

Boston Water and Sewer Commission



2021 - 2020 *Annual Comprehensive Financial Report*

For the Years Ended December 31, 2021 and 2020

Boston, Massachusetts

BOSTON WATER AND SEWER COMMISSION

Boston, Massachusetts

Annual Comprehensive Financial Report
For the Years Ended December 31, 2021 and 2020



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

2021 - 2020

**Boston Water and
Sewer Commission**



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July 29, 2022

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, 2021 and 2020. 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 O'Connor and Drew P.C. to perform the audit of the Commission's books for fiscal years ended December 31, 2021 and 2020.

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. 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.

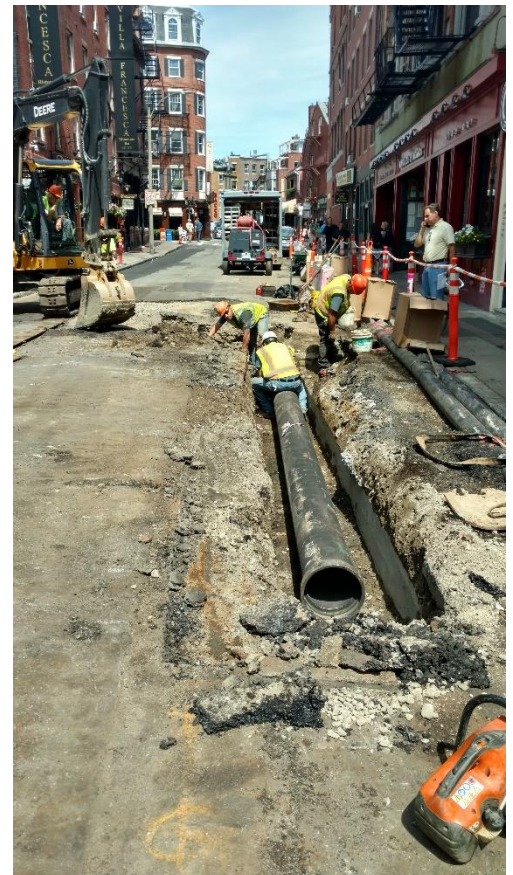
The Commission consists of five divisions: Executive, Operations, Engineering, Administration and Finance.

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. The Information Technology (“IT”) Department is now part of the Executive Division and is responsible for the preservation of the Commission’s technical infrastructure.

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.

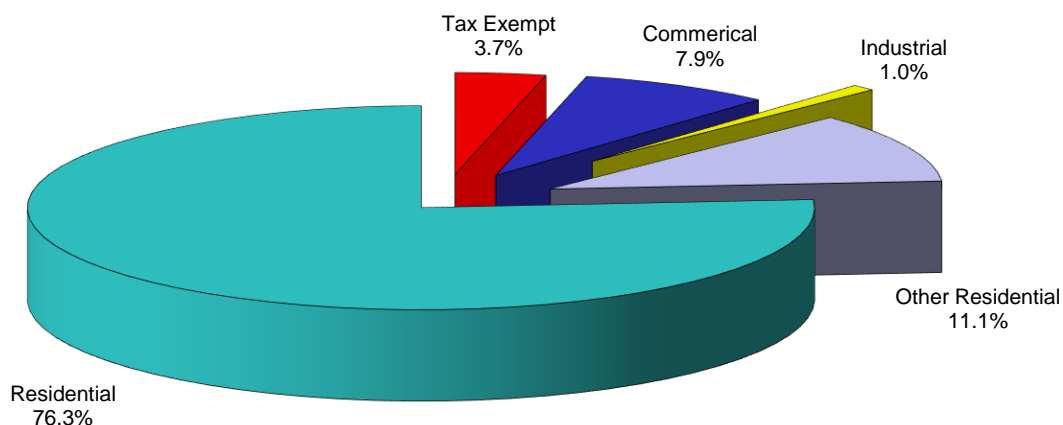


The *Finance Division* provides effective management of the Commission's revenues and all its resources. The Finance Division accomplishes this goal through its financial budgeting, rate setting, accounting and cash management, billing and adjustments. This Division is also responsible for financing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

Customer Base

2021 Distribution of Customers by Account Type

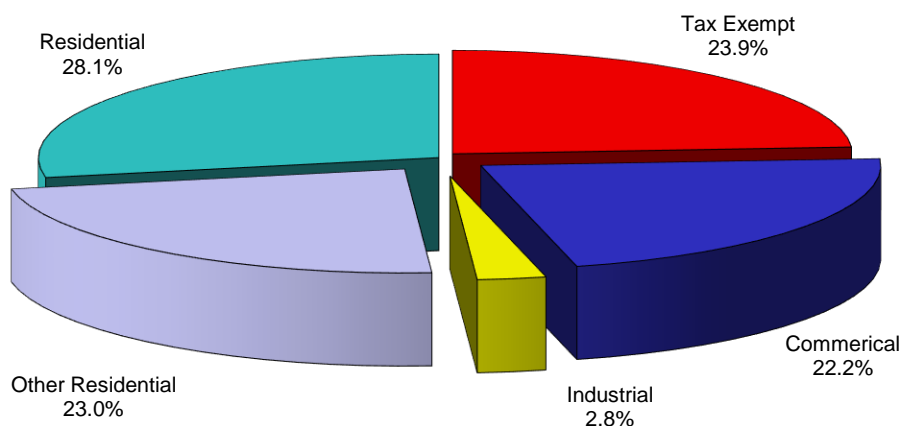
ACCOUNT TYPE BY LAND CODE	NUMBER OF ACCOUNTS	% OF TOTAL ACCOUNTS
Residential	67,232	76.3%
Other Residential	9,793	11.1%
Commercial	7,007	7.9%
Tax Exempt	3,278	3.7%
Industrial	862	1.0%
Total by Consumption	88,172	100.0%



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 88,172 accounts in 2021 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."

2021 Distribution of Customers by Consumption

ACCOUNT TYPE BY CONSUMPTION	SALES IN CUBIC FEET (000)	% OF TOTAL CONSUMPTION
Residential	670,552	28.1%
Other Residential	549,355	23.0%
Commercial	530,146	22.2%
Tax Exempt	571,881	23.9%
Industrial	66,080	2.8%
Total by Consumption	2,388,014	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 have accounted for 76.3% of the total accounts, the actual consumption was much lower, using only 28.1%. Other residential customers accounted for an additional 23.0%. The non-residential segment of the customer base (commercial, industrial and tax-exempt) represented only 12.6% of customer accounts but generated 48.9% 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, 2021, 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 three 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 hospital and higher education employment. Boston is also a well-educated multicultural city with 51.3% of the population at the age of 25 and over having at least a bachelor's degree and 55.3% 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 an ongoing pandemic. The World Health Organization ("WHO") and the U.S. Center for Disease Control and Prevention ("CDC") recommended cities, towns, and businesses to shut down to minimize the spread of the virus. Throughout 2020 and 2021, Boston enacted various restrictions to control the spread of the virus and also created a multitude of social assistance programs to help its residents. The city regularly updated its multi-phase reopening plan to combat the threat of COVID-19 variants such as Delta and Omicron. According to the COVID-19 Vaccination Report from the City of Boston's website, approximately 80% of Boston residents had at least one vaccine dose, and almost 70% of the residents were fully vaccinated at the end of 2021.

Because of its contagious nature, the pandemic greatly affected industries that required in-person accommodation and support services such as local small businesses, restaurants, hotels, retail stores, tourist attractions and entertainment venues. According to the Boston Planning and Development Agency ("BPDA"), office-space leasing did not make any significant recovery, especially with office space in the Downtown area having less than 20 percent usage throughout 2021. The tourism industry was also slow in its recovery. The number of passengers at Logan international airport in December 2021 was 29 percent below that of December 2019. Likewise, seated restaurant dining in January 2022 was only half of the number reported in January 2019.

The pandemic not only created major disruptions in the national and local economies but also had significant impacts on the daily lives of Boston residents. Boston's population, as estimated by the United States Census Bureau, went down from 676,216 on April 1, 2020 to 654,776 on July 1, 2021, a 3.2% decrease. In 2020, the COVID-19 pandemic caused Boston's unemployment rate to jump from 2.5% in February to 16.1% in June before settling at 7.6% in December. Boston saw further improvement the following year as the unemployment rate went down to 3.9% in December 2021.

Boston's unemployment rate of 3.9% in December 2021 was in line with the national unemployment rate of 3.9%, Massachusetts' unemployment rate of 4.6% and New England's unemployment rate of 4.5% in the same period. Although Boston's unemployment rate is trending toward pre-COVID baseline, there are some concerns about labor force participation and the inflation rate. The pandemic reduced the labor force participation rate as some workers either withdrew completely or chose early retirement to avoid the risk of virus exposure. On the national level, the consumer price index rose 7.1% between December 2020 and December 2021, and inflation is predicted to accelerate in the first half of 2022.

