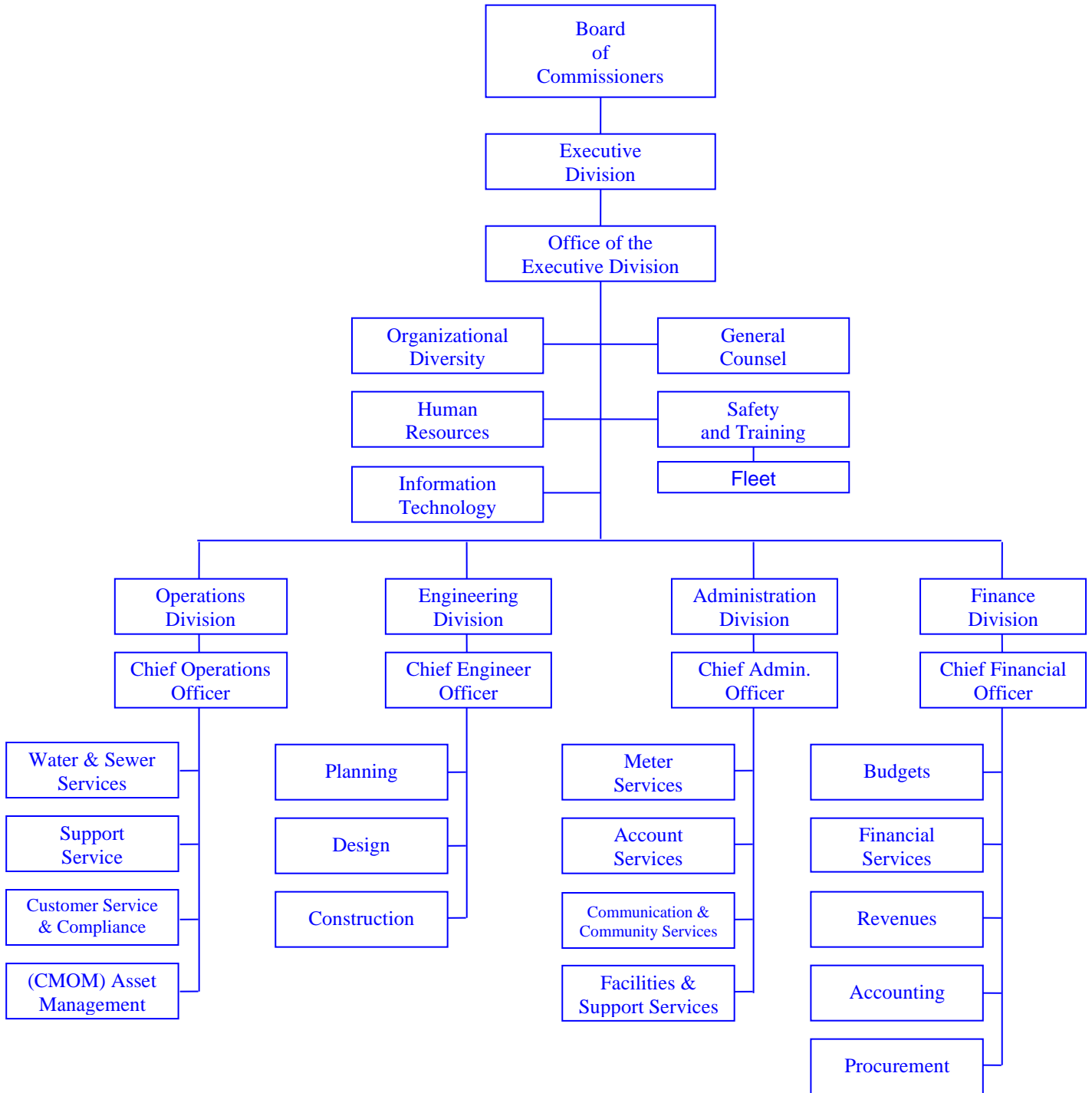
Hussein Dayib, Director of Organizational Diversity

Peter K. Hunt, Chief Information Officer

Dolores Randolph, Director of Communications

Wenling Ma, Director of Strategic Planning

Organizational Chart





Government Finance Officers Association

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**Boston Water & Sewer Commission
Massachusetts**

For its Annual Comprehensive
Financial Report
For the Fiscal Year Ended

December 31, 2021

Christopher P. Morill

Executive Director/CEO

EXHIBIT I
2022 BUDGETED REVENUE AND EXPENSE ANALYSIS
(RATE BASIS)

	<u>2022 ACTUAL</u>	<u>2022 BUDGET</u>	<u>VARIANCE</u>	<u>PERCENT VARIANCE</u>
Revenues:				
Water & Sewer	\$441,408,681	\$412,036,016	\$29,372,665	7.1%
Less:				
Adjustments	14,062,606	11,330,990	(2,731,616)	-24.1%
Discounts	3,440,140	4,120,360	680,220	16.5%
Bad Debt	550,528	412,036	(138,492)	-33.6%
Subtotal	18,053,274	15,863,386	(2,189,888)	-13.8%
Net Billed Charges	423,355,407	396,172,630	27,182,777	6.9%
Prior Year Surplus	464,760	523,704	(58,944)	-11.3%
Miscellaneous Revenues:				
Late Charges	2,082,882	2,060,180	22,702	1.1%
Investment Income	4,370,282	2,223,829	2,146,453	96.5%
Fire Pipe	5,327,520	5,198,352	129,168	2.5%
Other Income	7,670,726	7,436,084	234,642	3.2%
Total Revenues	<u>443,271,577</u>	<u>413,614,779</u>	<u>29,656,798</u>	<u>7.2%</u>
Direct Operating Expenses:				
Salaries and Wages	63,762,998	46,751,414	(17,011,584)	-36.4%
Overtime Wages	1,676,989	1,209,113	(467,876)	-38.7%
Fringe Benefits	8,309,345	9,492,077	1,182,732	12.5%
Supplies and Materials	2,711,659	3,296,557	584,898	17.7%
Repairs and Maintenance	12,480,425	13,849,294	1,368,869	9.9%
Utilities	1,535,354	2,113,280	577,926	27.3%
Professional Services	3,741,496	5,370,050	1,628,554	30.3%
Space and Equipment Rentals	339,060	405,750	66,690	16.4%
Other Services	1,271,151	1,904,400	633,249	33.3%
Insurance	1,101,718	1,108,787	7,069	0.6%
Travel and Training	64,899	129,250	64,351	49.8%
Damage Claims	2,374,320	200,000	(2,174,320)	-1087.2%
Inventory	5,848	23,000	17,152	74.6%
Capital Outlay	81,320	114,600	33,280	29.0%
Total Direct Operating Expenses	99,456,582	85,967,572	(13,489,010)	-15.7%
Indirect Operating Expense:				
MWRA Assessment	245,958,491	247,158,902	1,200,411	0.5%
Capital Improvement	20,940,294	24,435,000	3,494,706	14.3%
Debt Services	49,919,808	50,324,224	404,416	0.8%
Contractual Funding Obligations	26,034,000	5,525,619	(20,508,381)	-371.2%
SDWA Assessment	203,461	203,462	1	0.0%
Total Indirect Operating Expenses	343,056,054	327,647,207	(15,408,847)	-4.7%
Total Current Expenses	<u>\$442,512,636</u>	<u>\$413,614,779</u>	<u>(\$28,897,857)</u>	<u>-7.0%</u>

EXHIBIT II
REVENUES AND EXPENSES - BUDGETARY BASIS
FOR THE YEARS ENDED DECEMBER 31, 2022 AND 2021
(RATE BASIS)

	<u>2022</u>	<u>2021</u>	<u>CHANGE</u>	<u>PERCENT</u>
Water Revenue	\$179,012,241	\$170,438,964	\$8,573,277	5.0%
Sewer Revenue	262,396,440	232,227,292	30,169,148	13.0%
Revenue Adjustments	(18,053,274)	(14,884,259)	(3,169,015)	21.3%
Prior Period Surplus	464,760	371,904	92,856	25.0%
Other Revenues				
Fire Pipe	5,327,520	5,222,027	105,493	2.0%
Late Charges	2,082,882	1,976,793	106,089	5.4%
Investment Income	4,370,282	2,059,556	2,310,726	112.2%
Other Income	7,670,726	6,780,259	890,467	13.1%
Total Revenue	<u>443,271,577</u>	<u>404,192,536</u>	<u>39,079,041</u>	<u>9.7%</u>
Operating Expenses	99,456,582	83,038,341	(16,418,241)	-19.8%
MWRA Assessment	245,958,491	243,396,224	(2,562,267)	-1.1%
SDWA Assessment	203,461	215,437	11,976	5.6%
Other Nonoperating Expenses:				
Capital Improvement	20,940,294	10,531,019	(10,409,275)	-98.8%
Deposit to Reserves	26,034,000	16,889,000	(9,145,000)	-54.1%
Debt Service	49,919,808	49,657,755	(262,053)	-0.5%
Total Expenses	<u>442,512,636</u>	<u>403,727,776</u>	<u>(38,784,860)</u>	<u>-9.6%</u>
Current Surplus	<u><u>\$758,941</u></u>	<u><u>\$464,760</u></u>	<u><u>\$294,181</u></u>	<u><u>63.3%</u></u>

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*Financial
Section*

2022 - 2021



INDEPENDENT AUDITOR'S REPORT

To the Commissioners of
Boston Water and Sewer Commission
Boston, Massachusetts

Report on the Audit of the Financial Statements

Opinions

We have audited the accompanying financial statements of the business-type activity and the aggregate remaining fund information of Boston Water and Sewer Commission (the "Commission") as of and for the year ended December 31, 2022, and the related notes to the financial statements, which collectively comprise the Commission's basic financial statements as listed in the table of contents.

In our opinion, the financial statements referred to above present fairly, in all material respects, the respective financial position of the business-type activity and the aggregate remaining fund information of the Commission, as of December 31, 2022, and the respective changes in financial position, and, where applicable, cash flows thereof for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinions

We conducted our audit in accordance with auditing standards generally accepted in the United States of America (GAAS) and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of the Commission and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Other Matter

The financial statements and supplementary information of the Commission as of and for the year ended December 31, 2021, were audited by O'Connor & Drew, P.C., who joined with WithumSmith+Brown, PC on January 1, 2023 and expressed unmodified opinions on those statements and supplementary information dated July 27, 2022.

Responsibilities of Management for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the Commission's ability to continue as a going concern for twelve months beyond the financial statement date, including any currently known information that may raise substantial doubt shortly thereafter.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinions. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS and *Government Auditing Standards* will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with GAAS and *Government Auditing Standards*, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Commission's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the Commission's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control-related matters that we identified during the audit.

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis and the required supplementary information as listed in the table of contents be presented to supplement the basic financial statements. Such information is the responsibility of management and, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the 2022 required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the 2022 information and comparing the 2022 information for consistency with management's responses to our inquiries, the 2022 basic financial statements, and other knowledge we obtained during our audit of the 2022 basic financial statements. We do not express an opinion or provide any assurance on the 2022 information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Supplementary Information

Our audit was conducted for the purpose of forming opinions on the 2022 financial statements that collectively comprise the Commission's 2022 basic financial statements. The accompanying 2022 supplemental schedules listed in the table of contents are presented for purposes of additional analysis and are not a required part of the 2022 basic financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records



used to prepare the basic financial statements. The 2022 information has been subjected to the auditing procedures applied in the audit of the 2022 basic financial statements and certain additional procedures, including comparing and reconciling such 2022 information directly to the underlying accounting and other records used to prepare the 2022 basic financial statements or to the 2022 basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the 2022 information is fairly stated in all material respects in relation to the financial statements.

Other Information

Management is responsible for the other information included in the annual report. The other information comprises the introductory and statistical sections but does not include the basic financial statements and our auditor's report thereon. Our opinion on the basic financial statements do not cover the other information, and we do not express an opinion or any form of assurance thereon.

In connection with our audit of the basic financial statements, our responsibility is to read the other information and consider whether a material inconsistency exists between the other information and the basic financial statements, or the other information otherwise appears to be materially misstated. If, based on the work performed, we conclude that an uncorrected material misstatement of the other information exists, we are required to describe it in our report.

Other Reporting Required by Government Auditing Standards

In accordance with *Government Auditing Standards*, we have also issued our report dated September 14, 2023, on our consideration of the Commission's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the Commission's internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering Commission's internal control over financial reporting and compliance.

A handwritten signature in blue ink that reads "Withum Smith + Brown, PC". The signature is written in a cursive, flowing style.

September 14, 2023

BOSTON WATER AND SEWER COMMISSION

Management's Discussion and Analysis

Required Supplementary Information

December 31, 2022 and 2021

(Unaudited)

Overview

Upon its creation in 1977, Boston Water and Sewer Commission (the "Commission") assumed the responsibility to provide water distribution, wastewater collection and storm water drainage services in the City of Boston (the "City").

The Commission has realized a rate basis surplus from its operation in each year since its inception. In accordance with the Boston Water and Sewer Reorganization Act of 1977 (the Enabling Act), the Commission applies audited surpluses to reduce its rates in succeeding years.

To accommodate the rate making process, the Commission follows the accounting standards set forth in Governmental Accounting Standards Board Statement No. 62 ("GASB 62"), *Codification of Accounting and Financial Reporting Guidance Contained in Pre-November 30, 1989 FASB and AICPA Pronouncements*. GASB 62 allows certain (a) revenues provided for future allowable costs to be deferred until the costs are incurred (deferred credits) and (b) costs incurred to be capitalized if future recovery is reasonably assured (deferred charges).

Overview of the Financial Statements

The Financial Statements: The financial statements are designed to provide readers with a broad overview of the Commission finances and are comprised of three basic statements.

The *Statements of Net Position* presents information on all of the Commission's assets, deferred outflows of resources, liabilities, and deferred inflows of resources with the difference reported as *net position*.

The *Statements of Revenues, Expenses and Changes in Net Position* presents information showing how the Commission's net position changed during the most recent fiscal year.

The *Statements of Cash Flows* is reported on the direct method. The direct method of cash flow reporting portrays net cash flows from operations as major classes of operating receipts and disbursements.

Fiduciary Funds – The Commission reports the other post-employment benefit ("OPEB") trust fund as separate statements of fiduciary net position and statements of changes in fiduciary net position. Fiduciary funds are used to account for resources held for the benefit of parties outside the Commission. Fiduciary funds are not reflected in the Commission's business type financial statements because the resources of these funds are not available to support the Commission's own programs. The Fiduciary Fund Financial Statements can be found immediately following the Statement of Cash Flows.

The financial statements can be found on pages 29 through 33 of this report.

Notes to the financial statements: The notes provide additional information that is essential to a full understanding of the data provided in the financial statements. The notes provide information regarding both the accounting policies and procedures the Commission has adopted as well as additional detail of certain amounts contained in the financial statements. The notes to the financial statements can be found on pages 34 through 68 of this report.

BOSTON WATER AND SEWER COMMISSION

Management's Discussion and Analysis

Required Supplementary Information

December 31, 2022 and 2021

(Unaudited)

Condensed Financial Information

(in thousands)

	<u>2022</u>	<u>2021</u>	<u>2020</u>
Current assets	\$ 353,904	334,901	311,314
Capital assets, net	1,532,236	1,497,563	1,472,358
Total assets	<u>1,886,140</u>	<u>1,832,464</u>	<u>1,783,672</u>
Total deferred outflows	<u>141,030</u>	<u>100,007</u>	<u>90,555</u>
Current liabilities	118,499	86,286	112,449
Noncurrent liabilities	609,343	615,280	587,234
Total liabilities	<u>727,842</u>	<u>701,566</u>	<u>699,683</u>
Total deferred inflows	<u>890,763</u>	<u>829,287</u>	<u>783,719</u>
Net position:			
Net investment in capital assets	944,499	898,140	867,306
Restricted	118,764	114,057	114,653
Unrestricted net deficit	<u>(654,698)</u>	<u>(610,579)</u>	<u>(591,134)</u>
Total net position	<u>\$ 408,565</u>	<u>401,618</u>	<u>390,825</u>

During the year, the Commission saw an increase in total assets and in total liabilities, resulting in an increase in total net position of \$6.9 million, or 1.7%. In 2021, net position totaled \$401.6 million, an increase of \$10.8 million, or 2.8% from 2020. The Commission's 2022 operations resulted in a rate basis surplus of \$758,941 compared to \$464,760 in 2021.

Since inception, the Commission has invested in various capital assets, including capital improvement projects, machinery and equipment, buildings, and improvements. These investments, net of accumulated depreciation, totaled \$1.5 billion at December 2022, which is 2.3% higher than in 2021. In 2021, these investments totaled \$1.5 billion, an increase of \$25.2 million, or 1.7% over the 2020 total investment in capital assets. These increases in capital assets are the result of continuous upgrades of the Commission owned water and sewer infrastructure.

Total operating revenues in 2022 were \$458.9 million, which is 10.7% greater than in 2021. Total operating revenues in 2021 were \$414.7 million, which is 5.4% greater than 2020. Operating revenues consist of water and sewer revenue, fire pipe revenue and other income. Water and sewer revenue in 2022 and 2021 represented 97.2% and 97.1% of total operating revenues, respectively. The increases in 2022 and 2021 operating revenues were primarily driven by a 4.50% and 8.90% average rate increase, respectively.

BOSTON WATER AND SEWER COMMISSION

Management's Discussion and Analysis

Required Supplementary Information

December 31, 2022 and 2021

(Unaudited)

Total operating expenses in 2022 were \$390.4 million, which represents an increase of 5.8% from 2020. The increase in 2021 operating expenses was primarily due to a combined additional spending of 6.9%, or \$21.7 million in three-line items (operations, maintenance and Massachusetts Water Resources Authority ("MWRA") assessment). Total operating expenses in 2021 were \$369.0 million, which represents an increase of 3.5% from 2020. This increase in 2021 operating expenses was primarily due to a combined additional spending of 3.5%, or \$7.4 million in three-line items (operations, maintenance and Massachusetts Water Resources Authority ("MWRA") assessment). Operating expenses consist of operations and maintenance, MWRA assessment, depreciation and amortization. The MWRA assessment is the largest expense incurred by the Commission, representing 63.4% and 66.0% in 2022 and 2021, respectively, of total operating expenses.

In 2022 and 2021, 84% and 83%, respectively, of water provided by MWRA was billable to customers. Since its inception, the Commission has maintained the percentage of billable water at 78% and is continuing to take steps to improve the amount of billable water, including replacement of old and defective meters and implementation of a comprehensive leak detection and repair program.