Despite the economic challenges posed by COVID-19, Boston had maintained a strong recovery since the onset of the pandemic. Boston is a major hub of healthcare and biotechnological institutions, and thus the city benefited from the increased demand for research and development of medical supplies and vaccines for COVID-19 and other diseases. In fact, Boston received \$2.4 billion in funding from the National Institutes of Health for 2021, the second highest amount in the nation and only behind New York City by \$0.5 billion. In the same fiscal year, the BPDA Board approved 7.1 million square feet of new housing. This approval allowed for the construction of 6,666 new housing units, and 2,366 of which would be affordable units. With its numerous strategic plans, Boston has weathered the storm of global pandemic uncertainties, and the city is on pace for a full recovery.

Throughout the year 2021, the Commission remained committed to providing continuous delivery of drinking water and sewer services which are critical to daily life and public health. Under the guidance of the CDC, the Commission implemented several precautionary measures to protect the health and safety of staff who operate and maintain the Commission's water and sewer infrastructure. The Commission will continue to use all necessary measures to keep our customers and employees safe. 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
COVID-19 Vaccination Report, City of Boston
Boston's Economy 2021, Boston Planning and Development Agency

Major Initiatives and Achievements

Certificate of Achievement for Excellence in Financial Reporting Award

The Commission's 2020-2019 Annual Comprehensive Financial Report received the Government Finance Officers Association's ("GFOA") Certificate of Achievement for Excellence in Financial Reporting. The 2020-2019 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 twenty-ninth consecutive year in which the Commission has received this recognition.

Distinguished Budget Presentation Award

For more than 28 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.

New England Water Environment Association's Youth Educator Award

In 2021, the Commission received the Youth Educator Award from the New England Water Environment Association ("NEWWEA"). The award recognized and honored a formal or informal New England educator who had aided NEWWEA in achieving its objective of increasing public awareness of cleaner water and water pollution control.

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 2021, 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. Construction of the new City Hall Plaza is anticipated to be completed in 2022.

Debt Plan

The Commission issues General Revenue Bonds to finance portions of its Capital Improvement Program (“CIP”). The Commission’s 2022-2024 CIP, which totals \$236.8 million, anticipates that projects totaling \$130.3 million, or 55.0%, will be funded from bond proceeds. The 2022 budget for debt service is \$50.3 million including \$43.5 million for bonds. The Commission currently has nine series of General Revenue Bonds outstanding at the end of 2021:

\$ 8.1 million	1994 Series A
15.5 million	2012 Series A
58.7 million	2014 Series A
72.8 million	2015 Series A
52.8 million	2016 Series A
49.1 million	2016 Series B
67.4 million	2018 Series A
157.3 million	2021 Series A
40.6 million	2021 Series B

Capital Improvement Program

The overall objectives of the Commission’s 2022-2024 CIP are to ensure the delivery of high-quality potable water for consumption and fire protection, as well as the efficient collection of sewage for transport and delivery to a treatment facility 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.

Introductory Section

The new Stormwater Category was created in 2017 to focus on stormwater management. The primary purpose of the Stormwater Category in the 2022-2024 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:

- City-wide Illegal Connection Investigation Program Phase V
- Cleaning and Inspections of Sewers and Storm Drains
- Customization of SCREAM and CMOM
- Design and Construction of Stormwater Detention Facilities
- Implementation of Green Infrastructure at City Hall Plaza
- Improvements to Information Technology
- Investigation of City-wide Illegal Connections
- New Boston Main Interceptor
- Projects Affiliated with Consent Decree
- Sampling and Metering for Storm Drain Model Validation
- Sewer and Drain Replacement Program
- Sewer Separation in Roxbury
- Sewer Separation in South Boston
- Upgrades to Union Park Pumping Station and Satellite Stations
- Water Main Replacement Program

The following tables show the funding sources and cash flows for the 2022-2024 periods:

2022- 2024 Capital Improvement Program Funding Sources

<i>Funding Source</i>	<i>2022</i>	<i>2023</i>	<i>2024</i>	<i>2022-2024</i>
<i>BWSC Bonds</i>	\$ 64,935,000	\$ 40,495,000	\$ 24,874,000	\$ 130,304,000
<i>Rate Revenue</i>	24,435,000	22,163,000	16,136,000	62,734,000
<i>MWRA Water Assistance</i>	9,514,000	5,161,000	5,197,000	19,872,000
<i>MWRA I/I Assistance</i>	8,513,000	8,173,000	7,212,000	23,898,000
<i>Total</i>	\$ 107,397,000	\$ 75,992,000	\$ 53,419,000	\$ 236,808,000

**2022-2024 Capital Improvement Program
Cash Flows**

Program Source	2022	2023	2024	2022-2024
<i>Water</i>	\$ 38,565,000	\$ 30,469,000	\$ 23,905,000	\$ 92,939,000
<i>Sewer</i>	50,847,000	36,346,000	23,700,000	110,893,000
<i>Support</i>	13,350,000	6,697,000	4,364,000	24,411,000
<i>Stormwater</i>	4,635,000	2,480,000	1,450,000	8,565,000
Total	\$ 107,397,000	\$ 75,992,000	\$ 53,419,000	\$ 236,808,000

Note: Although expenditures decrease from 2023 to 2024, it is anticipated that funding for 2024 will be equal to or greater than funding presented in 2023. The decrease in 2024 is primarily due to the CIP being a one-year cash flow over a three-year period.

As shown in the first table, funding for the CIP is provided through four sources: Commission general revenue bonds, current year rate revenues and two grant/loan programs provided by the Massachusetts Water Resources Authority (“MWRA”). The primary funding source for the three-year capital program is the sale of Commission general revenue bonds. Over the three-year plan, general revenue bonds will comprise \$130.3 million, or 55.0% of the total funding requirement. In 2022, bonds will make up \$64.9 million, or 60.5% 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 \$92.9 million, or 39.3% of the 2022-2024 CIP. Sewer System projects comprise \$110.9 million, or 46.8%. Support projects total \$24.4 million, or 10.3%. Stormwater projects account for \$8.6 million, or 3.6% of the expenditures.

Total capital expenditures of \$107.4 million are outlined for 2022. Water Distribution projects comprise \$38.6 million, or 35.9%. Sewer System projects account for \$50.8 million, or 47.4%. Support projects total \$13.4 million, or 12.4%. Stormwater projects account for \$4.6 million, or 4.3% of the 2021 expenditures.

As in the past, the 2022-2024 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 2022-2024 CIP outlines R&R expenditures of \$62.7 million, or 26.5% of total expenditures over the three years of the program. In 2021, approximately \$24.4 million, or 22.7%, will be expended out of current rate revenues for CIP projects.

The 2022-2024 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 ten years, the Commission has completed a total of \$260.2 million in water distribution improvements. These improvements have resulted in the replacement of 102.6 miles of water mains and cement lining of 4.3 miles of water mains. The projects scheduled for initiation in 2022 will result in the replacement of approximately 8.7 miles of water mains.

The primary objectives of the 2022-2024 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 2022-2024 CIP has five major programs for the Sewer System: the sewer renewal and replacement program, the increased capacity program, the sewer separation, the Infiltration/Inflow program and sewer special program. Projects in the Sewer System CIP include the rehabilitation or replacement of approximately 36.0 miles of deteriorated or collapsed sanitary sewers and storm drains along with the television inspection of approximately 80.0 miles of sewer pipe. Also included are drainage improvements and the replacement of faulty tide-gates. The primary objectives of the 2021-2023 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 \$97.1 million in MWRA funding for various Infiltration/Inflow and Separation projects. The Commission plans to continue to take advantage of MWRA funding over the 2022-2024 period. \$23.9 million in funding is anticipated to be used for projects that are ongoing along with new projects for the three years 2022-2024.

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"). The program offers interest-free loans payable over a ten-year period and is designed to improve water quality in local distribution systems. The amount of funding available from the program is \$34.3 million per year with Boston receiving a share of approximately \$5.3 million per year. The loans will be repaid to the MWRA over a ten-year period. Loan funds are approved for distribution from fiscal year 2011 through fiscal year 2023. The Commission has applied for loan funding for certain water main replacement projects awarded through the remainder of this program. Projects costs incurred on or after January 1, 2010 have been considered for eligibility in application under the LWSAP program. From 2010 to 2021, the Commission has received \$59.6 million in LWSAP funding. It is anticipated that for the 2022-2024 CIP, \$19.9 million will be funded using the LWSAP program.

Sources: *2022 Current Expense Budget*, Boston Water and Sewer Commission.

2022-2024 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 that provide 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 auditors. 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 \$236.8 million for the three-year period 2022-2024. The CIP is made up of Water, Sewer, Support and Stormwater Programs.