Condensed Financial Information

(in thousands)

	<u>2022</u>	<u>2021</u>	<u>2020</u>
Operating revenues:			
Water and sewer usage	\$ 445,984	402,667	363,852
Other	12,998	12,002	29,490
Operating expenses	<u>(390,390)</u>	<u>(369,045)</u>	<u>(356,455)</u>
Excess operating revenues	68,592	45,624	36,887
Investment income	6,992	4,075	2,514
Interest expense	<u>(14,622)</u>	<u>(15,585)</u>	<u>(17,366)</u>
Total nonoperating net expense	<u>(7,630)</u>	<u>(11,510)</u>	<u>(14,852)</u>
Excess revenues before capital grants, contributions and transfer requirements	60,962	34,114	22,035
Capital grants and contributions	13,666	17,803	2,560
Excess revenues used to fund reserves and other deferrals	(67,386)	(41,031)	(29,525)
Change in accumulated revenues used to offset future rates	<u>(294)</u>	<u>(93)</u>	<u>318</u>
Change in net position	6,947	10,793	(4,612)
Net position, beginning of year	<u>401,618</u>	<u>390,825</u>	<u>395,437</u>
Net position, end of year	<u><u>408,565</u></u>	<u><u>401,618</u></u>	<u><u>390,825</u></u>

BOSTON WATER AND SEWER COMMISSION

Management’s Discussion and Analysis

Required Supplementary Information

December 31, 2022 and 2021

(Unaudited)

Capital Assets

In fiscal year 2022, major Commission project additions totaled \$42.4 million, of which \$13.6 million was financed with bond proceeds. Major project expenditures (in millions) are as follows:

Relay of water mains	\$ 15.9
Rehabilitation/replacement of sewers or storm drains	17.2
Separation of combined sewers	5.8
Meter replacement	0.3
Stormwater	<u>3.2</u>
	<u>\$ 42.4</u>

The Commission’s 2023-2025 capital budget includes projected expenditures of \$238.9 million for infrastructure and capital projects. The major projects are for the rehabilitation of water mains and the replacement/rehabilitation of the sewer system. Some water projects are financed on a pay-as-you go basis combined with interest free loans for water rehabilitation provided by the MWRA. Most of the sewer improvements along with the installation of a new radio frequency meter reading system will be financed through bond proceeds. However, there are sewer improvements that are funded through the utilization of the MWRA loan programs. Please refer to footnote 4 for more detailed capital asset activity.

Debt Plan

The Commission is empowered by the Enabling Act to issue bonds and notes payable solely constituted on the general obligation of the Commission. The Commission has no legal restrictions concerning the amount of debt, which it may have outstanding, subject to the coverage requirements described below.

The Commission issues General Revenue Bonds to finance portions of its capital improvement projects. The Commission’s 2023-2025 capital budget, which totals \$238.9 million, anticipates that projects totaling \$105.9 million, or 45.0% of the Commission’s 2023-2025 capital budget, will be funded from bond proceeds. The 2023 budget for debt service is \$49.7 million including \$43.5 million for bonds. Please refer to footnote 5 for more detailed long-term debt information.

BOSTON WATER AND SEWER COMMISSION

Management’s Discussion and Analysis

Required Supplementary Information

December 31, 2022 and 2021

(Unaudited)

The Commission currently has nine series of General Revenue Bonds outstanding at the end of 2022, totaling approximately \$496.2 as follows (in millions):

1994 Series A	\$	5.6
2012 Series B		7.9
2014 Series A		58.0
2015 Series A		72.8
2016 Series A		40.6
2016 Series B		48.6
2018 Series A		66.9
2021 Series A		155.6
2021 Series B		40.2
	\$	<u>496.2</u>

Debt Service Coverage Requirements

The Commission’s bond covenants require that rates and charges be at least sufficient to provide revenues (i) to pay all current expenses of the Commission, (ii) to pay the principal of, premium if any, and interest on all bonds issued by the Commission as they become due and payable, (iii) to create and maintain such reasonable reserves as may be reasonably required by any trust agreement or resolution securing bonds, (iv) to provide funds for paying the cost of all necessary repairs, replacements and renewal of the systems and (v) to pay or provide for any and all amounts which the Commission may be obligated to pay or provide for by law or contract. The Commission is also required to establish and maintain rates and charges at levels sufficient so that total net revenues in each year during which bonds are outstanding will equal at least 125% of (1) the bond debt service requirement during such year less (2) the amount, if any, of bond proceeds available to pay interest becoming due in such year on bonds outstanding as of the first day of such year. The Commission has exceeded the 125% debt service coverage requirement of the Resolution in each year since its inception in 1977.

Additional Bonds and Refunding Bonds

The Enabling Act permits the issuance of additional bonds for paying the cost of any project, making deposits in various funds established under the Enabling Act, paying costs of issuance, paying the principal, premium and interest on any notes issued in anticipation of additional bonds, or any combination of the above.

Refunding bonds may also be issued by the Commission only upon certifying that the aggregate debt service in each fiscal year in which Refunding Bonds are outstanding will not be increased because of the issuance of the Refunding Bonds; provided that, in lieu of such certification, the Commission may deliver to the Trustee certificates satisfying the conditions described above for the issuance of additional bonds.

BOSTON WATER AND SEWER COMMISSION

Management's Discussion and Analysis

Required Supplementary Information

December 31, 2022 and 2021

(Unaudited)

Budgets and Rates

The Commission is required by law to be self-sustaining to set its rates at a level sufficient to cover expenses and debt service requirements each year.

In 2006, the Commission modified its inclining block rate structure. The number of rate blocks was reduced from ten to six, thereby making the structure easier to understand for customers while still promoting water conservation and generating sufficient revenue. In 2021 and 2020, the Commission increased its water and sewer rates by an average of 4.50% and 8.90%, respectively. The major reasons behind these increases were: (i) the increase in assessment paid to the MWRA, and (ii) the decline in water sales due to general water conservation efforts of individuals and businesses throughout the City.

Effective January 1, 2023, the Commission increased its water and sewer rates by an average of 1.50%.

Credit Ratings

The Commission's revenue bonds are rated "Aa1" by Moody's Investors Service, "AAA" by Standard and Poor's and "AA+" by Fitch Ratings for all bonds issued before 2016.

Contacting the Commission's Financial Management

This report is designed to provide our bondholders, customers and other interested parties with a general overview of the Commission's finances and to demonstrate the Commission's accountability for the revenue it receives. If you have questions about this report or need additional information, contact Boston Water and Sewer Commission Finance Division in writing at 980 Harrison Avenue, Boston, MA 02119, or by telephone 617-989-7000, or on the web at www.bwsc.org.

BOSTON WATER AND SEWER COMMISSION

Statements of Net Position
December 31, 2022 and 2021

Assets	2022	2021
Current assets:		
Cash and cash equivalents	\$ 15,608,812	7,798,415
Restricted cash and investments (Notes 5 and 11)	270,886,915	264,988,651
Accounts receivable, net:		
Customers, less allowances of \$2,465,797 in 2022 and in 2021, respectively (Note 1)	31,818,585	30,735,649
Unbilled revenues, less allowances of \$1,702,361 in 2022 and 2021	34,335,488	30,454,280
Prepaid expenses	1,253,897	923,703
Total current assets	353,903,697	334,900,698
Noncurrent assets:		
Capital assets (Note 4):		
Depreciable, net	1,404,256,600	1,349,742,504
Nondepreciable	127,979,478	147,820,367
Total noncurrent assets	1,532,236,078	1,497,562,871
Total Assets	1,886,139,775	1,832,463,569
Deferred Outflows of Resources		
Deferred charges (Note 2)	141,030,508	100,007,054
Liabilities		
Current liabilities:		
Payable from current assets:		
Accounts payable	24,179,236	20,868,909
Other accrued liabilities	22,651,912	13,622,678
Commercial paper notes (Note 6)	35,000,000	15,000,000
Current portion of long-term notes (Note 5)	6,138,087	6,835,211
Current portion of revenue bonds (Note 5)	30,529,476	29,958,676
Total current liabilities	118,498,711	86,285,474
Noncurrent liabilities:		
Long-term notes (Note 5)	30,646,513	33,215,110
Revenue bonds, net (Note 5)	487,674,381	518,203,846
Net pension liability (Note 9)	46,855,560	21,656,915
Net OPEB liability (Note 10)	39,616,243	38,837,083
Other long-term liabilities (Note 13)	4,550,357	3,367,494
Total noncurrent liabilities	609,343,054	615,280,448
Total Liabilities	727,841,765	701,565,922
Deferred Inflows of Resources		
Deferred credits and reserves (Note 3)	890,763,421	829,286,671
Commitments and contingencies (Notes 12 and 14)		
Net Position		
Net position:		
Net investment in capital assets	944,498,467	898,139,925
Restricted for debt service	51,804,373	51,886,236
Restricted for capital assets	542,177	163,505
Restricted for debt covenants	66,418,203	62,007,142
Unrestricted net deficit	(654,698,123)	(610,578,778)
Total Net Position	\$ 408,565,097	401,618,030

See accompanying notes to financial statements.

BOSTON WATER AND SEWER COMMISSION
 Statements of Revenues, Expenses and Changes in Net Position
 Years ended December 31, 2022 and 2021

	2022	2021
Operating revenues:		
Water and sewer usage (Note 1)	\$ 445,984,547	402,666,256
Fire pipe	5,327,520	5,222,027
Other	7,670,726	6,780,262
Total operating revenues	458,982,793	414,668,545
Operating expenses:		
Operations	104,906,679	85,250,673
Maintenance	12,480,425	12,958,569
MWRA assessment (Note 7)	245,958,491	243,396,224
Depreciation and amortization	27,044,814	27,439,948
Total operating expenses	390,390,409	369,045,414
Operating Income	68,592,384	45,623,131
Nonoperating revenue (expense):		
Investment income	6,991,769	4,075,426
Interest expense	(14,622,176)	(15,585,193)
Total nonoperating net expense	(7,630,407)	(11,509,767)
Excess revenues before capital grants and contributions and transfer requirements	60,961,977	34,113,364
Capital grants and contributions: (Note 1)	13,665,469	17,803,560
Excess revenues before transfer requirements	74,627,446	51,916,924
Excess revenues used to fund reserves and other deferrals (Note 3)	(67,386,201)	(41,030,918)
Change in accumulated revenues used to offset future rates (Note 3)	(294,178)	(92,856)
Change in net position	6,947,067	10,793,150
Net position, beginning of year	401,618,030	390,824,880
Net position, end of year	\$ 408,565,097	401,618,030

See accompanying notes to financial statements.

BOSTON WATER AND SEWER COMMISSION

Statements of Cash Flows

Years ended December 31, 2022 and 2021

	<u>2022</u>	<u>2021</u>
Cash flows from operating activities:		
Receipts from customers	\$ 454,018,649	415,872,698
Payments to suppliers	(285,945,748)	(276,471,236)
Payments to employees	(80,686,907)	(59,164,947)
Net cash provided by operating activities	<u>87,385,994</u>	<u>80,236,515</u>
Cash flows from investing activities:		
Investment income	6,991,769	4,075,426
Sales of investments	208,835,273	130,473,346
Purchases of investments	(231,314,205)	(208,835,273)
Net cash applied to investing activities	<u>(15,487,163)</u>	<u>(74,286,501)</u>
Cash flows from capital and related financing activities:		
Purchase of capital assets	(61,205,541)	(53,264,952)
Proceeds from long-term notes	3,569,490	13,014,572
Proceeds from revenue bonds	—	205,896,394
Payment of long-term notes	(6,835,211)	(5,935,166)
Payment of revenue bonds	(26,140,000)	(169,525,000)
Proceeds from commercial paper	20,000,000	15,000,000
Payment of commercial paper	—	(50,000,000)
Capital grants and contributions	13,665,469	17,803,560
Payment of interest	(23,723,310)	(32,574,297)
Net cash applied to capital and related financing activities	<u>(80,669,103)</u>	<u>(59,584,889)</u>
Net decrease	<u>(8,770,272)</u>	<u>(53,634,875)</u>
Cash and cash equivalents, beginning of year	<u>118,057,243</u>	<u>171,692,118</u>
Cash and cash equivalents, end of year	<u>\$ 109,286,971</u>	<u>118,057,243</u>
Reconciliation of operating income to net cash provided by operating activities:		
Operating Income	\$ 68,592,384	45,623,131
Adjustment to reconcile operating income to net cash:		
Depreciation and amortization	27,044,814	27,439,948
Bad debts	550,528	41,375
Deferred outflows of resources	(42,117,491)	802,385
Change in assets and liabilities:		
Accounts receivable, net	(1,633,464)	3,653,479
Unbilled revenues	(3,881,208)	(2,490,701)
Prepaid expenses	(330,195)	(63,478)
Accounts payable	2,797,847	3,083,350
Other accrued liabilities	9,202,111	5,162,910
Other long-term liabilities	1,182,863	1,370,761
Net pension activity	25,198,645	(7,354,968)
Net OPEB activity	779,160	2,968,323
Net cash provided by operating activities	<u>\$ 87,385,994</u>	<u>80,236,515</u>
Noncash capital and related financing activities:		
Retainage payable	\$ 512,480	(619,871)
Bond issuance costs	\$ —	700,837
Cash and cash equivalents are comprised of the following:		
Cash and cash equivalents	\$ 15,608,812	7,798,415
Money market in restricted cash and investments	50,386,915	64,793,881
Cash in restricted cash and investments	43,291,244	45,464,947
Total	<u>\$ 109,286,971</u>	<u>118,057,243</u>

See accompanying notes to financial statements.

BOSTON WATER AND SEWER COMMISSION
 Statements of Fiduciary Net Position
 Other Post-Employment Benefits (“OPEB”) Trust Fund
 December 31, 2022 and 2021

	Assets	
	<u>2022</u>	<u>2021</u>
Cash and cash equivalents	\$ —	177,935
Investments:		
Mutual funds	8,554,304	7,221,201
Equity	15,426,405	14,383,398
Fixed Income	8,225,603	7,882,836
Pooled index fund	6,504,134	6,654,854
Receivables	<u>3,500,000</u>	<u>2,503,712</u>
Total Assets	<u>42,210,446</u>	<u>38,823,936</u>
	Net Position	
Restricted for OPEB purposes	<u>42,210,446</u>	<u>38,823,936</u>
Total Net Position	<u>\$ 42,210,446</u>	<u>38,823,936</u>

See accompanying notes to financial statements.

BOSTON WATER AND SEWER COMMISSION
 Statements of Changes in Fiduciary Net Position
 Other Post-Employment Benefits (“OPEB”) Trust Fund
 Years ended December 31, 2022 and 2021

	<u>2022</u>	<u>2021</u>
ADDITIONS:		
Contributions:		
Employer	\$ 10,373,789	6,958,809
Total Contributions	<u>10,373,789</u>	<u>6,958,809</u>
Investment earnings:		
Investment income	(3,683,330)	4,074,737
Less investment expenses	<u>(54,040)</u>	<u>(118,892)</u>
Total net investment income	<u>(3,737,370)</u>	<u>3,955,845</u>
Total additions	<u>6,636,419</u>	<u>10,914,654</u>
DEDUCTIONS:		
Benefit payments	<u>3,249,909</u>	<u>3,064,401</u>
Change in Net Position	3,386,510	7,850,253
Net Position Restricted for OPEB		
Beginning of Year	<u>38,823,936</u>	<u>30,973,683</u>
End of Year	<u>\$ 42,210,446</u>	<u>38,823,936</u>

See accompanying notes to financial statements.

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements

December 31, 2022 and 2021

(1) Organization, Basis of Presentation, and Summary of Significant Accounting Policies

Boston Water and Sewer Commission (the "Commission") has the responsibility to provide water and wastewater services on a fair and equitable basis in the City of Boston (the "City") as required under the Boston Water and Sewer Reorganization Act of 1977 (the "Enabling Act").

Under the Enabling Act, the Commission is subject to regulation with respect to rates, accounting and other matters, where applicable, by the board of commissioners (the "Board"). The Board is appointed by the City's Mayor, subject to confirmation by the City Council. It regulates the rates that the Commission can charge its customers for water and sewer usage. The rates charged to customers are based on the cash requirements to cover the Commission's operations, debt service and reserve contributions. To comply with the external financial reporting requirements of the Board, the accompanying financial statements are presented on a basis that is consistent with United States of America generally accepted accounting principles ("GAAP") for regulated utilities (i.e., the accrual basis of accounting and the capital maintenance measurement focus).

To accommodate the rate-making process, the Commission follows the accounting standards set forth in Governmental Accounting Standards Board Statement No. 62 ("GASB 62"), *Codification of Accounting and Financial Reporting Guidance Contained in Pre-November 30, 1989 FASB and AICPA Pronouncements*. GASB 62 allows certain Board-approved (a) revenues provided for future allowable costs to be deferred until the costs are incurred (deferred credits) and (b) costs incurred to be capitalized if future recovery is reasonably assured (deferred charges). Revenues and expenses appearing in the supplemental schedules of revenues and expenses – rate basis is presented in the same format as utilized in the Commission's operational budgeting and rate-setting process. The revenues and expenses shown on the statements of revenues and expenses are presented on a GAAP basis. Reconciliation between the revenues and expenses of these two operating statements for the year ended December 31, 2022, is provided below:

	<u>Revenues</u>	<u>Expenses</u>
As presented in the statements of revenues and expenses:		
Operating revenues/expenses	\$ 458,982,793	390,390,409
Investment income/interest expense	6,991,769	14,622,176
Total	465,974,562	405,012,585
Reclassifications and deferrals:		
Contributions to reserves	—	26,034,000
GAAP adjustments	(18,053,274)	(18,053,274)
Excess bond payments over depreciation and amortization	—	8,252,820
Investment income (escrowed funds)	(538,605)	—
Capital expenditures	—	21,021,614
Excess revenue used to offset current rates	464,760	—
Other deferrals	(4,575,866)	244,891
As presented in the supplemental schedule of revenues and expenses - rate basis	\$ <u>443,271,577</u>	<u>442,512,636</u>

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2022 and 2021

(1) Organization, Basis of Presentation, and Summary of Significant Accounting Policies - Continued

The Enabling Act requires that any net surplus, as defined by the rate-setting process, be either turned over to the City or applied to offset water and sewer rates for the following year. The Commission has applied \$758,941 and \$464,760 for the years ended December 31, 2022 and 2021, respectively, to offset rates in the respective subsequent years.

(a) Revenue Billings

Water and sewerage fees are billed to users of the systems on a monthly-cycle basis. Revenues are accrued for periods between the termination of billings for the various cycles and the end of the year. Some adjustments are made on a post-billing basis that reduce the number of total billings. The total customer bills outstanding as of December 31, 2022 and 2021 were approximately \$34.3 million and \$33.2 million, respectively. These net billing amounts are reduced by an allowance for uncollectible accounts of approximately \$2.5 million in 2022 and 2021, and to arrive at the net accounts receivable. Charges for water and sewer services provided, but unbilled, at year end are estimated based on historical usage. The calculation is reduced by an allowance for the adjustment of approximately \$1.7 million in 2022 and 2021 to arrive at the net accounts receivable.

(b) Investments

Investments are stated at fair value. Fair value is based on quoted market prices.

The Commission categorizes the fair value measurements of its investments based on the hierarchy established by generally accepted accounting principles as prescribed by the GASB. The fair value hierarchy, which has three levels, is based on the valuation inputs used to measure an asset's fair value: Level 1 inputs are quoted prices in active markets for identical assets; Level 2 inputs are significant other observable inputs; Level 3 inputs are significant unobservable inputs. The Commission does not have any investments that are measured using Level 2 or 3 inputs as disclosed in Note 11.

(c) Capital Assets

Capital assets are stated at historical cost. Depreciation is provided on the straight-line method based upon the estimated useful lives of the various classes of assets. Major renewals or betterments over \$500 are capitalized and depreciated over their estimated useful lives. Maintenance and repairs are expensed as incurred, and improvements are capitalized.

(d) Compensated Absences

Employees of the Commission accumulate unused sick time (subject to certain limitations) to be used later or a percentage paid in cash upon voluntary resignation and/or retirement from the Commission (subject to Commission policies and/or bargaining agreements). The liability for vacation leave is based on the amount earned but not used; for sick leave, it is based on a percentage of the amount accumulated at the statement of net position dates that would be paid to employees on termination. The liability for each amount is calculated based on the pay or salary rates in effect as of the date of the statement of net position and is included as other liabilities.

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2022 and 2021

(1) Organization, Basis of Presentation, and Summary of Significant Accounting Policies - Continued

(e) Business-Type Activity Accounting

Business-type activity funds distinguish operating revenues and expenses from non-operating items. Operating revenues and expenses result from providing services relating to ongoing operations. All revenues and expenses not meeting this definition are reported as non-operating revenues and expenses.

(f) Fiduciary Fund

The fiduciary fund financial statements are reported using the economic resources measurement focus on the accrual basis of accounting. Under this method, revenues are recognized when earned and expenses are recorded when liabilities are incurred. The Commission reports as a fiduciary fund the other post-employment benefit (“OPEB”) trust fund which is used to account for contributions and investment income restricted to pay medical and life insurance benefits. Further information on the significant accounting policies for the OPEB trust fund may be found in Note 10 of the basic financial statements. Fiduciary funds are not reflected in the Commission’s business type financial statements because the resources of these funds are not available to support the Commission’s own programs.

(g) Depreciation

The Commission provides for depreciation using the straight-line method. Estimated useful lives used in computing depreciation are as follows:

	<u>Years</u>
Water:	
Works	100
Meters	10
Hydrants	40
Sewerage:	
Works	75
Pumping station	35
Buildings	40
Other	4 to 14

(h) Cash and Cash Equivalents

The Commission considers all highly liquid, short-term cash investments with original maturities of three months or less to be cash equivalents for purposes of the statements of cash flows.

(i) Deferred Inflows of Resources and Deferred Outflows of Resources

Deferred inflows and outflows represent the consumption or acquisition of net assets applicable to a future reporting period. These are typically items of an asset or liability nature for which an exchange transaction is not inherent to their realization or liquidation value.

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2022 and 2021

(1) Organization, Basis of Presentation, and Summary of Significant Accounting Policies - Continued

(j) Pensions

For purposes of measuring the net pension liability, deferred outflows of resources and deferred inflows of resources related to pensions and pension expense, information about the fiduciary net position of the Boston Retirement System ("BRS"), and the additions to/deductions from the Commission's fiduciary net position have been determined on the same basis as they were reported by the BRS. For this purpose, benefit payments (including refunds of employee contributions) are recognized when due and payable in accordance with benefit terms. Investments are reported at fair value.

(k) Other Postemployment Benefits ("OPEB")

For purposes of measuring the net OPEB liability, deferred outflows of resources and deferred inflows of resources related to OPEB and OPEB expense, information about the fiduciary net position of the Boston Water and Sewer OPEB Trust (the "Plan"), and additions to/deductions from Plan's fiduciary net position have been determined on the same basis as they are reported by the Plan. For this purpose, the Plan recognizes benefit payments when due and payable in accordance with the benefit terms. Investments are generally reported at fair value.

(l) Net Position

Resources are classified for accounting purposes into the following categories:

Net Investment in Capital Assets: Capitals assets, net of accumulated depreciation and outstanding principal balances of debt attributable to the acquisition, construction, or improvement of those assets. Deferred outflows of resources and deferred inflows of resources that are attributable to the acquisition, construction, or improvement of those assets or related debt are included in this component of net position.

Restricted – Expendable: Net position whose use is subject to externally imposed conditions that can be fulfilled by the actions of the Commission or by the passage of time.

Unrestricted: All other categories of net position. Unrestricted net position may be designated by the Commission.

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2022 and 2021

(1) Organization, Basis of Presentation, and Summary of Significant Accounting Policies - Continued

(m) Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions about future events. These estimates and assumptions affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements, as well as reported amounts of revenues and expenses during the reporting period. Management evaluates the estimates and assumptions on an ongoing basis using historical experience and other factors that management believes to be reasonable under the circumstances. Adjustments to estimates and assumptions are made as facts and circumstances require. As future events and their effects cannot be determined with certainty, actual results may differ from the estimates used in preparing the accompanying financial statements. Significant estimates and assumptions are required as part of estimating an allowance for doubtful accounts, depreciation, amortization, net pension and OPEB liabilities, and the recoverability of long-lived assets.

(n) Contributions in Aid of Construction

Contributions in aid of construction (“CIAC”) are additions and/or upgrades to infrastructure made by customers or developers that have been assigned to the Commission upon completion of the applicable project. Historically, CIAC has not been material to the financial statements and the contribution is not recorded. The Commission accepts the responsibility for the ongoing maintenance of CIAC.

(o) Capital Contributions

Capital contributions consist of special grants or loan subsidies received from the Massachusetts Water Resource Authority (“MWRA”) along with funds received from property owners and developers to assist the Commission in development of its infrastructure.

(p) New Government Accounting Pronouncements

GASB Statement 96 – *Subscription-Based Information technology Arrangements (SBITA)* is effective for reporting periods beginning after June 15, 2022. The objective of this Statement is to provide accounting and financial reporting guidance for transactions in which a governmental entity contracts with another party for the right to use their software. A right to use asset and a corresponding liability would be recognized for SBITAs.

GASB Statement 99 – *Omnibus 2022* is effective for reporting periods beginning after June 15, 2022. The objectives of this Statement are to enhance comparability in accounting and financial reporting and to improve the consistency of authoritative literature by addressing (1) practice issues that have been identified during implementation and application of certain GASB Statements and (2) accounting and financial reporting for financial guarantees.

GASB Statement 100 – *Accounting Changes and Errors Corrections* is effective for periods beginning after June 15, 2023. The objective of this Statement is to enhance accounting and financial reporting requirements for accounting changes and error corrections to provide more understandable, reliable, relevant, consistent and comparable information for making decisions or assessing accountability.

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2022 and 2021

(1) Organization, Basis of Presentation, and Summary of Significant Accounting Policies - Continued

(p) New Government Accounting Pronouncements - continued

GASB Statement 101 – *Compensated Absences* is effective for reporting periods beginning after December 15, 2023. The objective of this Statement is to better meet the information needs of financial statement users by updating the recognition and measurement guide for compensated absences. That objective is achieved by aligning the recognition and measurement guidance under a unified model and by amending certain previously required disclosures.

Management has not completed its review of the requirements of these standards and their applicability.

(q) Adoption of New Accounting Pronouncements

As of January 1, 2022, the Commission implemented GASB 87, *Leases*. GASB 87 enhances the consistency for leasing activities and establishes requirements for lease accounting based on the principle that leases are financings of the right to use an underlying asset. A lessee is required to recognize a lease liability and an intangible right to use lease asset, and a lessor is required to recognize a lease receivable and a deferred inflow of resources. The implementation of this standard did not have a material impact on the financial statements.

(2) Deferred Outflows of Resources

Deferred outflows of resources represent the consumption of net assets by the Commission that are applicable to future reporting periods. Deferred outflows of resources have a positive effect on net position, like assets. In accordance with GASB 62, pension obligations will be recovered through future rates or matched against credits related to the specific costs in the future.

The following is a summary of deferred outflow of resources as of December 31,

	<u>2022</u>	<u>2021</u>
Cost to be recovered through future revenues:		
Pension obligation	\$ 46,855,560	21,656,915
OPEB obligation	39,616,243	38,837,083
Pension:		
Pension related	-	10,974,837
Net difference between projected and actual earnings on pension plan investments	17,410,463	-
Differences between expected and actual experience in the total pension liability	3,529,506	258,304
Changes in assumptions	3,193,008	4,298,997
OPEB:		
Net difference between projected and actual earnings on OPEB plan investments	3,581,502	-
Differences between expected and actual experience in the total OPEB liability	5,228,503	-
Changes in assumptions	5,722,716	6,676,502
Deferred loss on defeasance	<u>15,893,007</u>	<u>17,304,416</u>
Total:	<u>\$ 141,030,508</u>	<u>100,007,054</u>

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2022 and 2021

(3) Deferred Inflows of Resources

In accordance with GASB 62, certain revenues and expenditures that would otherwise be included in the statements of revenues and expenses, may be applied to future operations.

These items are identified on the statements of revenues and expenses as excess revenues used to fund reserves and other deferrals and are included on the statements of net position in deferred credits and reserves and are as follows for the years ended December 31,:

	<u>2022</u>	<u>2021</u>
Contributions to reserves	\$ 26,034,000	16,889,000
Principal payments on long-term debt	32,975,211	31,100,167
Capital expenditures	21,021,614	10,577,512
Depreciation and amortization	(18,003,986)	(18,278,753)
Investment income on project and escrow funds	23,793,105	2,317,231
Other	(18,433,743)	(1,574,239)
	<u>\$ 67,386,201</u>	<u>41,030,918</u>

The components of deferred credits and reserves for the years ended December 31, have been designated as follows:

	<u>2022</u>	<u>2021</u>
Debt service	\$ 214,884,944	183,121,817
Capital improvements	662,898,266	649,935,884
Pension:		
Pension related	18,915,624	—
Differences between expected and actual experience - pension	4,781,624	6,396,205
Changes of assumptions	435,732	—
Net differences between expected and actual earnings on plan investments - pension	—	9,135,934
OPEB:		
OPEB related	8,648,495	3,691,187
Differences between expected and actual experience in the total OPEB liability	603,605	724,326
Changes of assumptions	5,280,621	384,262
Net differences between projected and actual earnings on OPEB plan investments	—	1,876,727
Working capital	(28,684,431)	(28,684,431)
Self-insurance	2,240,000	2,240,000
	<u>890,004,480</u>	<u>828,821,911</u>
Reduction of future rates	758,941	464,760
Total	<u>\$ 890,763,421</u>	<u>829,286,671</u>

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2022 and 2021

(4) Capital Assets

The cost and activities of water and sewer capital assets and their related accumulated depreciation at December 31, are as follows:

	Balance at December 31, 2021	Additions	Disposals	Reclassifications	Balance at December 31, 2022
Capital assets, not being depreciated:					
Land	\$ 5,884,243	-	-	-	5,884,243
Construction in progress	141,936,124	56,992,316	-	(76,833,206)	122,095,234
Total capital assets, not being depreciated	147,820,367	56,992,316	-	(76,833,206)	127,979,477
Capital assets, being depreciated:					
Buildings and improvements	68,214,142	72,152	-	1,764,391	70,050,685
Machinery and equipment	48,976,794	4,306,962	-	-	53,283,756
Infrastructure	1,715,210,857	346,591	-	75,068,815	1,790,626,263
Total capital assets, being depreciated	1,832,401,793	4,725,705	-	76,833,206	1,913,960,704
Less: accumulated depreciation for:					
Buildings and improvements	37,052,762	1,645,725	-	-	38,698,487
Machinery and equipment	37,650,177	3,664,639	-	-	41,314,816
Infrastructure	407,956,350	21,734,450	-	-	429,690,800
Total accumulated depreciation	482,659,289	27,044,814	-	-	509,704,103
Total capital assets being depreciated, net	1,349,742,504	(22,319,109)	-	76,833,206	1,404,256,601
Capital assets, net	\$ 1,497,562,871	34,673,207	-	-	1,532,236,078

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2022 and 2021

(4) Capital Assets - Continued

	Balance at December 31, 2020	Additions	Disposals	Reclassifications	Balance at December 31, 2021
Capital assets, not being depreciated:					
Land	\$ 5,884,243	-	-	-	5,884,243
Construction in progress	121,161,517	48,868,760	-	(28,094,153)	141,936,124
Total capital assets, not being depreciated	<u>127,045,760</u>	<u>48,868,760</u>	<u>-</u>	<u>(28,094,153)</u>	<u>147,820,367</u>
Capital assets, being depreciated:					
Buildings and improvements	68,112,671	44,110	-	57,361	68,214,142
Machinery and equipment	45,305,280	3,671,514	-	-	48,976,794
Infrastructure	1,687,113,368	60,697	-	28,036,792	1,715,210,857
Total capital assets, being depreciated	<u>1,800,531,319</u>	<u>3,776,321</u>	<u>-</u>	<u>28,094,153</u>	<u>1,832,401,793</u>
Less: accumulated depreciation for:					
Buildings and improvements	35,440,873	1,611,889	-	-	37,052,762
Machinery and equipment	33,116,370	4,533,807	-	-	37,650,177
Infrastructure	386,662,098	21,294,252	-	-	407,956,350
Total accumulated depreciation	<u>455,219,341</u>	<u>27,439,948</u>	<u>-</u>	<u>-</u>	<u>482,659,289</u>
Total capital assets being depreciated, net	<u>1,345,311,978</u>	<u>(23,663,627)</u>	<u>-</u>	<u>28,094,153</u>	<u>1,349,742,504</u>
Capital assets, net	<u>\$ 1,472,357,738</u>	<u>25,205,133</u>	<u>-</u>	<u>-</u>	<u>1,497,562,871</u>

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2022 and 2021

(5) Long-Term Obligations

Long term liabilities at December 31, consist of:

	Balance at December 31, 2021	Additions	Reductions	Balance at December 31, 2022	Current Portion
Notes payable:					
Long-term notes	\$ 40,050,321	3,569,490	(6,835,211)	36,784,600	6,138,087
Revenue bonds	522,340,000	—	(26,140,000)	496,200,000	27,325,000
Revenue bonds premiums	25,822,522	—	(3,818,665)	22,003,857	3,204,476
Total notes payable and bonds	<u>588,212,843</u>	<u>3,569,490</u>	<u>(36,793,876)</u>	<u>554,988,457</u>	<u>36,667,563</u>
Other long-term liabilities					
Net pension liability	21,656,915	25,198,645	—	46,855,560	—
Net OPEB liability	38,837,083	779,160	—	39,616,243	—
Other long-term liabilities	3,367,494	2,816,539	(1,633,676)	4,550,357	—
Total other long-term liabilities	<u>63,861,492</u>	<u>28,794,344</u>	<u>(1,633,676)</u>	<u>91,022,160</u>	<u>—</u>
Total long-term liabilities	<u>652,074,335</u>	<u>32,363,834</u>	<u>(38,427,552)</u>	<u>646,010,617</u>	<u>36,667,563</u>
	Balance at December 31, 2020	Additions	Reductions	Balance at December 31, 2021	Current Portion
Notes payable:					
Long-term notes	\$ 32,970,915	13,014,572	(5,935,166)	40,050,321	6,835,211
Revenue bonds	493,525,000	198,340,000	(169,525,000)	522,340,000	26,140,000
Revenue bonds premiums	28,994,234	8,257,231	(11,428,943)	25,822,522	3,818,676
Total notes payable and bonds	<u>555,490,149</u>	<u>219,611,803</u>	<u>(186,889,109)</u>	<u>588,212,843</u>	<u>36,793,887</u>
Other long-term liabilities					
Net pension liability	29,011,883	—	(7,354,968)	21,656,915	—
Net OPEB liability	35,868,760	2,968,323	—	38,837,083	—
Other long-term liabilities	1,996,733	1,683,737	(312,976)	3,367,494	—
Total other long-term liabilities	<u>66,877,376</u>	<u>4,652,060</u>	<u>(7,667,944)</u>	<u>63,861,492</u>	<u>—</u>
Total long-term liabilities	<u>622,367,525</u>	<u>224,263,863</u>	<u>(194,557,053)</u>	<u>652,074,335</u>	<u>36,793,887</u>

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2022 and 2021

(5) Long-Term Obligations - Continued

(a) Revenue Bonds

The Commission issues revenue bonds to support various projects. As set forth by the Commission’s bond resolution, revenue bonds are secured by all revenues of the Commission as well as deposits held in certain reserve funds. The following is a summary of revenue bond activity for the year ended December 31, (amounts in thousands):

Description	Balance at December 31, 2021	Additions	Reductions	Balance at December 31, 2022	Amounts due within one year
Revenue bonds:					
1994 Series A, bearing a variable interest rate based on the daily Municipal Market Data scale issued August 20, 1994, maturing 1995 to 2024	\$ 8,100	—	2,500	5,600	2,700
2012 Series A, bearing interest ranging from 3.0% to 5.0% issued June 6, 2012, maturing 2015 to 2023	15,460	—	7,585	7,875	7,875
2014 Series A, bearing interest ranging from 3.0% to 5.0% issued July 22, 2014, maturing 2017 to 2044	58,700	—	700	58,000	1,000
2015 Series A, bearing interest ranging from 3.0% to 5.0% issued August 05, 2015, maturing 2023 to 2028	72,760	—	—	72,760	13,010
2016 Series A, bearing interest ranging from 3.0% to 5.0% issued September 13, 2016, maturing 2020 to 2031	52,820	—	12,220	40,600	—
2016 Series B, bearing interest ranging from 3.0% to 5.0% issued September 13, 2016, maturing 2017 to 2046	49,135	—	500	48,635	500
2018 Series A, bearing interest ranging from 3.0% to 5.0% issued May 30, 2018, maturing 2020 to 2048	67,400	—	500	66,900	500
2021 Series A, bearing interest ranging from 0.29% to 3.0% issued July 7, 2021, maturing 2021 to 2037	157,335	—	1,735	155,600	1,740
2021 Series B, bearing interest ranging from 2.0% to 5.0% issued July 7, 2021, maturing 2021 to 2051	40,630	—	400	40,230	—
	<u>522,340</u>	<u>—</u>	<u>26,140</u>	<u>496,200</u>	<u>27,325</u>
Unamortized issue premiums/discounts	25,822	—	3,819	22,003	3,204
Net revenue bonds	<u>\$ 548,162</u>	<u>—</u>	<u>29,959</u>	<u>518,203</u>	<u>30,529</u>

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2022 and 2021

(5) Long-Term Obligations - Continued

(a) Revenue Bonds - Continued

Description	Balance at December 31, 2020	Additions	Reductions	Balance at December 31, 2021	Amounts due within one year
Revenue bonds:					
1994 Series A, bearing a variable interest rate based on the daily Municipal Market Data scale issued August 20, 1994, maturing 1995 to 2024	\$ 10,500	-	2,400	8,100	2,500
2009 Series B, bearing interest ranging from 3.0% to 5.0% issued March 26, 2009, maturing 2009 to 2021	3,840	-	3,840	-	-
2012 Series A, bearing interest ranging from 3.0% to 5.0% issued June 6, 2012, maturing 2015 to 2023	86,685	-	71,225	15,460	7,585
2014 Series A, bearing interest ranging from 3.0% to 5.0% issued July 22, 2014, maturing 2017 to 2044	99,200	-	40,500	58,700	700
2015 Series A, bearing interest ranging from 3.0% to 5.0% issued August 05, 2015, maturing 2023 to 2028	72,760	-	-	72,760	-
2016 Series A, bearing interest ranging from 3.0% to 5.0% issued September 13, 2016, maturing 2020 to 2031	59,680	-	6,860	52,820	12,220
2016 Series B, bearing interest ranging from 3.0% to 5.0% issued September 13, 2016, maturing 2017 to 2046	82,960	-	33,825	49,135	500
2018 Series A, bearing interest ranging from 3.0% to 5.0% issued May 30, 2018, maturing 2020 to 2048	77,900	-	10,500	67,400	500
2021 Series A, bearing interest ranging from 0.29% to 3.0% issued July 7, 2021, maturing 2021 to 2037	-	157,710	375	157,335	1,735
2021 Series B, bearing interest ranging from 2.0% to 5.0% issued July 7, 2021, maturing 2021 to 2051	-	40,630	-	40,630	400
	493,525	198,340	169,525	522,340	26,140
Unamortized issue premiums/discounts	28,994	8,257	11,429	25,822	3,819
Net revenue bonds	\$ 522,519	206,597	180,954	548,162	29,959

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2022 and 2021

(5) Long-Term Obligations - Continued

(a) Revenue Bonds - Continued

Debt principal and interest maturities for future years as of December 31, 2022 are as follows (amounts in thousands):

	Revenue bonds	
	Principal	Interest
2023	27,325	16,147
2024	28,650	14,862
2025	29,235	13,801
2026	26,960	12,701
2027	27,370	11,633
2028-2032	118,190	45,223
2033-2037	93,935	31,303
2038-2042	77,610	18,246
2043-2047	57,185	5,778
2048-2051	9,740	414
	\$ 496,200	170,108

Amortization expense for losses on bond refunding and amortization income of bond issuance premiums which are recorded as interest for the years ended December 31, 2022 and 2021 totaled \$(2,322,421) and \$(2,972,395) respectively.