The Commission's Water Program for 2022-2024 accounts for \$92.9 million, or 39.3%, of the total CIP expenditures. The Sewer Program accounts for \$110.9 million, or 46.8%, of the CIP. The Support Program accounts for \$24.4 million, or 10.3%, of the CIP. The Stormwater Program accounts for \$8.6 million, or 3.6% of the CIP.

Monies allocated for the 2022 programs total \$107.4 million. The amount mentioned is distributed as followed: Water \$38.6 million, or 35.9%; Sewer \$50.8 million, or 47.4%; Support \$13.4 million, or 12.4%; Stormwater \$4.6 million, or 4.3% of the 2022 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

Paul Canavan, Director of Operations

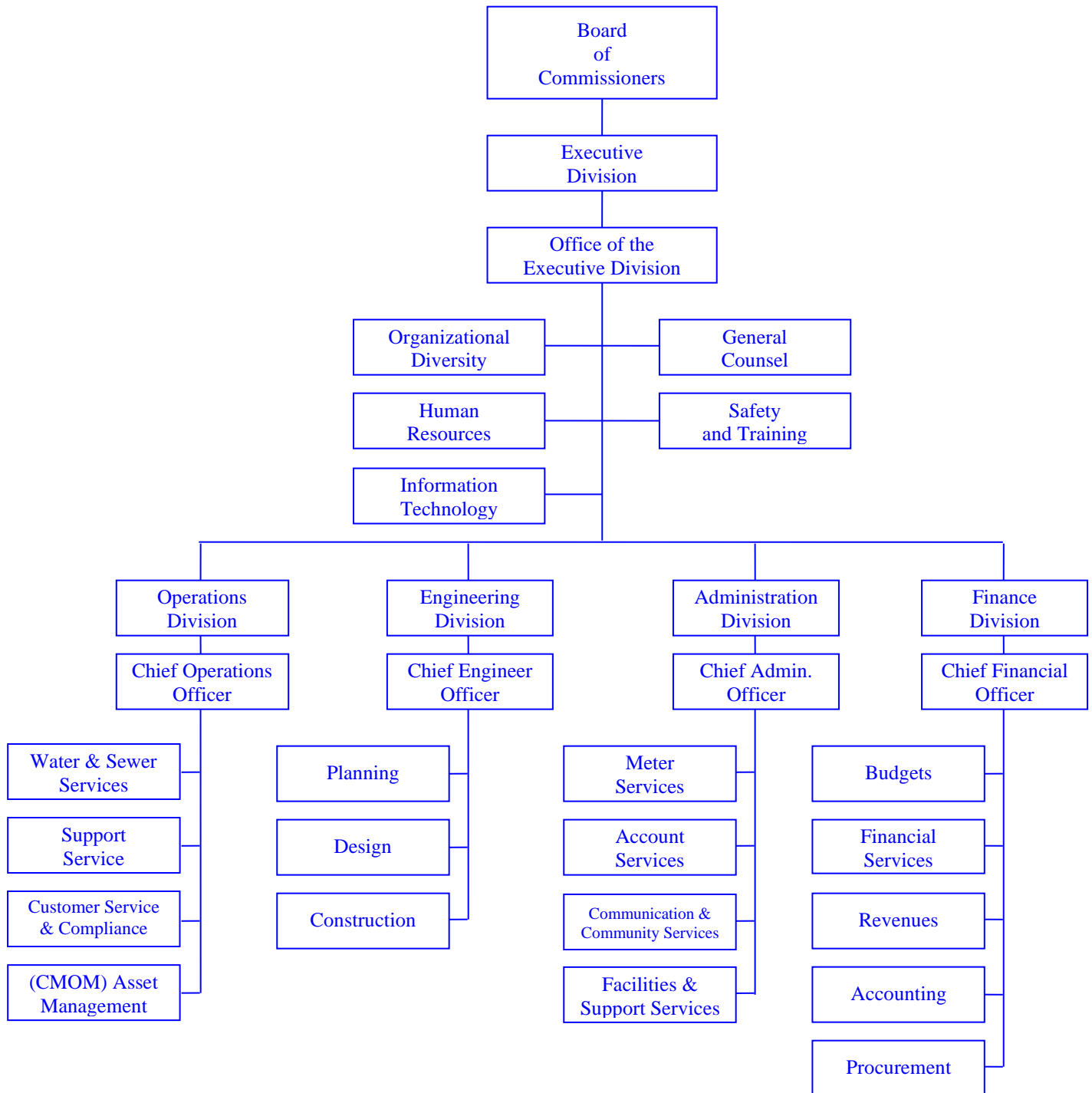
Irene F. McSweeney, P.E., Chief of Operations

Robert M. LaMarca, General Counsel

Hussein Dayib, Director of Organizational Diversity

Peter K. Hunt, Chief Information Officer

Organizational Chart





Government Finance Officers Association

Certificate of
Achievement
for Excellence
in Financial
Reporting

Presented to

**Boston Water & Sewer Commission
Massachusetts**

For its Annual Comprehensive
Financial Report
For the Fiscal Year Ended

December 31, 2020

Christopher P. Morill

Executive Director/CEO

EXHIBIT I
2021 BUDGETED REVENUE AND EXPENSE ANALYSIS
(RATE BASIS)

	2021 ACTUAL	2021 BUDGET	VARIANCE	PERCENT VARIANCE
Revenues:				
Water & Sewer	\$402,666,256	\$401,525,391	\$1,140,865	0.3%
Less:				
Adjustments	11,827,391	11,041,948	(785,443)	-7.1%
Discounts	3,015,493	1,701,397	(1,314,096)	-77.2%
Bad Debt	41,375	401,525	360,150	89.7%
Subtotal	14,884,259	13,144,870	(1,739,389)	-13.2%
Net Billed Charges	387,781,997	388,380,521	(598,524)	-0.2%
Prior Year Surplus	371,904	590,598	(218,694)	-37.0%
Miscellaneous Revenues:				
Late Charges	1,976,793	1,606,102	370,691	23.1%
Investment Income	2,059,556	2,591,102	(531,546)	-20.5%
Fire Pipe	5,222,027	5,104,286	117,741	2.3%
Other Income	6,780,259	7,436,084	(655,825)	-8.8%
Total Revenues	404,192,536	405,708,693	(1,516,157)	-0.4%
Direct Operating Expenses:				
Salaries and Wages	49,672,729	43,886,396	(5,786,333)	-13.2%
Overtime Wages	1,541,885	839,440	(702,445)	-83.7%
Fringe Benefits	8,828,146	9,830,125	1,001,979	10.2%
Supplies and Materials	2,317,310	2,842,148	524,838	18.5%
Repairs and Maintenance	12,958,569	14,011,875	1,053,306	7.5%
Utilities	1,452,560	2,143,280	690,720	32.2%
Professional Services	3,012,331	4,161,600	1,149,269	27.6%
Space and Equipment Rentals	319,735	366,250	46,515	12.7%
Other Services	1,543,822	1,892,350	348,528	18.4%
Insurance	981,380	1,001,654	20,274	2.0%
Travel and Training	33,995	23,000	(10,995)	-47.8%
Damage Claims	315,847	71,000	(244,847)	-344.9%
Inventory	13,540	84,000	70,460	83.9%
Capital Outlay	46,492	345,000	298,508	86.5%
Total Direct Operating Expenses	83,038,341	81,498,118	(1,540,223)	-1.9%
Indirect Operating Expense:				
MWRA Assessment	243,396,224	248,379,059	4,982,835	2.0%
Capital Improvement	10,531,019	18,690,000	8,158,981	43.7%
Debt Services	49,657,755	51,777,529	2,119,774	4.1%
Contractual Funding Obligations	16,889,000	5,148,550	(11,740,450)	-228.0%
SDWA Assessment	215,437	215,437	0	0.0%
Total Indirect Operating Expenses	320,689,435	324,210,575	3,521,140	1.1%
Total Current Expenses	\$403,727,776	\$405,708,693	\$1,980,917	0.5%

EXHIBIT II
REVENUES AND EXPENSES - BUDGETARY BASIS
FOR THE YEARS ENDED DECEMBER 31, 2021 AND 2020
(RATE BASIS)

	2021	2020	CHANGE	PERCENT
Water Revenue	\$170,438,964	\$151,395,689	\$19,043,275	12.6%
Sewer Revenue	232,227,292	212,105,684	20,121,608	9.5%
Revenue Adjustments	(14,884,259)	(12,092,496)	(2,791,763)	23.1%
Prior Period Surplus	371,904	689,554	(317,650)	-46.1%
Other Revenues				
Fire Pipe	5,222,027	5,110,863	111,164	2.2%
Late Charges	1,976,793	350,258	1,626,535	464.4%
Investment Income	2,059,556	1,980,533	79,023	4.0%
Other Income	6,780,259	24,379,632	(17,599,373)	-72.2%
Total Revenue	404,192,536	383,919,717	20,272,819	5.3%
Operating Expenses	83,038,341	74,322,928	(8,715,413)	-11.7%
MWRA Assessment	243,396,224	241,360,172	(2,036,052)	-0.8%
SDWA Assessment	215,437	220,685	5,248	2.4%
Other Nonoperating Expenses:				
Capital Improvement	10,531,019	15,948,387	5,417,368	34.0%
Deposit to Reserves	16,889,000	1,516,000	(15,373,000)	-1014.1%
Debt Service	49,657,755	50,179,641	521,886	1.0%
Total Expenses	403,727,776	383,547,813	(20,179,963)	-5.3%
Current Surplus	\$464,760	\$371,904	\$92,856	25.0%

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Financial Section

2021 - 2020



INDEPENDENT AUDITORS' REPORT

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

Report on the Audits 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 years ended December 31, 2021 and 2020, 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, 2021 and 2020, 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 audits in accordance with 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. Our responsibilities under those standards are further described in the Auditors' 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.