The Commission is required to maintain a Senior Debt Service Reserve Fund of an amount at least equal to the sum of the maximum amount of principal, or sinking fund payments, and interest due in the current or immediately succeeding year on the outstanding senior bonds issued as “fixed rate bonds”, net of any accrued interest from the sale of any such bonds. As of December 31, 2022, and 2021, approximately \$44.3M has been deposited into the Senior Debt Service Reserve Account. This account is included with restricted cash and investments on the statements of net position.

During 2021, the Commission completed the issuance of \$198,340,000 General Revenue and Refunding Bonds, 2021 Series A and 2021 Series B (the “Bonds”). The net proceeds of \$205,896,394 (after issuance costs of \$700,837, plus premium of \$8,257,231) were used to refund \$61,035,000, \$40,000,000, \$33,325,000 and \$10,000,000 outstanding on the 2012 Series A, 2014 Series A, 2016 Series B and 2018 Series A bonds (the “defeased bonds”) respectively and to provide permanent financing for certain capital improvements previously financed by outstanding commercial paper; provide funding for other capital improvements; provide for a deposit to the Senior Debt Service Reserve Fund; and to pay the costs associated with the issuance of the Bonds. The Bonds have principal payable annually beginning November 1, 2022, through and including November 1, 2051. The refunding reduced the Commission’s total debt service by approximately \$19.7 million and resulted in an economic gain (the difference between the present value of the debt service on the old and new bonds) of approximately \$17.3 million.

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2022 and 2021

(5) Long Term Obligations - Continued

(b) Prior Year Debt Refunding (Defeasements)

In the aggregate, \$340,430,000 and \$358,695,000 remain outstanding at December 31, 2022 and 2021, respectively, on bond issues that were defeased “in-substance” in prior years.

(c) Restricted Cash and Investments

The Commission has established both trustee and nontrustee funds with investments, principally short-term securities, which are restricted for payment of specified liabilities, capital projects, or other costs of operations. The components of the trustee and nontrustee investments at December 31, are as follows:

	<u>2022</u>	<u>2021</u>
Trustee:		
U.S. Government agency obligations	\$ 137,605,990	113,925,484
Money market	48,706,250	62,708,642
Repurchase agreements	8,416,250	8,416,250
	<u>194,728,490</u>	<u>185,050,376</u>
Nontrustee:		
U.S. Government agency obligations	3,007,350	—
Cash	43,291,244	45,464,947
Money market	1,680,665	2,085,239
Open-ended mutual funds	28,179,166	32,388,089
	<u>76,158,425</u>	<u>79,938,275</u>
Restricted cash and investments	270,886,915	264,988,651
Less nontrustee cash	(43,291,244)	(45,464,947)
Trustee and nontrustee investments	<u>\$ 227,595,671</u>	<u>219,523,704</u>

(d) Long-Term Notes Payable

The Commission has entered into various interest-free loan agreements with Massachusetts Water Resource Authority (the "MWRA"). Under these agreements, the Commission is required to repay these loans in annual installments as part of the MWRA’s Infiltration/Inflow Local Financial Assistance Program (I/I), Pipeline Assistance Program ("PAP"), and System Assistance Program ("SAP"). These programs are designed to assist service area communities with sewer system rehabilitation.

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2022 and 2021

(5) Long Term Obligations - Continued

(d) Long-Term Notes Payable - Continued

The following is a summary of long-term note activities with MWRA and MCWT for the years ended December 31,

<u>Description</u>	<u>Balance at December 31, 2021</u>	<u>Additions</u>	<u>Reductions</u>	<u>Balance at December 31, 2022</u>	<u>Amounts due within one year</u>
MWRA I/I Program Phase VIII, interest free, due May 15, 2022	\$ 206,022	—	206,022	—	—
MWRA I/I Program Phase IX, interest free, due Aug 15, 2029	4,622,114	—	806,924	3,815,190	452,264
MWRA I/I Program Phase X, interest free, due May 15, 2032	—	2,706,990	—	2,706,990	270,699
MWRA S.A.P. Program, interest free, due Aug 15, 2028	32,619,766	—	5,562,023	27,057,743	5,068,632
MWRA L.L.P. Program, interest free, due May 15, 2032	2,602,419	862,500	260,242	3,204,677	346,492
Total long-term notes	<u>\$ 40,050,321</u>	<u>3,569,490</u>	<u>6,835,211</u>	<u>36,784,600</u>	<u>6,138,087</u>

<u>Description</u>	<u>Balance at December 31, 2020</u>	<u>Additions</u>	<u>Reductions</u>	<u>Balance at December 31, 2021</u>	<u>Amounts due within one year</u>
MWRA I/I Program Phase VIII, interest free, due May 15, 2022	\$ 412,042	—	206,020	206,022	206,022
MWRA I/I Program Phase IX, interest free, due Aug 15, 2029	1,660,418	3,426,019	464,323	4,622,114	806,924
MWRA S.A.P. Program, interest free, due Aug 15, 2028	30,898,455	6,986,134	5,264,823	32,619,766	5,562,023
MWRA L.L.P. Program, interest free, due May 15, 2032	—	2,602,419	—	2,602,419	260,242
Total long-term notes	<u>\$ 32,970,915</u>	<u>13,014,572</u>	<u>5,935,166</u>	<u>40,050,321</u>	<u>6,835,211</u>

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2022 and 2021

(5) Long Term Obligations - Continued

(d) Long-Term Notes Payable - Continued

Debt principal for future years as of the year ended December 31, are as follows (amounts in thousands):

2023	\$	6,138
2024		5,694
2025		5,095
2026		4,708
2027		4,320
2028-2032		10,830
	\$	<u>36,785</u>

(6) Short-Term Obligations

The Commission issues commercial paper notes for financing capital expenditures. The following represents the Commission's commercial paper notes outstanding as of the year ended December 31,:

Description	Balance at December 31, 2021	Additions	Reductions	Balance at December 31, 2022
Commercial paper notes, Bank of America program due December 6, 2022 through March 6, 2023	\$ 15,000,000	20,000,000	—	35,000,000
Total short-term notes	\$ <u>15,000,000</u>	<u>20,000,000</u>	<u>—</u>	<u>35,000,000</u>

Description	Balance at December 31, 2020	Additions	Reductions	Balance at December 31, 2021
Commercial paper notes, Bank of America program due December 3, 2021 through March 3, 2022	\$ 50,000,000	15,000,000	50,000,000	15,000,000
Total short-term notes	\$ <u>50,000,000</u>	<u>15,000,000</u>	<u>50,000,000</u>	<u>15,000,000</u>

Subsequent to year end the Commission extended the due date of the outstanding commercial paper to November 14, 2023. Additionally in March and August 2023 the Commission issued an additional \$10 million and \$15 million, respectively, of commercial paper to finance capital expenditures.

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2022 and 2021

(7) Massachusetts Water Resources Authority

The Commission obtains water supply and sewer treatment services from MWRA and is assessed a portion of the MWRA's actual operating and capital expenses. The assessment is based on the MWRA's fiscal year (July 1 to June 30), and payments are due to MWRA in ten equal installments excluding the months of January and July. Details of the MWRA assessments included in the statements of revenue and expenses at December 31, are as follows:

	<u>2022</u>	<u>2021</u>
Assessments based on:		
Water usage	\$ 96,676,398	95,971,920
Wastewater usage	<u>149,282,093</u>	<u>147,424,304</u>
Total	<u>\$ 245,958,491</u>	<u>243,396,224</u>

(8) Transactions with the City of Boston

Departments of the City of Boston were billed approximately \$5.7 million and \$4.1 million during 2022 and 2021, respectively, based on actual consumption.

The City provides services to the Commission, including paving and facilities rental. Operating costs billed to the Commission by the City were approximately \$418,000 and \$633,000 during the years ended December 31, 2022 and 2021, respectively, and capital costs billed by the City were approximately \$128,000 and \$40,000 during the years ended December 31, 2022 and 2021, respectively.

(9) Pension Benefits

(a) Description of the Boston Retirement System Plan

The Commission contributes to the Boston Retirement System (“BRS”), a cost-sharing, multi-employer qualified defined benefit public employee retirement system established under Chapter 32 of the Massachusetts General Laws (“MGL”) and a member of the Massachusetts Contributory Retirement System (the "System"). Under a cost-sharing plan, pension obligations for employees of all employers are pooled and plan assets are available to pay the benefits of the employees of any participating employer providing pension benefits through the plan, regardless of the status of the employers’ payment of its pension obligation to the plan. The System provides retirement, disability, and death benefits to plan members and beneficiaries. Chapter 32 of the MGL assigns authority to establish and amend benefit provisions of the plan.

A complete set of financial statements for BRS for the fiscal year ended December 31, 2022 can be obtained through the BRS, Boston City Hall, Room 816, Boston, MA 02201 or by accessing the website www.boston.gov/departments/retirement#financials-and-investments.

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2022 and 2021

(9) Pension Benefits - Continued

(b) Benefit Provisions

Participation in the System is mandatory for all permanent, full-time, and certain part-time employees immediately upon the commencement of employment. Participants who resign from employment or are receiving workers' compensation benefits, and who are not eligible to receive a retirement allowance, are entitled to request a refund of their total contributions. In addition, those participants who resign voluntarily with less than ten years of service are entitled to receive 3% per year interest; all others receive interest which has accrued on their cumulative deductions at the regular interest rate (0.1% at December 31, 2022 and 2021).

Employees with ten or more years of service, having attained age 55, are entitled to pension benefits; an earlier retirement is allowed upon completion of twenty years of service. The System provides for retirement allowance benefits up to a maximum of 80% of a participant's highest consecutive three-year average annual rate of regular compensation (highest consecutive five-year average for those members who join the System on or after April 2, 2012). Benefit payments are based upon a participant's age, length of creditable service, level of compensation and group classification. Participants become vested after ten years of creditable service. Effective July 1, 1998, Chapter 32 of the MGL assigns authority to establish and amend benefits provisions and grant cost-of-living increases for the plan to the BRS.

If a member in service dies due to causes unrelated to his or her job, the surviving spouse and/or surviving dependent children may receive benefits based on the members length of service, contributions and age, either in a lump sum or in the form of an annuity. In the event there are no spouse and/or dependent children named, other beneficiaries may be entitled to a lump-sum distribution. Participants who become permanently and totally disabled from further duty may be eligible to receive accident or ordinary disability retirement benefits.

Accident disability is provided to members with incapacitation resulting from a work-related injury or hazard. Generally, annual pension benefits are provided based on 72% of the annual rate of regular compensation. Ordinary disability is available to any member whose permanent incapacitation is not work related and has completed ten years of creditable service. Such benefits are provided as if the member had attained the age of 55 (or actual age if over 55) based on the amount of creditable service earned. Limits are placed on how much an employee receiving disability benefits can earn from other sources while collecting a disability retirement pension.

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2022 and 2021

(9) Pension Benefits - Continued

(c) Contributions

Plan members are required to contribute to the BRS at rates ranging from 5% to 9% of annual covered compensation. Employees hired on or after January 1, 1979 contribute an additional 2% of earnings in excess of \$30,000 per year. The Commission is required to pay into the BRS its share of the remaining system-wide actuarially determined contribution accepted by PERAC plus administration costs, which are apportioned among the employers based on active covered payroll. The contributions of plan members and the Commission are governed by Chapter 32 of the MGL. The Commission's actual contributions to the plan for the years ended December 31, 2022, 2021 and 2020, amounted to \$15,723,881, \$5,464,716, and \$2,800,819, respectively, representing its contractually required contribution for each year along with any additional funds to reduce the unfunded liability. Employer contributions, based on actuarially determined amounts, aggregated \$6,744,090, \$6,542,535, and \$6,208,445, or 18.4%, 17.3%, and 16.0%, of covered payroll in 2022, 2021 and 2020, respectively.

The Commission's funding policies have been established by Chapter 32 of the MGL. The Legislature has the authority to amend these policies. The annuity portion of the Commission's retirement allowance is funded by employees, who contribute a percentage of their regular compensation. Costs of administering the plan are funded out of plan assets. Member contributions vary depending on their date of membership:

<u>Hire Date</u>	<u>Percentage of Compensation</u>
Prior to 1975	5% of regular compensation
1975-1983	7% of regular compensation
1984 to 6/30/1996	8% of regular compensation
7/1/1996 to present	9% of regular compensation

(d) Pension Liabilities, Pension Expense, and Deferred Outflows of Resources and Deferred Inflows of Resources

At December 31, 2022 and 2021, the Commission reported a liability of \$46.9 million and \$21.7 million, respectively, for its proportionate share of the net pension liability related to its participation in BRS. The net pension liability as of December 31, 2022 and 2021, the reporting date, was measured as of December 31, 2022 and 2021, respectively, the measurement date, and the total pension liability used to calculate the net pension liability was determined by an actuarial valuation as of January 1, 2022 and 2020, rolled forward to December 31, 2022 and 2021, respectively. At December 31, 2022 and 2021, the Commission's proportion was 3.61% and 3.77%, respectively.

The Commission follows the accounting standards set forth in GASB 62, and therefore provides for recovery of these pension liability costs as a deferred outflow of resources to be collected over the life of the liability to which it relates. At December 31, 2022 and 2021, the Commission reported deferred outflows of resources and deferred inflows of resources related to pensions as follows:

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2022 and 2021

(9) Pension Benefits - Continued

(d) Pension Liabilities, Pension Expense, and Deferred Outflows of Resources and Deferred Inflows of Resources - Continued

	<u>2022</u>	<u>2021</u>
<u>Deferred Outflows of Resources</u>		
Net difference between projected and actual earnings on pension plan investments	\$ 17,410,463	—
Differences between expected and actual experience	3,529,506	258,304
Changes in assumptions	3,193,008	4,298,997
Total	<u>\$ 24,132,977</u>	<u>4,557,301</u>
<u>Deferred Inflows of Resources</u>		
Net difference between projected and actual earnings on pension plan investments	\$ —	9,135,934
Differences between expected and actual experience	4,781,624	6,396,205
Changes in assumptions	435,732	—
Total	<u>\$ 5,217,356</u>	<u>15,532,139</u>

Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized as increases (decreases) in pension expense as follows:

Years Ended	
December 31,	
2023	\$ 2,221,198
2024	4,521,058
2025	4,909,145
2026	6,297,538
2027	483,341
Thereafter	<u>483,341</u>
	<u>\$ 18,915,621</u>

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2022 and 2021

(9) Pension Benefits - Continued

(e) Actuarial Assumptions

The total pension liability as of December 31, 2022 and 2021, was determined using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	3.00%
Salary increases	4.00%
Investment rate of return	7.00%
Post-retirement cost of living adjustment	3.00% of first \$15,000 (\$14,000 in 2021)

For 2022 and 2021, mortality rates for pre-retirees, healthy retirees and disabled retirees were based on Pub-2010 General Employee, Healthy Retiree and Contingent Survivor Amount-Weighted Mortality Tables set forward one year projected generationally using Scale MP-2019.

The actuarial assumptions used in the valuations involve estimates of the reported amounts and assumptions about probability of occurrence of events far into the future. Amounts determined regarding the net pension liability are subject to continual revision as actual results are compared with past expectations and new projections are made.

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future rates of return are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future rates of return by the target asset allocation percentage.

Best estimates of arithmetic real rates of return for each major asset class included in the pension plan’s target asset allocation as of December 31, 2022 are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return
Domestic equity	32.00%	6.59%
International developed markets equity	15.00%	6.87%
International emerging markets equity	6.00%	8.30%
Core fixed income	15.00%	1.53%
Emerging market debt	5.00%	3.54%
Real Estate	10.00%	3.44%
TIPS	3.00%	1.44%
Hedge fund, GTAA, Risk parity	5.00%	3.06%
Private equity	9.00%	9.49%
Total	<u>100.00%</u>	

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2022 and 2021

(9) Pension Benefits - Continued

(e) Actuarial Assumptions - Continued

Best estimates of arithmetic real rates of return for each major asset class included in the pension plan’s target asset allocation as of December 31, 2021 are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return
Domestic equity	29.00%	6.11%
International developed markets equity	15.00%	6.49%
International emerging markets equity	6.00%	8.12%
Core fixed income	8.00%	0.38%
Emerging market debt	5.00%	2.67%
Global multisector debt	10.00%	0.44%
Real Estate	7.00%	3.72%
TIPS	5.00%	0.29%
Hedge fund, GTAA, Risk parity	10.00%	2.63%
Private equity	5.00%	9.93%
Total	100.00%	

(f) Discount Rate

The discount rate used to measure the total pension liability was 7.00% for 2022 and 2021. The projection of cash flows used to determine the discount rate assumed that plan member contributions will be made at the current contribution rates and employer contributions will be made at the actuarially determined contractually required rates. Based on these assumptions, the net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

Sensitivity of the Net Pension Liability to changes in the Discount Rate

The following tables illustrates the sensitivity of the net pension liability, calculated using the discount rate of 7.00% for the years ended December 31, 2022 and 2021, respectively, as well as what the net pension liability would be if it were calculated using a discount rate that is one-percentage-point lower or one-percentage-point higher than the current rate:

1.00% Decrease	2022 Current Discount Rate	1.00% Increase
<u>(6.00%)</u>	<u>(7.00%)</u>	<u>(8.00%)</u>
\$67,027,387	\$46,855,560	\$29,685,081

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2022 and 2021

(9) Pension Benefits - Continued

(f) Discount Rate - Continued

2021		
Current Discount		
1.00% Decrease	Rate	1.00% Increase
<u>(6.00%)</u>	<u>(7.00%)</u>	<u>(8.00%)</u>
\$40,917,738	\$21,656,915	\$5,319,573

(10) Postemployment Benefits other than Pensions (OPEB)

(a) Plan Description

The Commission sponsors and participates in another Postemployment Benefit ("OPEB") Trust plan, a single-employer defined benefit healthcare plan ("OPEB Plan"), that provides healthcare and insurance benefits to participating retirees and their beneficiaries. The OPEB Plan provides healthcare benefits to current and future retirees, and their dependents/beneficiaries in accordance with Massachusetts General Law Chapter 32B.

The OPEB Plan is administered by the Commission and does not issue stand-alone financial statements.

(b) Benefits Provided

Medical and prescription drug benefits are provided to all eligible retirees not enrolled in Medicare through a variety of plans offered by a variety of third-party insurers. Medical and prescription drug benefits are provided to retirees enrolled in Medicare through supplemental and Medicare Advantage plans offered by Blue Cross Blue Shield of Massachusetts, Harvard Pilgrim HealthCare, and Tufts Health Plan.

Groups 1 and 2 retirees, with at least 10 years or 20 years of creditable service, are eligible at age 55 or any age, respectively. Group 4 retirees with at least 10 years or 20 years of creditable service are eligible at age 45 or any age, respectively. Retirees on accidental disability retirement are eligible at any age, while ordinary disability requires 10 years of creditable service. The surviving spouse is eligible to receive pre and post retirement death benefits, as well as medical and prescription drug coverage.

Employer and employee contribution rates are governed by the respective collective bargaining agreements. The OPEB Plan is currently funded on a pay-as-you-go basis plus periodic advance funding contributions as amounts are available. The employers and plan members share the cost of benefits. As of December 31, 2021 and 2019, the valuation date for years ended December 31, 2022 and 2021, the plan members contribute 12.0% to 29.5% of the monthly premium cost, depending on the plan in which they are enrolled. The Commission contributes the balance of the premium cost. For the years ended December 31, 2022 and 2021, the Commission's average contribution rate was 28.27% and 18.32%, respectively, of covered payroll.

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2022 and 2021

(10) Postemployment Benefits other than Pensions (OPEB) - Continued

(c) Employees Covered by Benefit Terms

As of December 31, 2021, the date of the latest actuarial validation, plan participation consisted of:

Actives employees	360
Retirees and beneficiaries	<u>315</u>
Total	<u>675</u>

(d) Net OPEB Liability and Actuarial Assumptions

The Commission's net OPEB liability of \$39,616,243 and \$38,837,083 was measured as of December 31, 2022 and 2021, respectively, and was determined by an actuarial valuation as of December 31, 2021 and 2019. The total OPEB liability in the most recent actuarial valuation was determined using the following key actuarial assumptions applied to all periods included in the measurement, unless otherwise specified:

Payroll Growth:	3.00% for both periods
Salary Increases:	4.00% for both periods
Discount Rate:	6.00% for both periods
Investment Rate of Return:	6.00% for both periods

Health care trend rates for Medicare and non-Medicare are 6.875% decreasing by 0.25% for nine years to an ultimate level of 4.5% per year. For Medicare Part B, the valuation used a health care trend rate of 4.5% per year. Retiree contributions are expected to increase with health care trend rates.

For 2022 and 2021, mortality rates for pre-retirees, healthy retirees and disabled retirees were based on Pub-2010 General Employee, Healthy Retiree and Contingent Survivor Amount-Weighted Mortality Tables set forward one year projected generationally using Scale MP-2021 and Scale MP-2019, respectively.

The long-term expected rate of return on OPEB plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of OPEB plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation subtracting expected investment expenses and a risk margin.

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2022 and 2021

(10) Postemployment Benefits other than Pensions (OPEB) - Continued

(d) Net OPEB Liability and Actuarial Assumptions - Continued

The target allocation and best estimates of arithmetic real rates of return for each major asset class are summarized in the following table:

<u>Asset Class</u>	<u>2022</u>	
	<u>Target Allocation</u>	<u>Long-Term Expected Real Rate of Return</u>
Domestic equity	38.00%	6.59%
International developed markets equity	10.50%	6.87%
International emerging markets equity	4.50%	8.30%
TIPS	7.00%	1.44%
Core fixed income	20.00%	1.53%
Hedge fund, GTAA, risk parity	20.00%	3.06%
Total	<u>100.00%</u>	

<u>Asset Class</u>	<u>2021</u>	
	<u>Target Allocation</u>	<u>Long-Term Expected Real Rate of Return</u>
Domestic equity	35.00%	6.11%
International developed markets equity	13.00%	6.49%
International emerging markets equity	3.00%	8.12%
TIPS	7.00%	0.29%
Core fixed income	22.00%	0.38%
Hedge fund, GTAA, risk parity	20.00%	2.63%
Total	<u>100.00%</u>	

The discount rate used to measure the total OPEB liability was 6.00% as of December 31, 2022 and 2021, respectively. The OPEB plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on OPEB plan investment was applied to all periods of projected benefit payments to determine the total OPEB liability.

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2022 and 2021

(10) Postemployment Benefits other than Pensions (OPEB) - Continued

(d) Net OPEB Liability and Actuarial Assumptions - Continued

The components of the net OPEB liability for the Plan as of December 31, 2022:

Total OPEB Liability	\$ 81,826,689
Fiduciary net position	(42,210,446)
Commission's net OPEB liability	<u>\$ 39,616,243</u>

Fiduciary net position as a percentage of the total OPEB liability	51.59%
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The components of the net OPEB liability for the Plan as of December 31, 2021:

Total OPEB Liability	\$ 77,661,019
Fiduciary net position	(38,823,936)
Commission's net OPEB liability	<u>\$ 38,837,083</u>

Fiduciary net position as a percentage of the total OPEB liability	49.99%
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(e) Change in the Net OPEB Liability

	<u>Total OPEB Liability</u>	<u>Plan Fiduciary Net Position</u>	<u>Net OPEB Liability</u>
Balances at December 31, 2021	\$ 77,661,019	\$ 38,823,936	\$ 38,837,083
Changes for the year:			
Service cost	2,407,433	-	2,407,433
Interest	4,708,030	-	4,708,030
Contributions - employer	-	10,373,789	(10,373,789)
Net investment income	-	(3,737,370)	3,737,370
Differences between expected and actual experience	5,975,433	-	5,975,433
Changes of assumptions	(5,675,317)	-	(5,675,317)
Benefit payments	(3,249,909)	(3,249,909)	-
Net changes	<u>4,165,670</u>	<u>3,386,510</u>	<u>779,160</u>
Balances at December 31, 2022	<u>\$ 81,826,689</u>	<u>\$ 42,210,446</u>	<u>\$ 39,616,243</u>

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2022 and 2021

(10) Postemployment Benefits other than Pensions (OPEB) - Continued

(e) Change in the Net OPEB Liability - Continued

	Total OPEB Liability	Plan Fiduciary Net Position	Net OPEB Liability
Balances at December 31, 2020	\$ 66,842,443	\$ 30,973,683	\$ 35,868,760
Changes for the year:			
Service cost	2,041,742	-	2,041,742
Interest	4,210,950	-	4,210,950
Contributions - employer	-	6,958,809	(6,958,809)
Net investment income	-	3,955,845	(3,955,845)
Changes of assumptions	7,630,285	-	7,630,285
Benefit payments	(3,064,401)	(3,064,401)	-
Net changes	10,818,576	7,850,253	2,968,323
Balances at December 31, 2021	\$ 77,661,019	\$ 38,823,936	\$ 38,837,083

(f) Sensitivity Analysis

The following presents the Commission's net OPEB liability as well as what the Commission's net OPEB liability would be if it were calculated using a discount rate that is 1% lower or 1% higher than the current discount rate as well as if the healthcare cost trend rates are 1% lower or higher than the current healthcare cost trend rates (the health care rate is disclosed on page 57):

2022			
Discount Rate			
	1.00% Decrease (5.00%)	Current Rate (6.00%)	1.00% Increase (7.00%)
Net OPEB Liability	\$50,603,167	\$39,616,243	\$30,506,029
Health Care Rate			
	1.00% Decrease	Trend Rate	1.00% Increase
Net OPEB Liability	\$29,144,382	\$39,616,243	\$52,499,423
2021			
Discount Rate			
	1.00% Decrease (5.00%)	Current Rate (6.00%)	1.00% Increase (7.00%)
Net OPEB Liability	\$49,573,509	\$38,837,083	\$29,989,459
Health Care Rate			
	1.00% Decrease	Trend Rate	1.00% Increase
Net OPEB Liability	\$27,989,255	\$38,837,083	\$52,366,269

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2022 and 2021

(10) Postemployment Benefits other than Pensions (OPEB) - Continued

(g) OPEB Expense and Deferred Outflows or Resources and Deferred Inflows of Resources Related to OPEB

The Commission follows the accounting standards set forth in GASB 62, and therefore provides for recovery of these OPEB liability costs as a deferred outflow of resources to be collected over the life of the liability to which it relates. At December 31, 2022 and 2021, the Commission reported deferred outflows of resources and deferred inflows of resources related to OPEB as follows:

	<u>2022</u>	<u>2021</u>
<u>Deferred Outflows of Resource:</u>		
Change in assumptions	\$ 5,722,716	6,676,502
Net difference between projected and actual earnings on OPEB plan investments	3,581,502	-
Difference between projected and actual earnings on OPEB plan investments	<u>5,228,503</u>	<u>-</u>
Total	<u><u>14,532,721</u></u>	<u><u>6,676,502</u></u>
 <u>Deferred Inflows of Resources</u>		
Change in assumptions	\$ 5,280,621	384,262
Net difference between projected and actual earnings on OPEB plan investments	-	1,876,727
Difference between expected and actual experience	<u>603,605</u>	<u>724,326</u>
Total	<u><u>\$ 5,884,226</u></u>	<u><u>2,985,315</u></u>

Amounts reported as deferred outflows of resources and deferred inflows of resources related to OPEB will be recognized in OPEB expense as follows:

<u>Years Ending December 31,</u>	
2023	\$ 1,223,325
2024	1,827,691
2025	1,677,480
2026	2,057,138
2027	834,047
Thereafter	<u>1,028,814</u>
	<u><u>\$ 8,648,495</u></u>

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2022 and 2021

(11) Deposit and Investment Risks

(a) Custodial Credit Risk

Custodial credit risk is the risk that in the event of bank failure, the Commission's deposits may not be returned. Certain of the Commission's deposits are fully insured by FDIC insurance or collateralized with securities held by the Commission or the Commission's agent in the Commission's name. The Commission does not have a formal policy for managing custodial credit risk of deposits. As of December 31, 2022 and 2021, the cash balances of uninsured and uncollateralized deposits totaled \$50,386,915 and \$64,793,881, respectively. All the Commission's investments are held by a third party in the name of the Commission.

(b) Investment Policy

Investment of Commission funds is governed by federal and state laws and is restricted to permitted investments as defined by the Commission's General Revenue Bond Resolution and Supplemental Resolutions. Revenues generated from the investment of Commission funds reduce the amount the Commission must charge to its customers, while any investment losses would negatively affect the Commission's general rates and charges. Consequently, the Commission adheres to an investment policy that will maintain a fully invested, diversified portfolio with the objective of achieving the highest yield that is attainable in conjunction with a very low risk of loss of capital. The basic criteria that will be used in making investment decisions includes the evaluation of risk/reward tradeoffs, historical price spreads between different securities, the slope of the yield curve and the anticipated cash flows of the different investment accounts of the Commission.

Current permitted investments under the General Revenue Bond Resolution include:

1. Any bond or other obligation to which principal and interest are unconditionally guaranteed by the United States of America.
2. Any bond or other obligation of any state, agency or local government unit of any state which are:
 - A. Noncallable.
 - B. Fully collateralized by funds consisting of cash, bonds or obligations of one of the above.
3. Public Housing bonds secured by the United States of America, certain notes issued by public agencies or municipalities fully secured by the United States of America or obligations issued by State or public agencies or municipalities carrying the highest bond rating.
4. Obligations of any state to which the full faith and credit of the state is pledged and are within the two highest bond ratings.
5. Prime Commercial Paper rated A – 1 or P – 1.
6. Shares of money market funds that are open ended and rated A or better, or money market funds of banks meeting specific criteria.

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2022 and 2021

(11) Deposit and Investment Risk - Continued

(b) Investment Policy - Continued

7. Certificates of Deposit issued by banks insured by the FDIC, which are fully secured by obligations described in 1 or 2 above.
8. Repurchase Agreements fully collateralized by obligations described in 1 or 2 above.
9. Futures contracts traded on an exchange for investments described in 1, 2, 3 and 4 above.
10. Investments in commercial paper cannot exceed \$15 million per issuance.

Further, all investments of the Commission are held in the Commission's name by a third party.

(c) Interest Rate Risk

The Commission's guidelines do not specifically address limits on maturities as a means of managing its exposure to fair value losses arising from changing interest rates. The following is a listing of the Commission's fixed income investments and related maturity schedule (in years) as of December 31,:

		2022			
Investment type	Fair value	Less than 1	1-5	6-10	More than 10
U.S. Government agencies	\$ 140,613,340	-	49,581,306	39,062,696	51,969,338
Guaranteed investment contract	8,416,250	-	-	8,416,250	-
Money market	50,386,915	50,386,915	-	-	-
Open ended mutual funds	28,179,166	28,179,166	-	-	-
	<u>\$ 227,595,671</u>	<u>78,566,081</u>	<u>49,581,306</u>	<u>47,478,946</u>	<u>51,969,338</u>
		2021			
Investment type	Fair value	Less than 1	1-5	6-10	More than 10
U.S. Government agencies	\$ 113,925,484	-	13,894,950	36,231,531	63,799,003
Guaranteed investment contract	8,416,250	-	-	8,416,250	-
Money market	64,793,881	64,793,881	-	-	-
Open ended mutual funds	32,388,089	32,388,089	-	-	-
	<u>\$ 219,523,704</u>	<u>97,181,970</u>	<u>13,894,950</u>	<u>44,647,781</u>	<u>63,799,003</u>

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2022 and 2021

(11) Deposit and Investment Risk - Continued

(d) Credit Risk

The Commission follows its investment policy listed above in regard to the credit worthiness of its investments. The Commission's fixed income investments as of December 31, 2022 and 2021 were rated by Standard and Poor's rating scale and/or an equivalent national rating organization, and the ratings are presented below using the Standard and Poor's rating scale:

Investment type	2022			
	Fair value	AAA	AA	Not Rated
U.S. Government agencies	\$ 140,613,340	124,219,267	-	16,394,073
Guaranteed investment contract	8,416,250	-	-	8,416,250
Money market	50,386,915	-	50,386,915	-
Open ended mutual funds	28,179,166	28,179,166	-	-
	<u>\$ 227,595,671</u>	<u>152,398,433</u>	<u>50,386,915</u>	<u>24,810,323</u>

Investment type	2021			
	Fair value	AAA	AA	Not Rated
U.S. Government agencies	\$ 113,925,484	72,909,841	-	41,015,643
Guaranteed investment contract	8,416,250	-	-	8,416,250
Money market	64,793,881	-	64,793,881	-
Open ended mutual funds	32,388,089	32,388,089	-	-
	<u>\$ 219,523,704</u>	<u>105,297,930</u>	<u>64,793,881</u>	<u>49,431,893</u>

As of December 31, 2021, and 2020, the Commission had \$16,394,073 and \$41,015,643, respectively, of unrated investments that are explicitly guaranteed by the U.S. Government.

The Commission's investment policy does not offer specific limitations in regard to the concentration of risk, except that a single investment in commercial securities cannot be more than \$15 million. The Commission has individual investments that at fair value exceed 5% of the total investments balance at December 31, 2022 and 2021. Individually, these investments in money market funds range between \$18 million and \$23 million for 2022 and \$15 million and \$36 million for 2021. In the aggregate, they approximate \$62 million and \$72 million for the years ended December 31, 2022 and 2021, respectively.

(e) OPEB Trust Fund

Custodial Credit Risk

As discussed in Note 11(a), all the OPEB Trust investments are held by a third party in the name of the Commission.

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2022 and 2021

(11) Deposit and Investment Risk - Continued

(e) OPEB Trust Fund - Continued

Interest Rate Risk

The following is a listing of the Commission's fixed income investments and related maturity schedule (in years) as of December 31,:

		2022				
<u>Investment type</u>	<u>Fair value</u>	<u>Less than 1</u>	<u>1-5</u>	<u>6-10</u>	<u>More than 10</u>	
U.S. Government agencies	\$ 2,212,059	-	1,102,046	805,633	304,380	
Open ended mutual funds	6,043,544	74,536	2,223,114	3,745,894	-	
	<u>\$ 8,255,603</u>	<u>74,536</u>	<u>3,325,160</u>	<u>4,551,527</u>	<u>304,380</u>	
		2021				
<u>Investment type</u>	<u>Fair value</u>	<u>Less than 1</u>	<u>1-5</u>	<u>6-10</u>	<u>More than 10</u>	
U.S. Government agencies	\$ 2,509,087	-	1,250,028	913,809	345,250	
Open ended mutual funds	5,373,749	50,815	1,783,936	3,538,998	-	
	<u>\$ 7,882,836</u>	<u>50,815</u>	<u>3,033,964</u>	<u>4,452,807</u>	<u>345,250</u>	

Credit Risk

As of December 31, 2022 and 2021, the OPEB Trust Fund investments are held by issuers greater than 5% of total investments.

The OPEB Trust's fixed income investments as of December 31, 2022 and 2021 were rated by Standard and Poor's rating scale and/or an equivalent national rating organization, and the ratings are presented below using the Standard and Poor's rating scale:

		2022				
<u>Investment type</u>	<u>Fair value</u>	<u>AAA</u>	<u>AA</u>	<u>A</u>	<u>B</u>	<u>Not Rated</u>
U.S. Government agencies	\$ 2,212,059	2,212,059	-	-	-	-
Open ended mutual funds	6,043,544	4,511,861	288,522	1,101,667	141,494	-
	<u>\$ 8,255,603</u>	<u>6,723,920</u>	<u>288,522</u>	<u>1,101,667</u>	<u>141,494</u>	<u>-</u>

Investment type	2021					
	Fair value	AAA	AA	A	B	Not Rated
U.S. Government agencies	\$ 2,509,087	2,509,087	-	-	-	-
Open ended mutual funds	5,373,749	3,928,142	162,004	932,947	350,656	-
	<u>\$ 7,882,836</u>	<u>6,437,229</u>	<u>162,004</u>	<u>932,947</u>	<u>350,656</u>	<u>-</u>

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2022 and 2021

(11) Deposit and Investment Risk - Continued

(e) OPEB Trust Fund - Continued

Fair Value

The OPEB Trust Fund has the following fair value measurements as of December 31,:

Assets at Fair Value as of December 31, 2022

	Level 1	Level 2	Level 3	Total
Mutual funds	\$ 8,554,304	\$ -	\$ -	\$ 8,554,304
Equities	15,426,405	-	-	15,426,405
Fixed income	-	8,225,603	-	8,225,603
Pooled index funds	-	6,504,134	-	6,504,134
Total Assets at Fair Value	<u>\$ 23,980,709</u>	<u>\$ 14,729,737</u>	<u>\$ -</u>	<u>\$ 38,710,446</u>

Assets at Fair Value as of December 31, 2021

	Level 1	Level 2	Level 3	Total
Mutual funds	\$ 7,221,201	\$ -	\$ -	\$ 7,221,201
Equities	14,383,398	-	-	14,383,398
Fixed income	-	7,882,836	-	7,882,836
Pooled index funds	-	6,654,854	-	6,654,854
Cash and equivalents	177,935	-	-	177,935
Total Assets at Fair Value	<u>\$ 21,782,534</u>	<u>\$ 14,537,690</u>	<u>\$ -</u>	<u>\$ 36,320,224</u>

(12) Commitments

The Commission has an ongoing Capital Improvement Program. In connection therewith, the Commission has entered into various contracts for the design and construction of its infrastructure. Commitments under these contracts aggregate approximately \$61.3 million as of December 31, 2022.