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.

Auditors' 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 auditors' 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 generally accepted auditing standards 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 generally accepted auditing standards 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 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 information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the 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 financial statements that collectively comprise the Commission's basic financial statements. The accompanying supplemental schedules listed in the table of contents are presented for purposes of additional analysis and are not a required part of the 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 information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the 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 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 opinions 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 July 27, 2022, 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.

O'Connor and Duen, P.C.

**Certified Public Accountants
Braintree, Massachusetts**

July 27, 2022

BOSTON WATER AND SEWER COMMISSION

Management's Discussion and Analysis

Required Supplementary Information

December 31, 2021 and 2020

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 financial statements.

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 66 of this report.

BOSTON WATER AND SEWER COMMISSION

Management's Discussion and Analysis

Required Supplementary Information

December 31, 2021 and 2020

Condensed Financial Information

(in thousands)

	2021	2020	2019
Current assets	\$ 334,901	311,314	323,923
Capital assets, net	1,497,563	1,472,358	1,445,700
Total assets	1,832,464	1,783,672	1,769,623
Total deferred outflows	100,007	90,555	99,774
Current liabilities	86,286	112,449	79,515
Noncurrent liabilities	615,280	587,234	630,154
Total liabilities	701,566	699,683	709,669
Total deferred inflows	829,287	783,719	764,291
Net position:			
Net investment in capital assets	898,140	867,306	846,330
Restricted	114,057	114,653	113,573
Unrestricted net deficit	(610,579)	(591,134)	(564,466)
Total net position	\$ 401,618	390,825	395,437

During the year, the Commission saw an increase in total assets and in total liabilities, resulting in an increase in total net position of \$10.8 million, or 2.8%. In 2020, net position totaled \$390.8 million, a decrease of \$4.6 million, or 1.2% from 2019. The Commission's 2021 operations resulted in a rate basis surplus of \$464,760 compared to \$371,904 in 2020.

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 2021, which is 1.7% higher than in 2020. In 2020, these investments totaled \$1.5 billion, an increase of \$27.0 million, or 1.8% over the 2019 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 2021 were \$414.7 million, which is 5.4% greater than in 2020. Total operating revenues in 2020 were \$393.3 million, which is 1.7% greater than 2019. Operating revenues consist of water and sewer revenue, late charge revenue, fire pipe revenue and other income. Water and sewer revenue in 2021 and 2020 represented 97.1% and 92.5% of total operating revenues, respectively. The increases in 2021 and 2020 operating revenues were primarily driven by a 8.90% and 7.90% average rate increase, respectively.

BOSTON WATER AND SEWER COMMISSION

Management's Discussion and Analysis

Required Supplementary Information

December 31, 2021 and 2020

Total operating expenses in 2021 were \$369.0 million, which represents an increase of 3.5% from 2020. The increase in 2021 operating expenses was primarily due to a combined additional spending of 2.2%, or \$7.4 million in three-line items (operations, maintenance and Massachusetts Water Resources Authority ("MWRA") assessment). Total operating expenses in 2020 were \$356.5 million, which represents an increase of 1.7% from 2019. This increase in 2020 operating expenses was primarily due to a combined additional spending of 1.4%, or \$4.4 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 66.0% and 67.7% in 2021 and 2020, respectively, of total operating expenses.

In 2021 and 2020, 83% and 85%, 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)

	2021	2020	2019
Operating revenues:			
Water and sewer usage	\$ 402,667	363,852	370,105
Other	12,002	29,490	16,543
Operating expenses	(369,045)	(356,455)	(350,596)
Excess operating revenues	45,624	36,887	36,052
Investment income	4,075	2,514	5,602
Interest expense	(15,585)	(17,366)	(18,707)
Total nonoperating net expense	(11,510)	(14,852)	(13,105)
Excess revenues before capital grants, contributions and transfer requirements	34,114	22,035	22,947
Capital grants and contributions	17,803	2,560	13,712
Excess revenues used to fund reserves and other deferrals	(41,031)	(29,525)	(33,206)
Change in accumulated revenues used to offset future rates	(93)	318	(131)
Change in net position	10,793	(4,612)	3,322
Net position, beginning of year	390,825	395,437	392,115
Net position, end of year	401,618	390,825	395,437

BOSTON WATER AND SEWER COMMISSION

Management's Discussion and Analysis

Required Supplementary Information

December 31, 2021 and 2020

Capital Assets

In fiscal year 2021, major Commission project additions totaled \$38.6 million, of which \$17.7 million was financed with bond proceeds. Major project expenditures (in millions) are as follows:

Relay of water mains	\$ 19.1
Rehabilitation/replacement of sewers or storm drains	13.6
Interceptor improvements	0.0
Separation of combined sewers	3.8
Meter replacement	0.2
Stormwater	1.9
	<u>\$ 38.6</u>

The Commission's 2022-2024 capital budget includes projected expenditures of \$236.8 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 2022-2024 capital budget, which totals \$236.8 million, anticipates that projects totaling \$130.3 million, or 55.0% of the Commission's 2022-2024 capital budget, will be funded from bond proceeds. The 2022 budget for debt service is \$50.3 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, 2021 and 2020

The Commission currently has nine series of General Revenue Bonds outstanding at the end of 2021, totaling approximately \$522.3 million as follows (in millions):

1994 Series A	\$ 8.1
2012 Series B	15.5
2014 Series A	58.7
2015 Series A	72.8
2016 Series A	52.8
2016 Series B	49.1
2018 Series A	67.4
2021 Series A	157.3
2021 Series B	40.6
	\$ 522.3

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, 2021 and 2020

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 8.90% and 7.90%, 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, 2022, the Commission increased its water and sewer rates by an average of 4.50%.

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 Department 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

Years ended December 31, 2021 and 2020

	Assets	2021	2020
Current assets:			
Cash and cash equivalents	\$	7,798,415	11,410,613
Restricted cash and investments (Notes 5 and 11)		264,988,651	236,649,402
Accounts receivable, net:			
Customers, less allowances of \$2,465,797			
in 2021 and in 2020, respectively (Note 1)		30,735,649	34,430,503
Unbilled revenues, less allowances of \$1,702,361 in 2021 and 2020		30,454,280	27,963,579
Prepaid expenses		923,703	860,224
Total current assets		334,900,698	311,314,321
Noncurrent assets:			
Capital assets (Note 4):			
Depreciable, net		1,349,742,504	1,345,311,978
Nondepreciable		147,820,367	127,045,760
Total noncurrent assets		1,497,562,871	1,472,357,738
Total Assets		1,832,463,569	1,783,672,059
Deferred Outflows of Resources			
Deferred charges (Note 2)		100,007,054	90,554,918
Liabilities			
Current liabilities:			
Payable from current assets:			
Accounts payable		20,868,909	18,405,430
Other accrued liabilities		13,622,678	8,910,337
Commercial paper notes (Note 6)		15,000,000	50,000,000
Current portion of long-term notes (Note 5)		6,835,211	5,935,167
Current portion of revenue bonds (Note 5)		29,958,676	29,197,776
Total current liabilities		86,285,474	112,448,710
Noncurrent liabilities:			
Long-term notes (Note 5)		33,215,110	27,035,748
Revenue bonds, net (Note 5)		518,203,846	493,321,458
Net pension liability (Note 9)		21,656,915	29,011,883
Net OPEB liability (Note 10)		38,837,083	35,868,760
Other long-term liabilities (Note 13)		3,367,494	1,996,733
Total noncurrent liabilities		615,280,448	587,234,582
Total Liabilities		701,565,922	699,683,292
Deferred Inflows of Resources			
Deferred credits and reserves (Note 3)		829,286,671	783,718,805
Commitments and contingencies (Notes 12 and 14)			
Net Position			
Net position:			
Net investment in capital assets		898,139,925	867,306,096
Restricted for debt service		51,886,236	53,902,568
Restricted for capital assets		163,505	471,799
Restricted for debt covenants		62,007,142	60,278,650
Unrestricted net deficit		(610,578,778)	(591,134,233)
Total Net Position	\$	401,618,030	390,824,880

See accompanying notes to financial statements.

BOSTON WATER AND SEWER COMMISSION
Statements of Revenues, Expenses and Changes in Net Position
Years ended December 31, 2021 and 2020

	2021	2020
Operating revenues:		
Water and sewer usage (Note 1)	\$ 402,666,256	363,851,631
Fire pipe	5,222,027	5,110,863
Other	6,780,262	24,379,632
Total operating revenues	414,668,545	393,342,126
Operating expenses:		
Operations	85,250,673	77,107,713
Maintenance	12,958,569	10,745,786
MWRA assessment (Note 7)	243,396,224	241,360,172
Depreciation and amortization	27,439,948	27,241,275
Total operating expenses	369,045,414	356,454,946
Operating Income	45,623,131	36,887,180
Nonoperating revenue (expense):		
Investment income	4,075,426	2,513,502
Interest expense	(15,585,193)	(17,365,593)
Total nonoperating net expense	(11,509,767)	(14,852,091)
Excess revenues before capital grants and contributions and transfer requirements	34,113,364	22,035,089
Capital grants and contributions: (Note 1)	17,803,560	2,560,147
Excess revenues before transfer requirements	51,916,924	24,595,236
Excess revenues used to fund reserves and other deferrals (Note 3)	(41,030,918)	(29,525,004)
Change in accumulated revenues used to offset future rates (Note 3)	(92,856)	317,649
Change in net position	10,793,150	(4,612,119)
Net position, beginning of year	390,824,880	395,436,999
Net position, end of year	\$ 401,618,030	390,824,880

See accompanying notes to financial statements.

BOSTON WATER AND SEWER COMMISSION

Statements of Cash Flows

Years ended December 31, 2021 and 2020

	2021	2020
Cash flows from operating activities:		
Receipts from customers	\$ 415,872,698	370,464,367
Payments to suppliers	(276,471,236)	(270,936,349)
Payments to employees	(59,164,947)	(54,295,774)
Net cash provided by operating activities	80,236,515	45,232,244
Cash flows from investing activities:		
Investment income	4,075,426	2,513,502
Sales of investments	130,473,346	215,917,921
Purchases of investments	(208,835,273)	(130,473,346)
Net cash provided by (applied to) investing activities	(74,286,501)	87,958,077
Cash flows from capital and related financing activities:		
Purchase of capital assets	(53,264,952)	(53,493,375)
Proceeds from long-term notes	13,014,572	7,474,132
Proceeds from revenue bonds	205,896,394	—
Payment of long-term notes	(5,935,166)	(5,837,295)
Payment of revenue bonds	(169,525,000)	(23,710,000)
Proceeds from commercial paper	15,000,000	30,000,000
Payment of commercial paper	(50,000,000)	—
Capital grants and contributions	17,803,560	2,560,147
Payment of interest	(32,574,297)	(21,219,503)
Net cash applied to capital and related financing activities	(59,584,889)	(64,225,894)
Net increase (decrease)	(53,634,875)	68,964,427
Cash and cash equivalents, beginning of year	171,692,118	102,727,691
Cash and cash equivalents, end of year	\$ 118,057,243	171,692,118
Reconciliation of operating income to net cash provided by operating activities:		
Operating Income	\$ 45,623,131	36,887,180
Adjustment to reconcile operating income to net cash:		
Depreciation and amortization	27,439,948	27,241,275
GASB 62 working capital adjustment	—	(19,000,000)
Bad debts	—	(135)
Deferred outflows of resources	802,385	17,370,223
Change in assets and liabilities:		
Accounts receivable, net	3,694,854	(6,651,537)
Unbilled revenues	(2,490,701)	2,773,913
Prepaid expenses	(63,478)	5,746
Accounts payable	3,083,350	2,588,718
Other accrued liabilities	5,162,910	(722,260)
Other long-term liabilities	1,370,761	309,223
Net pension activity	(7,354,968)	(5,796,712)
Net OPEB activity	2,968,323	(9,773,390)
Net cash provided by operating activities	\$ 80,236,515	45,232,244
Noncash capital and related financing activities:		
Retainage payable	\$ (619,871)	405,156
Bond issuance costs	\$ 700,837	—
Cash and cash equivalents are comprised of the following:		
Cash and cash equivalents	\$ 7,798,415	11,410,613
Money market in restricted cash and investments	64,793,881	111,267,271
Cash in restricted cash and investments	45,464,947	49,014,234
Total	\$ 118,057,243	171,692,118

See accompanying notes to financial statements.

BOSTON WATER AND SEWER COMMISSION
 Statements of Fiduciary Net Position
 Other Post-Employment Benefits (“OPEB”) Trust Fund
 Years ended December 31, 2021 and 2020

	Assets	2021	2020
Cash and cash equivalents		\$ 177,935	227,483
Investments:			
Mutual funds		7,221,201	5,352,190
Equity		14,383,398	17,387,424
Fixed Income		5,373,749	8,006,586
Pooled index fund		6,654,854	-
TIPS trust		2,509,087	-
Receivables		2,503,712	-
Total Assets		38,823,936	30,973,683
	Net Position		
Restricted for OPEB purposes		38,823,936	30,973,683
Total Net Position		\$ 38,823,936	30,973,683

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, 2021 and 2020

ADDITIONS:	2021	2020
Contributions:		
Employer	\$ 6,958,809	3,867,341
Total Contributions	<u>6,958,809</u>	<u>3,867,341</u>
Investment earnings:		
Investment income	4,074,737	1,261,940
Less investment expenses	(118,892)	(106,638)
Total net investment income	<u>3,955,845</u>	<u>1,155,302</u>
Total additions	<u>10,914,654</u>	<u>5,022,643</u>
DEDUCTIONS:		
Benefit payments	3,064,401	2,887,704
Change in Net Position	<u>7,850,253</u>	<u>2,134,939</u>
Net Position Restricted for OPEB		
Beginning of Year	<u>30,973,683</u>	<u>28,838,744</u>
End of Year	<u>\$ 38,823,936</u>	<u>30,973,683</u>

See accompanying notes to financial statements.

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements

December 31, 2021 and 2020

(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, 2021, is provided below:

	<u>Revenues</u>	<u>Expenses</u>
As presented in the statements of revenues and expenses:		
Operating revenues/expenses	\$ 414,668,545	369,045,414
Investment income/interest expense	4,075,426	15,585,193
Total	418,743,971	384,630,607
Reclassifications and deferrals:		
Contributions to reserves	-	16,889,000
GAAP adjustments	(14,884,259)	(14,884,259)
Excess bond payments over depreciation and amortization	-	6,179,481
Interest expense (escrowed funds)	-	-
Investment income (escrowed funds)	(39,077)	-
Capital expenditures	-	10,577,512
Excess revenue used to offset current rates	371,901	-
Other deferrals	-	335,435
As presented in the supplemental schedule of revenues and expenses - rate basis	<u>\$ 404,192,536</u>	<u>403,727,776</u>

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2021 and 2020

(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 \$464,760 and \$371,904 for the years ended December 31, 2021 and 2020, respectively, to offset rates in the respective subsequent years.

The Governor of Massachusetts declared a state of emergency due to the COVID-19 outbreak from March 2020 to June 2021. The operations of the Commission were deemed essential and water services were continued to be offered to customers, but the operations were still affected by the crisis as many organizations that used the Commission's services temporarily closed. Management took steps to mitigate the effects on operations such as monitoring cash flows and reductions of discretionary expenses. The COVID-19 crisis created volatility in the financial markets and uncertainty in the overall economy.

(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, 2021 and 2020 were approximately \$33.2 million and \$36.9 million, respectively. These net billing amounts are reduced by an allowance for uncollectible accounts of approximately \$2.5 million in 2021 and 2020, 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 2021 and 2020 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 business-type or fiduciary 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. Maintenance and repairs are charged to expense as incurred. Major renewals or betterments over \$500 are capitalized and depreciated over their estimated useful lives. The Commission capitalizes interest costs during construction of assets for its own use. No interest was capitalized in 2021 and 2020.

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2021 and 2020

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

(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.

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2021 and 2020

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

(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.

(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) *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.

(m) *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.

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2021 and 2020

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

(n) 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.

(o) New Government Accounting Pronouncements

GASB Statement 87 – *Leases* is effective for periods beginning after June 15, 2021. Implementation of this standard will require lessees to recognize on their statement of net position the rights and obligations resulting from leases categorized as operating leases as assets, liabilities, or deferred inflows / outflows of resources. It provides for an election on leases with terms of less than twelve months to be excluded from this standard.