The Commission has committed to capital improvement projects of approximately \$175.4 million for 2023 through 2024, which are primarily related to enhance the operation of the water and sewer system, including reducing pollution to Boston Harbor and neighboring waterways. Of this amount, approximately \$120.7 million represents extension and improvement projects and \$54.7 million represents renewal and replacement projects. The extension and improvement projects will be 32% funded by federal, state and Massachusetts

Water Resources Authority grants and loans. The remainder will be funded from the Commission’s operating revenues and borrowings, as needed.

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2022 and 2021

(13) Risk Management and Other Insurance

The Commission is completely self-insured for unemployment benefits. The Commission’s worker’s compensation is self-insured with a self-insured retention of \$750,000 per accident, supplemented with excess coverage at statutory limits purchased through an outside carrier. For general liability, the Commission’s self-insured retention is \$1 million per occurrence and is supplemented by \$10 million of excess coverage. Under the sections of the Model Water and Sewer act, the Commission’s maximum tort liability is \$100,000 per claimant.

The Commission maintains other insurance coverage as follows:

<u>Policy Type</u>	<u>Coverage</u>
Automotive Liability	Combined single limit of \$1 million/accident, supplemented with excess coverage of \$10 million.
Property	Aggregate limit of \$250 million blanket building and contents per occurrence with a \$25,000 deductible each occurrence on most perils.
Public Officials	Coverage of \$5 million each act, \$1,000,000 self-insurance retention each claim.
Employment Practices	Coverage of \$5 million annual aggregate via layered policies; \$500,000 self-insurance retention each claim.
Fiduciary	\$5 million annual aggregate; with \$10,000 deductible each claim.
Crime	Employee dishonesty coverage of \$5 million, with \$25,000 deductible each loss.
Cyber Risk	\$4 million annual aggregate with \$50,000 deductible each claim.

Insurance claims for all policies have not exceeded coverage in the past three years.

Liabilities for self-insured claims are reported if it is probable that a loss has been incurred and the amount can be reasonably estimated. The Commission has established a liability reserve based on historical trends along with attorney’s and independent insurance reserve appraiser’s estimate of pending matters and lawsuits in which the Commission is involved.

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2022 and 2021

(13) Risk Management and Other Insurance - Continued

Changes for the years ended December 31, are as follows:

	<u>2022</u>	<u>2021</u>
Beginning balance of reserves	\$ 3,367,494	1,996,733
Payment of claims attributable to events of both current and prior years:		
Workers' compensation	-	-
General liability	1,663,275	1,683,737
Incurred claims	<u>(480,412)</u>	<u>(312,976)</u>
Ending balance of reserves	\$ <u>4,550,357</u>	<u>3,367,494</u>

(14) Contingencies

(a) Legal

The Commission is involved in ordinary and routine litigation and other matters related to its operations and the establishment of rates. Management believes that the resolution of these matters will not materially affect the financial position of the Commission.

The Commission has received federal and state grants for specific purposes that are subject to review and audit by the grantor agencies. Such audits could lead to requests for reimbursement to the grantor agency for expenditures disallowed under terms of the grant. The Commission believes such disallowances, if any, will not be significant.

(b) Pollution Remediation Obligations

GASB Statement No. 49, *Accounting and Financial Reporting by Employers for Pollution Remediation Obligations*, requires governments to reasonably determine potential polluted sites and provide guidance to recognize Pollution Remediation Obligations (“PRO”) components as liability. The Commission evaluated their pollution remediation events and determined that the PRO liability as of December 31, 2022, as well as the PRO payments made during 2022 and 2021, were not material to the Commission’s financial statements.

(c) Environmental Protection Agency

During 2012, the Commission entered into a consent decree with the Conservation Law Foundation, Inc. (“CLF”) and the United States Environmental Protection Agency in settlement of a suit originally brought by the CLF alleging violations of the Commission’s National Pollution Discharge Elimination System Permit. The consent decree required the Commission to pay approximately \$374,000 of penalties and reimbursed legal fees and established goals. Failure to meet these goals will subject the Commission to penalties calculated on a daily basis until the goal is achieved. The decree also calls

for other payments if the Commission does not meet specific expenditure levels. For 2022, the Commission believes they have achieved the goals set forth in the decree. In accordance with GASB 49, the achievement of these goals is a part of the Commission's ongoing operations and is not accrued as a PRO.

REQUIRED SUPPLEMENTARY INFORMATION

BOSTON WATER AND SEWER COMMISSION
 Schedule of Proportionate Share of the Net Pension Liability (Unaudited)
 Boston Retirement System

Year ended	December 31, 2022	December 31, 2021	December 31, 2020	December 31, 2019	December 31, 2018	December 31, 2017	December 31, 2016	December 31, 2015
Valuation date	January 1, 2022	January 1, 2020	January 1, 2020	January 1, 2018	January 1, 2018	January 1, 2016	January 1, 2016	January 1, 2014
Measurement date	December 31, 2022	December 31, 2021	December 31, 2020	December 31, 2019	December 31, 2018	December 31, 2017	December 31, 2016	December 31, 2015
Commission's proportion of the net pension liability	3.61%	3.77%	3.76%	4.13%	4.28%	4.20%	4.20%	2.60%
Commission's proportionate share of the net pension liability	\$ 46,855,560	21,656,915	29,011,883	34,808,595	40,448,003	25,976,537	26,503,599	38,931,280
Commission's covered payroll	\$ 36,695,765	37,976,646	38,809,388	35,533,839	35,472,896	34,743,437	33,407,151	31,361,504
Commission's proportionate share of the net pension asset as a percentage of its covered payroll	127.69%	57.03%	74.75%	97.96%	114.03%	74.77%	79.34%	124.14%
Plan fiduciary net position as a percentage of the total pension liability	74.06%	87.23%	82.04%	77.87%	72.89%	81.49%	79.44%	69.20%

Notes:

This schedule is presented to illustrate the requirement to show information for 10 years. However, until a full 10-year trend is compiled, information is presented for those years in which information is available.

See accompanying notes to the required supplemental information.

BOSTON WATER AND SEWER COMMISSION

Schedule of Pension Contributions (Unaudited)

Boston Retirement System

For the Years Ended December 31,

	2022	2021	2020	2019	2018	2017	2016	2015
Contractually required contribution	\$ 6,744,090	6,542,535	6,208,445	5,951,949	4,868,286	4,667,585	4,918,577	3,994,268
Contributions in relation to the contractually required contribution	15,723,881	5,464,716	2,800,819	3,166,395	7,507,131	4,129,227	11,057,791	7,907,306
Contribution deficiency (excess)	<u>\$ (8,979,791)</u>	<u>1,077,819</u>	<u>3,407,626</u>	<u>2,785,554</u>	<u>(2,638,845)</u>	<u>538,358</u>	<u>(6,139,214)</u>	<u>(3,913,038)</u>
Commission's covered payroll	\$ 36,695,765	37,976,646	38,809,388	35,533,839	35,472,896	34,743,437	33,407,151	31,361,504
Contribution as a percentage of covered payroll	42.8%	14.4%	7.2%	8.9%	21.2%	11.9%	33.1%	25.2%

Notes:

Employers participating in the Boston Retirement System are required by MA General Laws, Section 32, to contribute an actuarially determined contribution rate each year.

This schedule is presented to illustrate the requirement to show information for 10 years. However, until a full 10-year trend is compiled, information is presented for those years in which information is available.

See accompanying notes to the required supplemental information.

BOSTON WATER AND SEWER COMMISSION

Notes to Required Supplementary Information -

Boston Retirement System (Unaudited)

December 31, 2022 and 2021

Note 1 -

Change in Assumptions

Fiscal year December 31, 2022

- The generational mortality improvement scale was updated from Scale MP-2109 to Scale MP-2021

Fiscal year December 31, 2021

- None

Fiscal year December 31, 2020

- The net investment return assumption was lowered from 7.25% to 7.00%.
- The salary increase assumption was lowered from 4.50% to 4.00% per year.
- The wage inflation assumption was lowered from 3.50% to 3.00% per year.
- The mortality assumption for non-disabled participants was updated from RP-2014 Blue Collar Employee and Healthy Annuitant Mortality Tables set forward one year for female participant projected generationally using Scale MP-2017 to the Pub-2010 General Employee, Healthy Retiree and Contingent Survivor Amount-Weighted Mortality Tables set forward one year projected generationally using Scale MP-2019.
- The mortality assumption for disabled participants was updated from RP-2014 Blue Collar Employee and Healthy Annuitant Mortality Tables set forward one year projected generationally using Scale MP-2017 to the Pub-2010 General Employee, Healthy Retiree and Contingent Survivor Amount-Weighted Mortality Tables set forward one year projected generationally using Scale MP-2019.

Fiscal year December 31, 2019

- None

Fiscal year December 31, 2018

- None

Fiscal year December 31, 2017

- The investment return assumption was reduced from 7.50% to 7.25%.

Fiscal year December 31, 2016

- None

Fiscal year December 31, 2015

- None

BOSTON WATER AND SEWER COMMISSION

Schedule of the Changes in Total OPEB Liability and Related Ratios (Unaudited)

Other Postemployment Benefit (“OPEB”) Trust

Year ended	December 31, 2022	December 31, 2021	December 31, 2020	December 31, 2019	December 31, 2018
Total OPEB liability:					
Service cost	\$ 2,407,433	2,041,742	2,190,830	\$ 2,134,311	\$ 2,069,043
Interest	4,708,030	4,210,950	4,891,289	4,646,844	4,394,786
Change in benefit terms	-	-	(10,574,843)	-	-
Differences between expected and actual experience	5,975,433	-	(965,764)	-	-
Change in assumptions	(5,675,317)	7,630,285	(292,259)	(264,108)	-
Benefit payments	<u>(3,249,909)</u>	<u>(3,064,401)</u>	<u>(2,887,704)</u>	<u>(2,783,496)</u>	<u>(2,480,017)</u>
Net change in total OPEB liability	4,165,670	10,818,576	(7,638,451)	3,733,551	3,983,812
Total OPEB liability, beginning of year	<u>77,661,019</u>	<u>66,842,443</u>	<u>74,480,894</u>	<u>70,747,343</u>	<u>66,763,531</u>
Total OPEB liability, end of year	<u>81,826,689</u>	<u>77,661,019</u>	<u>66,842,443</u>	<u>74,480,894</u>	<u>70,747,343</u>
Plan fiduciary net position:					
Contributions - employer	10,373,789	6,958,809	3,867,341	4,200,341	6,301,842
Net investment income	(3,737,370)	3,955,845	1,155,302	4,519,177	(596,759)
Benefit payments	<u>(3,249,909)</u>	<u>(3,064,401)</u>	<u>(2,887,704)</u>	<u>(2,783,496)</u>	<u>(2,480,017)</u>
Net change in plan fiduciary net position	3,386,510	7,850,253	2,134,939	5,936,022	3,225,066
Plan fiduciary net position, beginning of year	<u>38,823,936</u>	<u>30,973,683</u>	<u>28,838,744</u>	<u>22,902,722</u>	<u>19,677,656</u>
Plan fiduciary net position, end of year	<u>42,210,446</u>	<u>38,823,936</u>	<u>30,973,683</u>	<u>28,838,744</u>	<u>22,902,722</u>
Net OPEB liability, end of year	<u>39,616,243</u>	<u>38,837,083</u>	<u>35,868,760</u>	<u>45,642,150</u>	<u>47,844,621</u>
Plan fiduciary net position as a percent age of the total OPEB liability	51.59%	49.99%	46.34%	38.72%	32.37%
Covered payroll	\$ 36,695,765	37,976,646	38,809,388	\$ 35,533,839	\$ 35,472,896
Net OPEB liability as a percentage of covered payroll	107.96%	102.27%	92.42%	128.45%	134.88%

Notes:

This schedule is presented to illustrate the requirement to show information for 10 years. However, until a full 10-year trend is compiled, information is presented for those years in which information is available.

This schedule is presented using the optional format of combining the required schedules in paragraphs 57a and 57b of GASB 75.

BOSTON WATER AND SEWER COMMISSION

Schedule of OPEB Contributions (Unaudited)

Other Postemployment Benefit (“OPEB”) Trust

For the years Ended December 31,

	2022	2021	2020	2019	2018
Actuarially determined contribution	\$ 5,156,298	\$ 4,256,512	\$ 4,077,414	\$ 4,859,090	\$ 4,688,044
Contribution in relation to the actuarially determined contribution	<u>10,373,789</u>	<u>6,958,809</u>	<u>3,867,341</u>	<u>4,200,341</u>	<u>6,301,842</u>
Contribution deficiency (excess)	<u>\$ (5,217,491)</u>	<u>\$ (2,702,297)</u>	<u>\$ 210,073</u>	<u>\$ 658,749</u>	<u>\$ (1,613,798)</u>
Covered payroll	\$ 36,695,765	\$ 37,976,646	\$ 38,809,388	\$ 35,533,839	\$ 35,472,896
Contributions as a percentage of covered payroll	28.27%	18.32%	9.96%	11.82%	17.77%

Notes:

This schedule is presented to illustrate the requirement to show information for 10 years. However, until a full 10-year trend is compiled, information is presented for those years in which information is available.

The actuarial methods and assumptions used to calculate the total OPEB liability are described in Note 10 to the financial statements.

BOSTON WATER AND SEWER COMMISSION

Notes to Required Supplementary Information -
Other Postemployment Benefit (“OPEB”) Trust (Unaudited)
December 31, 2022 and 2021

Note 1 - **Change in Assumptions**

Fiscal year December 31, 2022

- The mortality projection scale was updated.
- Per capita health care costs, retiree contributions, and trends were updated.

Fiscal year December 31, 2021

- The discount rate was lowered from 6.25% to 6.00%.

Fiscal year December 31, 2020

- The per capita health care costs, retiree contributions, and trend assumptions were updated.
- The mortality assumptions were updated to the Pub-2010 headcount-weighted mortality tables related by the Society of Actuaries in 2019.
- The discount rate was lowered from 6.50% to 6.25%.

Fiscal year December 31, 2019

- The excise tax on high cost health plans was repealed effective December 20, 2019 and as such was removed from the valuation.

Fiscal year December 31, 2018

- None

SUPPLEMENTAL SCHEDULES

BOSTON WATER AND SEWER COMMISSION
 Supplemental Schedule of Revenues and Expenses – Rate Basis
 For the Years Ended December 31,

	2022	2021
Revenues		
Water revenue	\$ 179,012,241	170,438,964
Sewer revenue	262,396,440	232,227,292
Subtotal	441,408,681	402,666,256
Less:		
Adjustments	14,062,606	11,827,391
Discounts	3,440,140	3,015,493
Bad debt	550,528	41,375
Subtotal	18,053,274	14,884,259
Net billed charges	423,355,407	387,781,997
Prior year surplus	464,760	371,904
Miscellaneous revenues:		
Late charge revenue	2,082,882	1,976,793
Investment income	4,370,282	2,059,556
Fire pipe revenue	5,327,520	5,222,027
Other income	7,670,726	6,780,259
Total revenues	443,271,577	404,192,536
Direct operating expenses:		
Salaries and wages	63,762,998	49,672,729
Overtime wages	1,676,989	1,541,885
Fringe benefits	8,309,345	8,828,146
Supplies and materials	2,711,659	2,317,310
Repairs and maintenance	12,480,425	12,958,569
Utilities	1,535,354	1,452,560
Professional services	3,741,496	3,012,331
Space and equipment rentals	339,060	319,735
Other services	1,271,151	1,543,822
Insurance	1,101,718	981,380
Travel and training	64,899	33,995
Damage claims	2,374,320	315,847
Inventory	5,848	13,540
Capital outlay	81,320	46,492
Total direct operating expenses	99,456,582	83,038,341
Nonoperating expenses:		
MWRA assessment	245,958,491	243,396,224
Capital improvements	20,940,294	10,531,019
Principal payments	32,975,211	31,100,167
Interest expense	16,944,597	18,557,588
Deposits to reserve funds	26,034,000	16,889,000
SDWA assessment	203,461	215,437
Total nonoperating expenses	343,056,054	320,689,435
Total current expenses	442,512,636	403,727,776
Current year rate surplus	\$ 758,941	464,760

This supplemental schedule presents the Commission’s revenues and expenses on the basis that is presented in the Commission’s budget and rate-setting documents. See Note 1 in the notes to the basic financial statements for the differences between this supplemental schedule and GAAP.

See accompanying Independent Auditor’s Report.

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*Statistical
Section*

2022 - 2021

This part of the Commission’s annual comprehensive financial report presents detailed information as a context for understanding what the information in the financial statements, note disclosures, and required supplementary information says about the Commission’s overall financial health.

Contents

Financial Trends

These schedules contain trend information to help the reader understand how the Commission’s financial performance and well-being have changed over time. These schedules are found on pages 80-82.

Net Position by Component – Last Ten Fiscal Years
Changes in Net Position – Last Ten Fiscal Years
Revenues and Expenses (Rate basis) – Last Ten Fiscal Years

Revenue Capacity

These schedules contain information to help the reader assess the factors affecting the Commission’s ability to generate revenue. These schedules are found on pages 83-86.

Largest Users – Last Ten Fiscal Years
Water Purchased vs. Water Billed – Last Ten Fiscal Years
Billings and Collections – Last Ten Fiscal Years
Water and Sewer Rates Structure – Current and Nine Years ago

Debt Capacity

These schedules present information to help the reader assess the affordability of the Commission’s current levels of outstanding debt and the Commission’s ability to issue additional debt in the future. These schedules are found on pages 87 and 88.

Commission per Capita Debt – Last Ten Fiscal Years
Revenue Bond Coverage – Last Ten Fiscal Years

Demographic and Economic Information

These schedules offer demographic and economic indicators to help the reader understand the environment within which the Commission’s financial activities take place. These schedules are found on pages 89-92.

Population, Income and Employment – Last Ten Fiscal Years
Demographic and Economic Statistics – Last Ten Fiscal Years
Distribution of Customers by Account Type – Current and Nine Years Ago
Largest Private Employers – Current and Nine Years Ago

Operating and Capital Information

These schedules contain service and infrastructure data to help the reader understand how the information in the Commission’s financial relates to the services the Commission provides and the activities it performs. These schedules are on pages 93-96.