GASB Statement 92 – *Omnibus 2020* is effective for reporting periods beginning after June 15, 2021. The objective of this Statement is to improve comparability in financial reporting for leases, pensions, OPEB, and asset retirement obligations.

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 97 – *Certain Component Unit Criteria, and Accounting and Financial Reporting for Internal Revenue Code Section 457, Deferred Compensation Plans* is effective for reporting periods beginning after June 15, 2021. The objective of this Statement is to provide financial reporting consistency in which the potential component unit does not have a governing board and the primary government performs the duties that a governing board would perform. In the absences of a governing board of the potential component unit, the situation should be treated as the same as the primary government appointing a majority of the potential component unit’s governing board.

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, 2021 and 2020

(1) Organization, Basis of Presentation, and Summary of Significant Accounting Policies - Continued**(o) 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 standard and their applicability.

Reclassifications

Certain amounts in the 2020 financial statements have been reclassified to conform to the 2021 presentation.

(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,

	2021	2020
Cost to be recovered through future revenues:		
Pension obligation	\$ 21,656,915	29,011,883
OPEB obligation	38,837,083	35,868,760
Pension:		
Pension related	10,974,837	6,376,916
Differences between expected and actual experience in the total pension liability	258,304	322,880
Changes in assumptions	4,298,997	5,404,986
OPEB:		
OPEB related	-	1,711,102
Changes in assumptions	6,676,502	-
Deferred loss on defeasance	17,304,416	11,858,391
Total:	\$ <u>100,007,054</u>	<u>90,554,918</u>

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2021 and 2020

(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,:

	2021	2020
Contributions to reserves	\$ 16,889,000	1,516,000
Principal payments on long-term debt	31,100,167	29,547,295
Capital expenditures	10,577,512	15,994,961
Depreciation and amortization	(18,278,753)	(18,842,466)
Investment income on project and escrow funds	2,317,231	1,443,163
Other	(1,574,239)	(133,949)
	<u>\$ 41,030,918</u>	<u>29,525,004</u>

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

	2021	2020
Debt service	\$ 183,121,817	167,495,770
Capital improvements	649,935,884	628,479,677
Pension:		
Differences between expected and actual experience - pension	6,396,205	8,010,786
Net differences between expected and actual earnings on plan investments - pension	9,135,934	4,093,997
OPEB:		
OPEB related	3,691,187	-
Differences between expected and actual experience in the total OPEB liability	724,326	845,047
Changes of assumptions	384,262	453,808
Net differences between projected and actual earnings on OPEB plan investments	1,876,727	412,247
Working capital	(28,684,431)	(28,684,431)
Self-insurance	2,240,000	2,240,000
	828,821,911	783,346,901
Reduction of future rates	464,760	371,904
Total	<u>\$ 829,286,671</u>	<u>783,718,805</u>

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2021 and 2020

(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, 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	127,045,760	48,868,760	-	(28,094,153)	147,820,367
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	1,800,531,319	3,776,321	-	28,094,153	1,832,401,793
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	455,219,341	27,439,948	-	-	482,659,289
Total capital assets being depreciated, net	1,345,311,978	(23,663,627)	-	28,094,153	1,349,742,504
Capital assets, net	\$ 1,472,357,738	25,205,133	-	-	1,497,562,871

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2021 and 2020

(4) Capital Assets - Continued

	Balance at December 31, 2019	Additions	Disposals	Reclassifications	Balance at December 31, 2020
Capital assets, not being depreciated:					
Land	\$ 5,884,243	-	-	-	5,884,243
Construction in progress	127,874,992	50,493,005	-	(57,206,480)	121,161,517
Total capital assets, not being depreciated	133,759,235	50,493,005	-	(57,206,480)	127,045,760
Capital assets, being depreciated:					
Buildings and improvements	68,112,671	-	-	-	68,112,671
Machinery and equipment	41,095,623	3,390,487	-	819,170	45,305,280
Infrastructure	1,630,711,019	15,039	-	56,387,310	1,687,113,368
Total capital assets, being depreciated	1,739,919,313	3,405,526	-	57,206,480	1,800,531,319
Less: accumulated depreciation for:					
Buildings and improvements	33,815,899	1,624,974	-	-	35,440,873
Machinery and equipment	28,091,580	5,024,790	-	-	33,116,370
Infrastructure	366,070,587	20,591,511	-	-	386,662,098
Total accumulated depreciation	427,978,066	27,241,275	-	-	455,219,341
Total capital assets being depreciated, net	1,311,941,247	(23,835,749)	-	57,206,480	1,345,311,978
Capital assets, net	\$ 1,445,700,482	26,657,256	-	-	1,472,357,738

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2021 and 2020

(5) Long-Term Obligations

Long term liabilities at December 31, consist of:

	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	555,490,149	219,611,803	(186,889,109)	588,212,843	36,793,887
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	66,877,376	4,652,060	(7,667,944)	63,861,492	-
Total long-term liabilities	622,367,525	224,263,863	(194,557,053)	652,074,335	36,793,887
	Balance at December 31, 2019	Additions	Reductions	Balance at December 31, 2020	Current Portion
Notes payable:					
Long-term notes	\$ 31,334,078	7,474,132	(5,837,295)	32,970,915	5,935,167
Revenue bonds	517,235,000	-	(23,710,000)	493,525,000	24,790,000
Revenue bonds premiums	33,749,206	-	(4,754,972)	28,994,234	4,407,776
Total notes payable and bonds	582,318,284	7,474,132	(34,302,267)	555,490,149	35,132,943
Other long-term liabilities					
Net pension liability	34,808,595	-	(5,796,712)	29,011,883	-
Net OPEB liability	45,642,150	-	(9,773,390)	35,868,760	-
Other long-term liabilities	1,687,510	798,997	(489,774)	1,996,733	-
Total other long-term liabilities	82,138,255	798,997	(16,059,876)	66,877,376	-
Total long-term liabilities	664,456,539	8,273,129	(50,362,143)	622,367,525	35,132,943

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2021 and 2020

(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, 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, 2021 and 2020

(5) Long-Term Obligations - Continued

(a) Revenue Bonds - Continued

Description	Balance at December 31, 2019	Additions	Reductions	Balance at December 31, 2020	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	\$ 12,700	-	2,200	10,500	2,400
2009 Series A, bearing interest ranging from 3.0% to 5.0% issued March 26, 2009, maturing 2010 to 2028	685	-	685	-	-
2009 Series B, bearing interest ranging from 3.0% to 5.0% issued March 26, 2009, maturing 2009 to 2021	7,500	-	3,660	3,840	3,840
2010 Series A, bearing interest ranging from 2.5% to 5.0% issued January 26, 2010, maturing 2010 to 2031	5,400	-	5,400	-	-
2012 Series A, bearing interest ranging from 3.0% to 5.0% issued June 6, 2012, maturing 2015 to 2037	96,475	-	9,790	86,685	10,190
2014 Series A, bearing interest ranging from 3.0% to 5.0% issued July 22, 2014, maturing 2017 to 2044	99,700	-	500	99,200	500
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	60,155	-	475	59,680	6,860
2016 Series B, bearing interest ranging from 3.0% to 5.0% issued September 13, 2016, maturing 2017 to 2046	83,460	-	500	82,960	500
2018 Series A, bearing interest ranging from 3.0% to 5.0% issued May 30, 2018, maturing 2020 to 2048	78,400	-	500	77,900	500
	517,235	-	23,710	493,525	24,790
Unamortized issue premiums/discounts	33,749	-	4,755	28,994	4,408
Net revenue bonds	\$ 550,984	-	28,465	522,519	29,198

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2021 and 2020

(5) Long-Term Obligations - Continued

(a) Revenue Bonds - Continued

Debt principal and interest maturities for future years as of December 31, 2021 are as follows (amounts in thousands):

	Revenue bonds	
	Principal	Interest
2022	26,140	17,371
2023	27,325	16,147
2024	28,650	14,862
2025	29,235	13,801
2026	26,960	12,701
2027-2031	126,535	49,170
2032-2036	94,450	33,751
2037-2041	80,605	20,924
2042-2046	67,140	7,923
2047-2051	15,300	829
	<u>\$ 522,340</u>	<u>187,479</u>

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, 2021 and 2020 totaled \$(2,972,395) and \$(3,266,754) 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, 2021, and 2020, approximately \$44.3M and \$45.7M, respectively, 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, 2021 and 2020

(5) Long Term Obligations - Continued**(b) Prior Year Debt Refunding (Defeasements)**

In the aggregate, \$358,695,000 and \$237,625,000 remains outstanding at December 31, 2021 and 2020, 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:

	2021	2020
Trustee:		
U.S. Government agency obligations	\$ 113,925,484	44,655,700
Money market	62,708,642	109,383,468
Repurchase agreements	8,416,250	8,416,250
	<u>185,050,376</u>	<u>162,455,418</u>
Nontrustee:		
Cash	45,464,947	49,014,234
Money market	2,085,239	1,883,803
Open-ended mutual funds	32,388,089	23,295,947
	<u>79,938,275</u>	<u>74,193,984</u>
Restricted cash and investments	264,988,651	236,649,402
Less nontrustee cash	<u>(45,464,947)</u>	<u>(49,014,234)</u>
Trustee and nontrustee investments	<u>\$ 219,523,704</u>	<u>187,635,168</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, 2021 and 2020

(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,

Description	Balance at December 31, 2020	Additions	Reductions	Balance at December 31, 2021	Amounts due within one year
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	\$ 32,970,915	13,014,572	5,935,166	40,050,321	6,835,211

Description	Balance at December 31, 2019	Additions	Reductions	Balance at December 31, 2020	Amounts due within one year
MWRA I/I Program Phase VIII, interest free, due May 15, 2022	\$ 618,064	-	206,022	412,042	206,022
MWRA I/I Program Phase IX, interest free, due May 15, 2029	2,124,740	-	464,322	1,660,418	464,322
MWRA S.A.P. Program, interest free, due November 15, 2028	27,941,732	7,474,133	4,517,410	30,898,455	5,264,823
MWRA P.A.P. Program, interest free, due August 15, 2020	649,542	-	649,542	-	-
Total long-term notes	\$ 31,334,078	7,474,133	5,837,296	32,970,915	5,935,167

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2021 and 2020

(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):

2022	\$ 6,835
2023	5,781
2024	5,337
2025	4,738
2026	4,351
2027-2032	13,008
	<u>\$ 40,050</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, 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>

Description	Balance at December 31, 2019	Additions	Reductions	Balance at December 31, 2020
Commercial paper notes, Bank of America program due December 3, 2020 through March 3, 2021	\$ 20,000,000	30,000,000	-	50,000,000
Total short-term notes	<u>\$ 20,000,000</u>	<u>30,000,000</u>	<u>-</u>	<u>50,000,000</u>

Subsequent to year end the Commission extended the due date of the outstanding commercial paper to September 17, 2022. Additionally in March 2022 the Commission issued an additional \$20 million of commercial paper to finance capital expenditures.

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2021 and 2020

(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>2021</u>	<u>2020</u>
Assessments based on:		
Water usage	\$ 95,971,920	95,459,497
Wastewater usage	<u>147,424,304</u>	<u>145,900,675</u>
Total	<u>\$ 243,396,224</u>	<u>241,360,172</u>

(8) Transactions with the City of Boston

Departments of the City of Boston were billed approximately \$4.1 million and \$4.0 million during 2021 and 2020, 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 \$633,000 and \$1,079,000 during the years ended December 31, 2021 and 2020, respectively, and capital costs billed by the City were approximately \$40,000 and \$922,000 during the years ended December 31, 2021 and 2020, 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, 2021 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, 2021 and 2020

(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, 2021 and 2020).

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, 2021 and 2020

(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, 2021, 2020 and 2019, amounted to \$5,464,716, \$2,800,819, \$3,166,395, 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 \$6,542,535, \$6,208,445 and \$5,951,949, or 17.3%, 16.0%, 16.8% of covered payroll in 2021, 2020 and 2019, respectively. At December 31, 2021 and 2020, the Commission had an immaterial deficiency in contributions covered by net excess contribution to the pension plan at December 31, 2021.

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, 2021 and 2020, the Commission reported a liability of \$21.7 million and \$29.0 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, 2021 and 2020, the reporting date, was measured as of December 31, 2021 and 2020, 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, 2020, rolled forward to December 31, 2021 and 2020, respectively. At December 31, 2021 and 2020, the Commission's proportion was 3.77% and 3.76%, 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, 2021 and 2020, 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, 2021 and 2020

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

	2021	2020
<u>Deferred Outflows of Resources</u>		
Differences between expected and actual experience	258,304	322,880
Changes in assumptions	4,298,997	5,404,986
Total	\$ <u>4,557,301</u>	<u>5,727,866</u>
<u>Deferred Inflows of Resources</u>		
Net difference between projected and actual earnings on pension plan investments	\$ 9,135,934	4,093,997
Differences between expected and actual experience	6,396,205	8,010,786
Total	\$ <u>15,532,139</u>	<u>12,104,783</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,**

2022	(1,472,961)
2023	(4,641,506)
2024	(2,341,646)
2025	(1,953,559)
2026	(565,166)
	\$ <u>(10,974,838)</u>

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2021 and 2020

(9) Pension Benefits - Continued**(e) Actuarial Assumptions**

The total pension liability as of December 31, 2021 and 2020, 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 \$14,000

For 2021 and 2020, 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, 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%	

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2021 and 2020

(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, 2020 are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return
Domestic equity	25.00%	6.28%
International developed markets equity	14.00%	7.00%
International emerging markets equity	9.00%	8.82%
Core fixed income	18.00%	0.38%
Real Estate	10.00%	3.50%
Commodities	2.00%	3.45%
Hedge fund, GTAA, Risk parity	17.00%	2.35%
Private equity	5.00%	10.11%
Total	100.00%	

(f) Discount Rate

The discount rate used to measure the total pension liability was 7.00% for 2021 and 2020. 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, 2021 and 2020, 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:

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

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2021 and 2020

(9) Pension Benefits - Continued

(f) Discount Rate - Continued

	2020	
	Current Discount	
1.00% Decrease	Rate	1.00% Increase
<u>(6.00%)</u>	<u>(7.00%)</u>	<u>(8.00%)</u>
\$47,778,810	\$29,011,883	\$13,091,153

(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, 2019, the valuation date for years ended December 31, 2021 and 2020, 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, 2021 and 2020, the Commission's average contribution rate was 18.32% and 9.96%, respectively, of covered-employee payroll. At December 31, 2020, the Commission had an immaterial deficiency in contributions covered by net excess contribution to the OPEB plan. There was no deficiency as of December 31, 2021.

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2021 and 2020

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

(c) Employees Covered by Benefit Terms

As of December 31, 2019, the date of the latest actuarial validation, plan participation consisted of:

Actives employees	243
Retirees and beneficiaries	<u>391</u>
Total	<u>634</u>

(d) Net OPEB Liability and Actuarial Assumptions

The Commission's net OPEB liability of \$38,837,083 and \$35,868,760 was measured as of December 31, 2021 and 2020, respectively, and was determined by an actuarial valuation as of December 31, 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 2021; 6.25% for 2020
Investment Rate of Return:	6.25% for 2020; 6.25% for 2020

Health care trend rates for Medicare and non-Medicare are 6.875% decreasing by 0.25% for ten 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 2021 and 2020, 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 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, 2021 and 2020

(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:

Asset Class	2021	
	Target Allocation	Long-Term Expected Real Rate of Return
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	100.00%	

Asset Class	2020	
	Target Allocation	Long-Term Expected Real Rate of Return
Domestic equity	24.00%	6.15%
International developed markets equity	16.00%	6.78%
International emerging markets equity	8.00%	8.65%
Core fixed income	32.00%	1.11%
Hedge fund, GTAA, risk parity	20.00%	3.19%
Total	100.00%	

The discount rate used to measure the total OPEB liability was 6.00% and 6.25% as of December 31, 2021 and 2020, 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, 2021 and 2020

(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, 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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The components of the net OPEB liability for the Plan as of December 31, 2020:

Total OPEB Liability	\$ 66,842,443
Fiduciary net position	(30,973,683)
Commission's net OPEB liability	<u>\$ 35,868,760</u>

Fiduciary net position as a percentage of the total OPEB liability	46.34%
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(e) Change in the Net OPEB Liability

	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	<u>10,818,576</u>	<u>7,850,253</u>	<u>2,968,323</u>
Balances at December 31, 2021	<u>\$ 77,661,019</u>	<u>\$ 38,823,936</u>	<u>\$ 38,837,083</u>

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2021 and 2020

(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, 2019	\$ 74,480,894	\$ 28,838,744	\$ 45,642,150
Changes for the year:			
Service cost	2,190,830	-	2,190,830
Interest	4,891,289	-	4,891,289
Change of benefit terms	(10,574,843)	-	(10,574,843)
Differences between expected and actual experience	(965,764)	-	(965,764)
Contributions - employer	-	3,867,341	(3,867,341)
Net investment income	-	1,155,302	(1,155,302)
Changes of Assumptions	(292,259)	-	(292,259)
Benefit payments	(2,887,704)	(2,887,704)	-
Net changes	(7,638,451)	2,134,939	(9,773,390)
Balances at December 31, 2020	\$ 66,842,443	\$ 30,973,683	\$ 35,868,760