Divisional Breakdown of BWSC Employees – Last Ten Fiscal Years
Water and Sewer Distribution System – Current and Nine Years ago
Insurance Coverage – Current and Nine Years ago
Retirement System – Funding Process

Table 1
Net Position by Component
Last Ten Fiscal Years Summary

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
									*	
Net investment in capital assets:	944,498,467	\$898,139,925	\$867,306,096	\$846,329,851	\$814,480,511	\$838,757,300	\$755,338,577	\$764,282,627	\$724,198,689	\$800,137,309
Restricted for debt service:	51,804,373	51,886,236	53,902,568	55,293,433	56,128,652	51,837,518	51,558,245	48,538,724	47,887,684	44,301,549
Restricted for capital assets:	542,177	163,505	471,799	212,933	202,791	200,300	199,829	200,044	0	100,002
Restricted for debt covenants:	66,418,203	62,007,142	60,278,650	58,066,734	55,480,676	53,562,754	52,023,329	51,422,141	49,531,618	48,752,536
Unrestricted:	(654,698,123)	(610,578,778)	(591,134,233)	(564,465,952)	(534,178,114)	(554,084,031)	(465,829,076)	(473,792,441)	(448,829,430)	(517,415,068)
Total net position:	<u>\$408,565,097</u>	<u>\$401,618,030</u>	<u>\$390,824,880</u>	<u>\$395,436,999</u>	<u>\$392,114,516</u>	<u>\$390,273,841</u>	<u>\$393,290,904</u>	<u>\$390,651,095</u>	<u>\$372,788,561</u>	<u>\$375,876,328</u>

*Restated 2012 and prior Financial Statements due to the implementation of GASB Statement No. 65.

Source: Commission's Financial Statements.

Table 2
Changes in Net Position
Last Ten Fiscal Years Summary

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
<i>Operating Revenues:</i>										
Water usage	\$ 179,187,541	\$ 170,438,964	\$ 151,546,300	\$ 156,149,109	\$ 155,054,064	\$ 146,633,599	\$ 150,953,857	\$ 149,992,577	\$ 140,533,568	\$ 135,062,312
Sewer usage	266,797,006	232,227,292	212,305,331	213,956,073	212,389,150	200,967,245	198,994,058	188,228,285	176,689,383	171,115,529
Fire pipe	5,327,520	5,222,027	5,110,863	4,958,922	4,869,306	4,701,840	4,601,031	4,486,066	4,330,652	4,185,692
Other income	7,670,726	6,780,262	24,379,632	11,584,275	7,549,162	10,754,546	7,093,016	6,294,690	5,666,579	5,426,141
<i>Total Operating Revenues:</i>	<u>458,982,793</u>	<u>414,668,545</u>	<u>393,342,126</u>	<u>386,648,379</u>	<u>379,861,682</u>	<u>363,057,230</u>	<u>361,641,962</u>	<u>349,001,618</u>	<u>327,220,182</u>	<u>315,789,674</u>
<i>Operating & Maintenance Expenses:</i>										
Operations	104,906,679	85,250,673	77,107,713	78,864,974	79,642,724	59,240,716	59,660,238	60,370,827	57,189,385	56,462,155
Maintenance	12,480,425	12,958,569	10,745,786	10,123,538	8,107,578	6,686,471	6,203,654	5,157,692	5,441,001	5,167,230
MWRA assessment (Water)	96,676,398	95,971,920	95,459,497	92,082,863	88,328,954	77,916,969	74,518,413	72,529,779	69,114,613	66,979,588
MWRA assessment (Sewer)	149,282,093	147,424,304	145,900,675	143,703,481	138,753,099	128,922,533	125,154,614	119,256,452	115,763,908	112,534,606
<i>Total Operating Expenses:</i>	<u>363,345,595</u>	<u>341,605,466</u>	<u>329,213,671</u>	<u>324,774,856</u>	<u>314,832,355</u>	<u>272,766,689</u>	<u>265,536,919</u>	<u>257,314,750</u>	<u>247,508,907</u>	<u>241,143,579</u>
Operating income before depreciation:	95,637,198	73,063,079	64,128,455	61,873,523	65,029,327	90,290,541	96,105,043	91,686,868	79,711,275	74,646,095
Depreciation & amortization	27,044,814	27,439,948	27,241,275	25,820,917	24,217,483	19,875,281	23,011,425	16,680,991	17,336,678	17,982,946
<i>Excess Operating Revenues:</i>	<u>68,592,384</u>	<u>45,623,131</u>	<u>36,887,180</u>	<u>36,052,606</u>	<u>40,811,844</u>	<u>70,415,260</u>	<u>73,093,618</u>	<u>75,005,877</u>	<u>62,374,597</u>	<u>56,663,149</u>
<i>Non-Operating Revenues (Expenses):</i>										
Interest income	6,991,769	4,075,426	2,513,502	5,602,152	5,490,570	2,933,609	5,214,405	(331,584)	4,010,532	7,118,613
Interest expense	(14,622,176)	(15,585,193)	(17,365,593)	(18,707,311)	(18,439,491)	(19,769,119)	(18,696,723)	(18,047,035)	(17,676,856)	(17,303,081)
<i>Total Nonoperating Expenses:</i>	<u>(7,630,407)</u>	<u>(11,509,767)</u>	<u>(14,852,091)</u>	<u>(13,105,159)</u>	<u>(12,948,921)</u>	<u>(16,835,510)</u>	<u>(13,482,318)</u>	<u>(18,378,619)</u>	<u>(13,666,324)</u>	<u>(10,184,468)</u>
<i>Excess revenues before capital grants & contributions & transfer requirements:</i>										
Capital grants and contributions	13,665,469	17,803,560	2,560,147	13,712,016	5,982,540	30,549,566	3,354,552	19,498,395	27,682,938	9,785,856
<i>Excess revenues before transfer requirements:</i>	<u>74,627,446</u>	<u>51,916,924</u>	<u>24,595,236</u>	<u>36,659,463</u>	<u>33,845,463</u>	<u>70,073,704</u>	<u>62,965,852</u>	<u>76,125,653</u>	<u>76,391,211</u>	<u>56,264,537</u>
Excess revenues used										
to fund reserves & other deferrals	(67,386,201)	(41,030,918)	(29,525,004)	(33,205,633)	(52,078,807)	(31,453,661)	(29,709,699)	(30,438,552)	(26,271,375)	(27,859,444)
Change in accumulated revenues used to offset future rates	(294,178)	(92,856)	317,649	(131,347)	(132,363)	(177,678)	(27,773)	(99,742)	(25,974)	90,431
<i>Change in Net Position:</i>	<u>\$ 6,947,067</u>	<u>\$ 10,793,150</u>	<u>(\$ 4,612,119)</u>	<u>\$ 3,322,483</u>	<u>(\$ 18,365,707)</u>	<u>\$ 38,442,365</u>	<u>\$ 33,228,380</u>	<u>\$ 45,587,359</u>	<u>\$ 50,093,862</u>	<u>\$ 28,495,524</u>

* Restated 2014 Financial Statements due to the implementation of GASB Statement No. 68.

**Table 3
Revenues and Expenses (Rate Basis)
Last Ten Fiscal Years Summary**

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
Revenues:										
Water Revenue	\$ 179,012,241	\$ 170,438,964	\$ 151,395,689	\$ 155,856,895	\$ 154,570,890	\$ 146,125,562	\$ 150,391,977	\$ 149,355,846	\$ 139,922,776	\$ 135,062,312
Sewer Revenue	262,396,440	232,227,292	212,105,684	213,568,719	211,774,201	200,297,529	198,249,241	187,450,059	175,943,859	171,115,529
Subtotal	441,408,681	402,666,256	363,501,373	369,425,614	366,345,091	346,423,091	348,641,218	336,805,905	315,866,635	306,177,841
Less:										
Adjustments	(14,062,606)	(11,827,391)	(10,720,098)	(10,562,235)	(10,879,886)	(9,767,045)	(7,915,384)	(8,366,706)	(7,349,075)	(8,342,424)
Discounts	(3,440,140)	(3,015,493)	(1,321,341)	(1,218,447)	(1,250,369)	(1,213,001)	(1,270,584)	(1,238,639)	(912,695)	(908,846)
Bad Debt	(550,528)	(41,375)	(51,057)	(378,627)	(1,111,957)	(36,131)	(358,043)	(223,168)	(484,363)	(58,617)
Subtotal	(18,053,274)	(14,884,259)	(12,092,496)	(12,159,309)	(13,242,212)	(11,016,177)	(9,544,011)	(9,828,513)	(8,746,133)	(9,309,887)
Net Billed Charges	423,355,407	387,781,997	351,408,877	357,266,305	353,102,879	335,406,914	339,097,207	326,977,392	307,120,502	296,867,954
Prior Year Surplus	464,760	371,904	689,553	558,206	570,607	689,086	521,427	389,062	211,384	183,611
Miscellaneous Revenues:										
Late Charges Revenue	2,082,882	1,976,793	350,258	679,568	1,098,123	1,177,752	1,306,697	1,414,957	1,357,316	1,266,534
Investment Income	4,370,282	2,059,556	1,980,534	4,609,528	4,336,497	3,507,142	3,732,740	2,824,294	2,820,493	2,993,410
Fire Pipe Revenue	5,327,520	5,222,027	5,110,863	4,958,922	4,869,306	4,701,840	4,601,031	4,486,066	4,330,652	4,185,692
Other Income	7,670,726	6,780,259	24,379,632	11,584,275	7,549,162	10,754,546	7,093,016	6,294,690	5,666,579	5,426,141
Total Revenues	443,271,577	404,192,536	383,919,717	379,656,804	371,526,574	356,237,280	356,352,119	342,386,461	321,506,926	310,923,342
Direct Operating Expenses										
Salaries and Wages	63,762,998	49,672,729	44,008,211	43,648,298	49,686,397	44,951,979	53,952,461	46,923,242	35,778,748	34,379,928
Overtime	1,676,989	1,541,885	1,229,981	1,185,585	911,159	863,588	752,156	789,500	778,642	815,128
Fringe Benefits	8,309,345	8,828,146	8,652,971	8,519,218	8,100,581	8,234,524	8,405,801	7,710,203	7,261,123	7,077,635
Supplies and Materials	2,711,659	2,317,310	2,195,934	2,372,934	2,111,561	2,082,549	2,252,917	2,295,723	2,526,486	2,286,065
Repairs and Maintenance	12,480,425	12,958,569	10,745,786	10,123,538	8,107,578	7,662,450	7,289,132	6,686,471	6,203,654	5,157,692
Utilities	1,535,354	1,452,560	1,456,755	1,617,652	1,430,558	1,305,207	1,164,922	1,093,997	1,207,616	1,207,108
Professional Services	3,741,496	3,012,331	3,288,593	3,336,607	3,304,198	3,141,403	3,634,430	2,724,914	3,348,408	2,649,969
Space and Equipment Rentals	339,060	319,735	291,919	331,653	236,964	303,229	271,702	251,778	235,693	663,354
Other Service	1,271,151	1,543,822	1,428,584	1,773,605	1,822,935	1,829,979	1,639,979	1,560,244	1,506,245	1,294,110
Insurance	1,101,718	981,380	949,730	717,545	491,401	508,943	509,104	533,935	629,990	764,915
Inventory	5,848	13,540	5,840	62,912	15,104	67,629	70,721	10,778	50,864	30,082
Capital Outlay	81,320	46,492	46,574	257,515	40,060	84,415	4,850	76,327	66,283	180,699
Travel and Training	64,899	33,995	17,890	17,870	79,542	21,183	21,871	73,004	16,759	15,207
Damage Claims	2,374,320	315,847	4,160	86,952	286,008	59,986	75,494	61,729	57,684	64,941
Total Direct Operating Expenses	99,456,582	83,038,341	74,322,928	74,051,884	76,624,046	71,117,064	80,045,320	70,791,845	59,668,195	56,586,833
Indirect Operating Expenses:										
MWRA Assessment	245,958,491	243,396,224	241,360,172	235,786,344	227,082,053	218,461,866	212,475,077	206,839,502	199,673,027	191,786,231
Capital Improvement	20,940,294	10,531,019	15,948,387	15,382,251	12,585,360	14,593,495	12,490,025	8,939,628	8,057,958	11,110,952
Debt Service	49,919,808	49,657,755	50,179,641	51,784,122	49,998,932	50,346,545	48,144,158	48,105,732	46,875,435	45,815,575
Contractual Funding Obligation	26,034,000	16,889,000	1,516,000	1,768,000	4,474,113	945,000	2,313,000	6,990,000	6,643,000	5,211,606
SDWA Assessment	203,461	215,437	220,685	194,650	203,864	202,703	195,452	198,327	200,249	200,761
Total Indirect Operating Expense	343,056,054	320,689,435	309,224,885	304,915,367	294,344,322	284,549,609	275,617,712	271,073,189	261,449,669	254,125,125
Total Current Expenses	442,512,636	403,727,776	383,547,813	378,967,251	370,968,368	355,666,673	355,663,032	341,865,034	321,117,864	310,711,958
Current Year Rate Surplus	\$ 758,941	\$ 464,760	\$ 371,904	\$ 689,553	\$ 558,206	\$ 570,607	\$ 689,086	\$ 521,427	\$ 389,062	\$ 211,384

Table 4
Largest Users
Last Ten Fiscal Years Summary

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
Boston Housing Authority	\$16,188,245	\$15,732,313	\$15,732,313	\$15,119,929	\$13,916,690	\$14,003,864	\$13,695,722	\$13,103,520	\$12,401,671	\$11,425,569
Mass General Brigham	10,390,394	5,966,433	5,966,433	5,367,076	5,238,058	4,819,019	4,361,704	4,596,488	4,148,734	3,605,193
Massachusetts Port Authority	10,270,809	6,808,331	6,808,331	5,606,919	7,323,360	6,700,563	6,166,613	6,081,386	6,485,058	5,137,581
Boston University	9,981,844	8,079,505	8,079,505	6,547,609	6,642,531	5,510,319	5,217,745	5,279,716	5,058,751	4,874,395
Medical Area Total Energy Corp.	8,001,830	7,042,718	7,042,718	6,184,872	5,625,036	5,259,107	4,790,849	4,829,379	4,764,461	4,329,129
City of Boston	5,687,338	4,154,990	4,154,990	3,981,095	4,686,210	4,228,502	4,017,547	4,305,719	4,186,332	3,665,894
Northeastern University	4,158,590	3,041,454	3,041,454	2,505,430	3,412,721	2,868,355	2,777,146	2,730,145	2,609,630	2,571,407
Vicinity Energy	3,896,693	3,645,015	*	*	*	*	*	*	*	*
Boston Medical Center Corp.	2,600,904	2,279,077	2,279,077	1,935,065	2,943,962	4,054,598	3,494,684	3,434,645	3,147,780	2,977,920
Harvard University	2,549,845	2,048,578	2,048,578	2,022,199	3,293,948	3,512,632	3,299,332	3,887,734	4,007,555	3,632,434
Boston Properties LP (PRU)	2,503,318	2,174,635	2,174,635	1,919,398	2,793,157	2,962,946	2,542,794	2,176,143	2,410,207	2,430,536
Harbor Point Apt	2,181,827	2,080,472	2,080,472	1,813,517	1,665,956	1,626,480	1,633,149	1,626,169	1,535,910	1,458,262
Boston College	1,912,300	1,758,757	1,758,757	*	*	*	*	*	*	*
Beth Israel Hospital	1,858,509	1,480,505	1,480,505	1,246,190	1,367,702	1,368,967	1,301,944	1,397,939	1,265,430	1,099,090
Childrens Hospital	1,823,735	1,692,161	*	*	*	*	*	*	*	*
EDIC	1,680,128	1,600,371	1,600,371	1,532,724	*	*	*	*	*	*
MBTA	1,612,424	*	*	*	*	*	*	*	*	*
Steward Carney	1,462,019	*	*	*	*	*	*	*	*	*
Boston Park Plaza Hotel	1,348,195	*	*	*	*	*	*	*	*	*
Equity Residence Properties Inc.	1,277,711	1,285,477	1,285,477	1,224,424	2,017,821	2,017,821	1,990,081	2,119,004	2,066,848	1,857,822
Total	\$91,386,658	\$70,870,791	\$65,533,615	\$57,006,447	\$60,927,150	\$58,933,173	\$55,289,311	\$55,567,987	\$54,088,367	\$49,065,232
% of Total Operating Revenue	19.91%	17.09%	15.80%	14.49%	15.76%	15.51%	15.23%	15.37%	15.50%	15.06%
Operating Revenue	458,982,793	414,668,545	414,668,545	393,342,126	386,648,379	379,861,682	363,057,230	361,641,962	349,001,618	325,863,866

Source: Commission's Billing Systems (UMAX)

* Not included in the top 20

Table 5
Water Purchased vs. Water Billed
Last Ten Fiscal Years Summary

Year	Water Purchased (1)	Water Billed (2)	% Accounted For
2022	61.3	51.2	83.5%
2021	58.8	48.6	82.6%
2020	58.4	49.4	84.7%
2019	62.1	52.8	85.0%
2018	63.6	54.1	85.0%
2017	62.7	53.5	85.3%
2016	65.5	55.1	84.1%
2015	65.0	55.0	84.6%
2014	63.0	53.9	85.6%
2013	63.9	54.6	85.4%

(1) Water purchased from MWRA in millions of gallons per day (MGD).

(2) Water billed represents billed charges, in MGD, which does not include leakage, unbilled public usage and water used for construction projects.

Source: Commission Billing Systems (UMAX)

Table 6
Billings and Collections
Last Ten Fiscal Years Summary

Year	Billings	Collections	Collection Rate
2022	\$441,851,307	\$439,511,389	99.47%
2021	\$394,520,324	\$403,153,579	102.19%
2020	370,408,645	353,987,455	95.57%
2019	363,438,556	359,814,912	99.00%
2018	365,274,182	369,315,028	101.11%
2017	344,332,199	351,842,461	102.18%
2016	346,621,818	353,629,472	102.02%
2015	336,644,218	341,217,331	101.36%
2014	311,346,280	316,242,452	101.57%
2013	300,523,152	293,290,316	97.59%

Source: Commission's Billing System (UMAX)

**Table 7
Water and Sewer Rates Structure
Current Year and Nine Years Ago**

2022

Consumption (Cu. Ft./Day)	Water Rate		Sewer Rate	
	Per 1,000 Cubic Feet	Per 1,000 Gallons	Per 1,000 Cubic Feet	Per 1,000 Gallons
First 19	\$59.59	\$7.967	\$81.97	\$10.958
Next 20	63.64	8.508	92.27	12.335
Next 50	69.40	9.279	105.75	14.138
Next 260	73.97	9.890	112.67	15.063
Next 950	77.86	10.409	120.06	16.051
Over 1299	81.05	10.836	125.20	16.738

2013

Consumption (Cu. Ft./Day)	Water Rate		Sewer Rate	
	Per 1,000 Cubic Feet	Per 1,000 Gallons	Per 1,000 Cubic Feet	Per 1,000 Gallons
First 19	\$44.50	\$5.950	\$57.61	\$7.700
Next 20	46.58	6.230	59.39	7.940
Next 50	48.51	6.490	60.58	8.100
Next 260	51.58	6.900	63.92	8.550
Next 950	53.82	7.200	67.45	9.020
Over 1299	55.71	7.450	69.78	9.330

The average one family customer using 180 gallons per day (“GPD”) in 2022 will be charged \$107.86 per 31-day month or approximately \$ 1,269.90 annually. A multi-unit residence using 600 GPD will be charged \$ 403.89 per 31-day month or approximately \$4,755.48 annually. A small commercial property using 4,000 GPD will be charged \$3,095.72 per 31- day month or approximately \$36,449.60 annually. The Water and Seewer charges for various levels of consumption are presented in exhibit B.

Source: Commission’s Rate Document.

**Table 8
Commission per Capita Debt
Last Ten Fiscal Years Summary**

Year	General Revenue Bonds (\$000's)**	Revenue Bonds Premiums (\$000's)**	Long-Term Notes (\$000's)**	Total Debt (\$000's)	Population*	Per Capita Debt (\$)	Total Personal *** Income (\$000's)	Debt per Personal Income
2022	496,200	22,003	36,785	554,988	650,706	853	27,336,159	2.03%
2021	522,340	25,822	40,050	588,212	654,776	898	27,507,140	2.14%
2020	493,525	28,994	32,971	555,490	676,216	821	28,407,834	1.96%
2019	517,235	33,749	31,334	582,318	692,600	841	29,096,126	2.00%
2018	540,965	38,623	36,812	616,400	694,583	887	29,179,432	2.11%
2017	485,180	40,943	28,017	554,140	685,094	809	28,780,799	1.93%
2016	506,775	45,851	29,387	582,013	673,184	865	26,715,980	2.18%
2015	447,460	31,145	34,290	512,895	667,137	769	25,101,685	2.04%
2014	492,506	23,161	40,078	555,745	655,884	847	23,835,471	2.33%
2013	411,464	23,739	44,358	479,561	644,710	744	22,805,087	2.10%

** Source: Commission documents and the City's Official statement for population data and Bureau of Census

*** Source: U.S. Census Bureau Income Survey

Table 9
Revenue Bond Coverage
Last Ten Fiscal Years Summary (\$000)

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
Cash Receipts*	442,353	409,774	382,187	375,863	373,194	358,235	358,026	345,972	321,348	313,317
Transfers**	(347,415)	(327,103)	(316,219)	(317,079)	(306,966)	(302,400)	(305,857)	(278,726)	(263,488)	(257,281)
Net Revenues	94,938	82,671	65,968	58,784	66,228	55,835	52,169	67,246	57,860	56,036
Debt Service										
Senior Debts Service	43,243	36,265	44,522	45,642	42,779	42,646	38,961	38,141	35,509	35,421
Total Debt Service	43,243	36,265	44,522	45,642	42,779	42,646	38,961	38,141	35,509	35,421
Debt Coverage										
Senior Coverage	220%	228%	148%	129%	155%	131%	134%	176%	163%	158%
Total Coverage	220%	228%	148%	129%	155%	131%	134%	176%	163%	158%

* Cash receipts are defined as all revenues received and deposited into the Revenue Fund.

** Pursuant to Bond Resolutions, amounts withdrawn from the Revenue fund in the period and deposited into any other fund, except the Debt Service Reserve Fund, the Renewal and Replacement Fund, the Stabilization Fund, the General Revenue Fund, or any Temporary Project Fund. Withdrawals include payments for the City G.O. Debt Service and MWRA Assessment.

Table 10
Population, Income and Employment
Last Ten Fiscal Years Summary

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
United States										
Total Personal Income (\$000)	\$21,804,788	\$21,288,699	\$19,607,447	\$18,542,262	\$17,813,035,000	\$16,820,250,000	\$15,912,777,000	\$15,463,981,000	\$14,708,582,165	\$14,151,427,000
Per Capita Income (\$)	\$665,423	\$63,444	\$59,147	\$56,474	\$64,327	\$51,731	\$49,204	\$48,190	\$46,129	\$44,765
Population	333,287,557	331,893,745	331,501,080	328,329,953	326,687,501	325,147,121	323,405,935	320,896,618	318,857,056	316,128,839
Employment	N/A	201,142,600	190,776,800	203,809,500	200,746,000	196,132,200	193,668,400	190,195,400	185,798,800	182,278,200
New England										
Total Personal Income (\$000)	\$1,200,162	\$1,177,024	\$1,086,528	\$1,035,507	\$1,008,436	\$927,575,829	\$903,272,776	\$886,594,738	\$831,543,055	\$801,066,757
Per Capita Income (\$)	\$79,326	\$77,837	\$71,949	\$69,733	\$68,003	\$64,334	\$61,207	\$60,271	\$56,642	\$54,797
Population	15,129,548	15,121,745	15,101,332	14,849,662	14,829,322	14,853,290	14,757,573	14,710,229	14,680,722	14,618,806
Employment	N/A	9,834,299	9,337,320	10,127,365	10,032,617	9,886,800	9,795,354	9,571,509	9,378,271	9,217,266
Massachusetts										
Total Personal Income (\$000)	\$593,083	\$584,291	\$540,855	\$511,334	\$483,657,400	\$463,930,700	\$437,551,353	\$425,352,524	\$399,204,457	\$383,152,205
Per Capita Income (\$)	\$84,945	\$83,593	\$77,021	\$74,161	\$70,073	\$67,596	\$64,122	\$62,697	\$59,182	\$57,248
Population	6,981,974	6,989,690	7,022,220	6,894,883	6,902,149	6,863,246	6,823,721	6,784,240	6,745,408	6,692,824
Employment	N/A	4,761,271	4,522,091	4,936,751	4,872,851	4,777,678	4,720,200	4,542,723	4,428,064	4,322,176
Metropolitan Boston(1)										
Total Personal Income (\$000)	N/A	194,012,815	180,910,263	397,139,161	383,664,542	358,021,100	336,362,967	327,531,997	308,732,928	289,275,938
Per Capita Income (\$)	N/A	95,632	88,911	81,498	78,694	74,024	70,157	68,712	65,142	61,754
Population	N/A	2,028,753	2,034,729	4,873,019	4,875,390	4,836,531	4,794,447	4,766,755	4,739,385	4,684,299
Employment	N/A	1,618,624	1,538,029	3,743,187	3,689,664	3,610,562	3,562,104	3,493,027	3,344,480	3,239,069

(1) Includes five full counties in Massachusetts (Essex, Middlesex, Norfolk, Plymouth and Suffolk) and two counties in New Hampshire (Rockingham and Strafford), which together comprise the Boston-Cambridge-Quincy MA-NH Metropolitan Statistical Area.

Source: Bureau of Economic Analysis, March 2022
Bureau of the Census, population figures for Massachusetts and Metropolitan Boston.

Table 11
Demographic and Economic Statistics
Last Ten Fiscal Years Summary

Fiscal Year	Population	Total Personal Income (in thousand)	Per Capita Personal Income	Unemployment Rate
2022	650,706	N/A	N/A	N/A
2021	654,776	32,964,043	50,344	5.8%
2020	679,216	31,817,874	46,845	9.2%
2019	694,295	34,005,181	48,978	2.6%
2018	695,926	30,180,223	43,367	3.0%
2017	683,015	28,847,822	42,236	3.4%
2016	672,840	27,625,465	40,237	3.4%
2015	669,469	26,273,980	39,246	4.4%
2014	656,051	24,804,632	36,395	5.3%
2013	644,710	23,245,664	34,139	6.1%

N/A = Information not available for this fiscal year.

Sources:

Population: U.S. Census Bureau, Population Estimates Program, Vintage 2022 Population Estimates;
 BPDA Research Division Analysis

Income: U.S. Census Bureau, 2009-2019 1-year American Community Survey estimates, BP&DA Research Division Analysis
 Converted to 2019 dollars using the Consumer Price Index.

Unemployment: Bureau of Labor Statistics, Local Area Unemployment Statistics; BP&DA Research Division Analysis

Due to data collection challenges during the pandemic, the Census Bureau will not releasing
 American Community Survey estimates for 2020

Table 12
Distribution of Customers by Account Type
Current Year and Nine Years ago

2022		
Account Type by Land Code	Number of Accounts	% of Total Accounts
Residential	67,232	76.3%
Residential (other)	9,793	11.1%
Commercial	7,007	7.9%
Tax Exempt	3,278	3.7%
Industrial	862	1.0%
Total By Land Code	88,172	100.0%

2013		
Account Type by Land Code	Number of Accounts	% of Total Accounts
Residential	66,415	75.7%
Residential (other)	9,365	10.7%
Commercial	7,182	8.2%
Tax Exempt	3,832	4.4%
Industrial	940	1.1%
Total By Land Code	87,734	100.0%

Source: Commission's billing system.

**Table 13
Largest Private Employers
Current and Nine Years Ago**

Employer	Year End 2022			Year End 2013		
	Employees	Rank	Percentage of Total City Employment	Employees	Rank	Percentage of Total City Employment
Massachusetts General Hospital	18,801	1	2.37%	14,207	1	2.15%
Brigham and Women's Hospital	14,311	2	1.81%	11,607	2	1.76%
Boston University	10,406	3	1.31%	9,301	3	1.41%
Beth Israel Deaconess Medical Center	8,156	4	1.03%	7,192	5	1.09%
Boston Children's Hospital,	7,945	5	1.00%	7,603	4	1.15%
State Street Bank & Trust Company	7,500	6	0.95%	5,600	7	0.85%
Boston Medical Center Corporation	7,102	7	0.90%			
Harvard University Graduate Schools	6,707	8	0.85%	4,875	9	0.74%
Northeastern University	6,332	9	0.80%			
Fidelity Investments	5,950	10	0.75%	5,457	8	0.83%
Liberty Mutual Holding Company				7,125	6	1.08%
Tufts Medical Center				3,915	10	0.59%
Total	<u>93,210</u>		<u>11.77%</u>	<u>76,882</u>		<u>11.65%</u>

Note 1: Employment number for State Street Bank & Trust Company is current as of 2017. This is the most recent data available.

Note 2: Northeastern employment includes both Northeastern University and The Northeastern University Lifelong Learning Network.

Source: Bureau of Economic Analysis; Center for Medicare and Medicaid Services Statistics; BP&DA Research Division Analysis. Estimates reflect most recent available data.

Table 14
Divisional Breakdown of BWSC Employees
Last Ten Fiscal Years Summary

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
Executive	75	37	36	36	36	35	34	32	32	52
Executive Director	3	3	4	4	5	4	4	3	3	4
Organizational Diversity	4	4	3	3	2	7	7	6	3	3
Labor Relations	0	0	0	0	0	3	3	4	11	4
General Counsel	15	15	14	14	15	14	13	12	15	12
Human Resources	10	9	8	8	8	7	7	7	-	-
MIS	29	-	-	-	-	-	-	-	-	29
Safety and Training	14	6	7	7	6	-	-	-	-	-
Operations	198	206	206	206	205	206	204	209	211	206
Chief Operations Officer	5	4	4	4	-	-	-	-	-	6
Director of Operations	0	0	0	0	3	3	4	4	-	-
Operations Services	-	-	-	-	-	-	-	-	4	-
Water & Sewer Services	118	120	117	117	115	117	114	117	113	125
Work Order, Compliance & C. S.	32	31	32	32	32	32	33	33	35	10
Asset Management	32	32	32	32	34	34	34	35	36	-
Facilities & Support Services	11	19	21	21	21	20	19	20	23	25
Fleet	-	-	-	-	-	-	-	-	-	10
Storeroom	-	-	-	-	-	-	-	-	-	8
Enforcement	-	-	-	-	-	-	-	-	-	22
Engineering	83	82	83	83	84	85	85	83	84	95
Chief Engineer	4	4	4	4	4	6	5	5	5	4
Design	32	31	31	31	32	32	32	32	30	16
Planning	7	7	7	7	8	8	8	7	6	6
Construction	40	40	41	41	40	39	40	39	43	34
Eng. Services	-	-	-	-	-	-	-	-	-	35
Administration	95	126	125	125	126	123	125	128	127	78
Chief Admn. Officer	1	1	1	1	1	1	2	2	2	1
Meter Services	31	32	30	30	31	30	30	30	29	29
Account Services	34	36	35	35	36	36	35	36	38	36
Comm. & Community Svcs.	10	10	10	10	8	7	7	8	7	5
Facilities & Support Svcs	19	20	21	21	20	20	22	22	22	-
Information Technology	0	27	28	28	30	29	29	30	29	-
Human Resources	0	-	-	-	-	-	-	-	-	7
Finance	51	51	52	52	51	53	54	53	54	50
CFO	4	3	3	3	3	4	4	5	6	4
Budget	9	8	8	8	8	8	8	7	7	7
Accounting	8	8	8	8	8	8	8	8	8	8
Procurement	4	3	4	4	4	5	5	5	4	4
Financial Services	6	9	9	9	9	9	9	9	9	9
Revenues	20	20	20	20	19	19	20	19	20	18
Total Full Time Employees	502	502	502	502	502	502	502	505	508	481
Percent of Total										
Executive	14.94%	7.37%	7.17%	7.17%	7.17%	6.97%	6.77%	6.34%	6.30%	10.81%
Operations	39.44%	41.04%	41.04%	41.04%	40.84%	41.04%	40.64%	41.39%	41.54%	42.83%
Engineering	16.53%	16.33%	16.53%	16.53%	16.73%	16.93%	16.93%	16.44%	16.54%	19.75%
Administration	18.92%	25.10%	24.90%	24.90%	25.10%	24.50%	24.90%	25.35%	25.00%	16.22%
Finance	10.16%	10.16%	10.36%	10.36%	10.16%	10.56%	10.76%	10.50%	10.63%	10.40%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Table 15
Water and Sewer Distribution System
Current Year and Nine Years ago

2022

Appurtenances		Water Distribution System:		Pressure Zone	
		Water Main City Wide			
Hydrants	12,757	Total Linear Feet	5,327,174	High Pressure Fire System	15 Miles
MWRA Meters	0	Total Linear Miles	1,008	Northern High	4 Miles
Gate Valves*	17,724	Pumping Stations	1	Northern Low	90 Miles
				Southern Extra High	80 Miles
				Southern High	561 Miles
				Southern Low	260 Miles
Appurtenances		Sewer Distribution System:		Sewer System Code	
		Sewer Pipes City Wide			
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				

2013

Hydrants	13,627	Total Linear Feet	5,333,546	High Pressure Fire System	17 Miles
MWRA Meters	29	Total Linear Miles	1,011	Northern High	5 Miles
Gate Valves*	18,233			Northern Low	89 Miles
				Southern Extra High	81 Miles
				Southern High	560 Miles
				Southern Low	259 Miles
Appurtenances		Sewer Distribution System:		Sewer System Code	
		Sewer Pipes City Wide			
Catch Basins	39,288	Total Linear Feet	8,063,804	Combined Sewer	185 Miles
Manholes	53,009	Total Linear Miles	1,528	Combined Sewer Overflow	4 Miles
Outfalls	514	Pumping Stations	10	Sanitary Sewer	679 Miles
Regulators	163			Storm Drain	660 Miles
Tide Gates	203				

Source: Commission's CIP

* Includes only facilities owned by BWSC

Table 16
Insurance Coverage
Current Year and Nine Years Ago

2022 - 2023

Provider	Policy Period	Type of Coverage	Liability Limits	Annual Premium
Alliant	07/01/22 - 06/30/23	Property	\$250,000,000	\$142,208
Argonaut	07/01/22 - 06/30/23	Vehicles	1,000,000	229,366
Arch	07/01/22 - 06/30/23	Excess Workers Compensation	Statutory	97,994
Hanover	07/01/22 - 06/30/23	Fidelity and Crime	8,000,000	13,494
U.S. Specialty	07/01/22 - 06/30/23	Fiduciary	5,000,000	22,995
Houston	07/01/22 - 06/30/23	Cyber	4,000,000	86,515
Vantapro	07/01/22 - 06/30/23	General Liability	10,000,000	367,151
Travelers	07/01/22 - 06/30/23	Employment Practices	3,000,000	195,000
XL Specialty	07/01/22 - 06/30/23	Employment Excess Liability	5,250,000	110,000
XL Specialty	07/01/22 - 06/30/23	Employment Practices	5,000,000	309,400

2013 - 2014

Provider	Policy Period	Type of Coverage	Liability Limits	Annual Premium
Alliant	6/1/13 - 6/1/14	Property	\$250,000,000	\$56,491
Hanover	6/1/13 - 6/1/14	Vehicles	\$1,000,000	\$194,322
Arch	6/1/13 - 6/1/14	Excess Workers Compensation	\$1,000,000	\$108,711
AEGIS	6/1/13 - 6/1/14	Excess Liability	10,000,000	381,411
AEGIS	6/1/13 - 6/1/14	Public Officials Liability	5,000,000	108,181

Table 17
Retirement System
Schedule of Funding Process

Year	Plan Fiduciary Net Position (FNP)	Total Pension Liability (TPL)	FNP as a Percentage of TPL (FNP/TPL)	Net Pension Liability (NPL)	Covered Payroll (CP)	NPL as a Percentage of CP (NPL/CP)
1/1/2012	73,249,513	96,439,718	76%	23,190,205	27,979,116	83%
1/1/2014	87,411,057	120,174,128	73%	32,763,071	31,361,504	104%
1/1/2016	87,610,347	126,541,654	69%	38,931,280	31,361,504 *	124%
1/1/2017	102,433,499	128,937,098	79%	26,503,599	33,407,151	79%
1/1/2018	114,377,319	140,353,856	81%	25,976,537	34,743,437	75%
1/1/2019	108,760,295	149,208,298	73%	40,448,003	35,472,896	114%
1/1/2020	122,454,923	157,263,518	78%	34,808,595	35,533,839	98%
1/1/2021	132,516,097	161,527,980	82%	29,011,883	38,809,388	75%
1/1/2022	147,889,630	169,546,545	87%	21,656,915	37,976,646	57%
1/1/2023	133,752,905	180,608,465	74%	46,855,560	36,695,765	128%

*Covered payroll for 2022 as estimated in the January 1, 2022 actuarial valuation and for 2021 as estimated in the January 1, 2020 valuation. Information provided by Segal Group, Inc. from December 31, 2022 pension valuation report

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Compliance Section

2021 - 2020



INDEPENDENT AUDITOR'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING AND ON COMPLIANCE AND OTHER MATTERS BASED ON AN AUDIT OF FINANCIAL STATEMENTS PERFORMED IN ACCORDANCE WITH GOVERNMENT AUDITING STANDARDS

To the Commissioners of
Boston Water and Sewer Commission:

We have audited, in accordance with the auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States, the financial statements of the business-type activity and the aggregate remaining fund information of Boston Water and Sewer Commission (the "Commission"), as of and for the year ended December 31, 2022 and the related notes to the financial statements, which collectively comprise the Commission's basic financial statements, and have issued our report thereon dated September 14, 2023.

Report on Internal Control over Financial Reporting

In planning and performing our audit of the financial statements, we considered the Commission's internal control over financial reporting (internal control) as a basis for designing audit procedures that are appropriate in the circumstances for the purpose of expressing our opinions on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the Commission's internal control. Accordingly, we do not express an opinion on the effectiveness of the Commission's internal control.

A *deficiency in internal control* exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements, on a timely basis. A *material weakness* is a deficiency, or a combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected, on a timely basis. A *significant deficiency* is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or significant deficiencies. Given these limitations, during our audit we did not identify any deficiencies in internal control that we consider to be material weaknesses. However, material weaknesses or significant deficiencies may exist that were not identified.

Report on Compliance and Other Matters

As part of obtaining reasonable assurance about whether the Commission's financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the financial statements. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.



Purpose of this Report

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the entity's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the entity's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

Withum Smith+Brown, PC

September 14, 2023

Single Audit

In accordance with the Uniform Guidance, a Single Audit was not required because the Commission's federal expenditures were below the \$750,000 threshold.



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