(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 56):

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
2020			
Discount Rate			
	1.00% Decrease (5.25%)	Current Rate (6.25%)	1.00% Increase (7.25%)
Net OPEB Liability	\$44,266,173	\$35,868,760	\$28,818,802
Health Care Rate			
	1.00% Decrease	Trend Rate	1.00% Increase
Net OPEB Liability	\$27,605,482	\$35,868,760	\$45,959,680

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2021 and 2020

(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, 2021 and 2020, the Commission reported deferred outflows of resources and deferred inflows of resources related to OPEB as follows:

	<u>2021</u>	<u>2020</u>
<u>Deferred Outflows of Resource:</u>		
Change in assumptions	6,676,502	-
Total	<u>6,676,502</u>	<u>-</u>
 <u>Deferred Inflows of Resources</u>		
Change in assumptions	\$ 384,262	453,808
Net difference between projected and actual earnings on OPEB plan investments	1,876,727	412,247
Difference between expected and actual experience	<u>724,326</u>	<u>845,047</u>
Total	<u>\$ 2,985,315</u>	<u>1,711,102</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 June 30,</u>	
2022	\$ 329,710
2023	(70,294)
2024	534,072
2025	383,861
2026	763,519
Thereafter	<u>1,750,319</u>
	<u>\$ 3,691,187</u>

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2021 and 2020

(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, 2021, and 2020, the cash balances of uninsured and uncollateralized deposits totaled \$64,793,881 and \$111,267,27, 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, 2021 and 2020

(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,:

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>
2020					
Investment type	Fair value	Less than 1	1-5	6-10	More than 10
U.S. Government agencies	\$ 44,655,700	-	1,027,690	3,102,456	40,525,554
Guaranteed investment contract	8,416,250	-	-	8,416,250	-
Money market	111,267,271	111,267,271	-	-	-
Open ended mutual funds	23,295,947	23,295,947	-	-	-
	<u>\$ 187,635,168</u>	<u>134,563,218</u>	<u>1,027,690</u>	<u>11,518,706</u>	<u>40,525,554</u>

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2021 and 2020

(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, 2021 and 2020 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	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>

Investment type	2020			
	Fair value	AAA	AA	Not Rated
U.S. Government agencies	\$ 44,655,700	8,531,202	-	36,124,498
Guaranteed investment contract	8,416,250	-	-	8,416,250
Money market	111,267,271	-	111,267,271	-
Open ended mutual funds	23,295,947	23,295,947	-	-
	<u>\$ 187,635,168</u>	<u>31,827,149</u>	<u>111,267,271</u>	<u>44,540,748</u>

As of December 31, 2021, and 2020, the Commission had \$41,015,643 and \$36,124,498, 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, 2021 and 2020. Individually, these investments in money market funds range between \$15 million and \$36 million for 2021 and \$10 million and \$42 million for 2020. In the aggregate, they approximate \$72 million and \$93 million for the years ended December 31, 2021 and 2020, respectively.

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2021 and 2020

(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 \$53.2 million as of December 31, 2021.

The Commission has committed to capital improvement projects of approximately \$183.0 million for 2022 through 2023, 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 \$136.4 million represents extension and improvement projects and \$46.6 million represents renewal and replacement projects. The extension and improvement projects will be 23% 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.

(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, \$6 million aggregate; \$500,000 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, 2021 and 2020

(13) Risk Management and Other Insurance - Continued

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

	<u>2021</u>	<u>2020</u>
Beginning balance of reserves	\$ 1,996,733	1,687,510
Payment of claims attributable to events of both current and prior years:		
Workers' compensation	-	-
General liability	1,683,737	798,997
Incurring claims	<u>(312,976)</u>	<u>(489,774)</u>
Ending balance of reserves	\$ <u>3,367,494</u>	<u>1,996,733</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, 2021, as well as the PRO payments made during 2021 and 2020, 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 2021, 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, 2021	December 31, 2020	December 31, 2019	December 31, 2018	December 31, 2017	December 31, 2016	December 31, 2015
Valuation date	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, 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	3.77%	3.76%	4.13%	4.28%	4.20%	4.20%	2.60%
Commission's proportionate share of the net pension liability	\$ 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	\$ 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-employee payroll	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	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,

	2021	2020	2019	2018	2017	2016	2015
Contractually required contribution	\$ 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	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>\$ 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	\$ 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-employee payroll	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, 2021 and 2020

Note 1 -

Change in Assumptions

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, 2021	December 31, 2020	December 31, 2019	December 31, 2018
Total OPEB liability:				
Service cost	\$ 2,041,742	2,190,830	\$ 2,134,311	\$ 2,069,043
Interest	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	-	(965,764)	-	-
Change in assumptions	7,630,285	(292,259)	(264,108)	-
Benefit payments	<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	10,818,576	(7,638,451)	3,733,551	3,983,812
Total OPEB liability, beginning of year	<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>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	6,958,809	3,867,341	4,200,341	6,301,842
Net investment income	3,955,845	1,155,302	4,519,177	(596,759)
Benefit payments	<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	7,850,253	2,134,939	5,936,022	3,225,066
Plan fiduciary net position, beginning of year	<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>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>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	49.99%	46.34%	38.72%	32.37%
Covered payroll	\$ 37,976,646	38,809,388	\$ 35,533,839	\$ 35,472,896
Net OPEB liability as a percentage of covered payroll	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,

	2021	2020	2019	2018
Actuarially determined contribution	\$ 4,256,512	\$ 4,077,414	\$ 4,859,090	\$ 4,688,044
Contribution in relation to the actuarially determined contribution	6,958,809	3,867,341	4,200,341	6,301,842
Contribution deficiency (excess)	<u>\$ (2,702,297)</u>	<u>\$ 210,073</u>	<u>\$ 658,749</u>	<u>\$ (1,613,798)</u>
Covered payroll	\$ 37,976,646	\$ 38,809,388	\$ 35,533,839	\$ 35,472,896
Contributions as a percentage of covered-employee payroll	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, 2021 and 2020

Note 1 - **Change in Assumptions**

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,

	2021	2020
Revenues		
Water revenue	\$ 170,438,964	151,395,689
Sewer revenue	232,227,292	212,105,684
Subtotal	402,666,256	363,501,373
Less:		
Adjustments	11,827,391	10,720,098
Discounts	3,015,493	1,321,341
Bad debt	41,375	51,057
Subtotal	14,884,259	12,092,496
Net billed charges	387,781,997	351,408,877
Prior year surplus	371,904	689,553
Miscellaneous revenues:		
Late charge revenue	1,976,793	350,258
Investment income	2,059,556	1,980,534
Fire pipe revenue	5,222,027	5,110,863
Other income	6,780,259	24,379,632
Total revenues	404,192,536	383,919,717
Direct operating expenses:		
Salaries and wages	49,672,729	44,008,211
Overtime wages	1,541,885	1,229,981
Fringe benefits	8,828,146	8,652,971
Supplies and materials	2,317,310	2,195,934
Repairs and maintenance	12,958,569	10,745,786
Utilities	1,452,560	1,456,755
Professional services	3,012,331	3,288,593
Space and equipment rentals	319,735	291,919
Other services	1,543,822	1,428,584
Insurance	981,380	949,730
Travel and training	33,995	17,890
Damage claims	315,847	4,160
Inventory	13,540	5,840
Capital outlay	46,492	46,574
Total direct operating expenses	83,038,341	74,322,928
Nonoperating expenses:		
MWRA assessment	243,396,224	241,360,172
Capital improvements	10,531,019	15,948,387
Principal payments	31,100,167	29,547,295
Interest expense	18,557,588	20,632,346
Deposits to reserve funds	16,889,000	1,516,000
SDWA assessment	215,437	220,685
Total nonoperating expenses	320,689,435	309,224,885
Total current expenses	403,727,776	383,547,813
Current year rate surplus	\$ 464,760	371,904

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 Auditors' Report.

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Statistical Section

2021 - 2020

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 78-80.

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 81-84.

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 85 and 86.

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 87-90.

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 91-94.

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

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
								*		
Net investment in capital assets:	\$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	\$717,850,640
Restricted for debt service:	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	43,969,633
Restricted for capital assets:	163,505	471,799	212,933	202,791	200,300	199,829	200,044	0	100,002	157,941
Restricted for debt covenants:	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	50,927,908
Unrestricted:	(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)	(450,206,031)
Total net position:	<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>	<u>\$362,700,091</u>

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

Source: Commission's Financial Statements.

Statistical Section

Table 2
Changes in Net Position
Last Ten Fiscal Years Summary

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
<i>Operating Revenues:</i>				*		*				
Water usage	\$ 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	\$ 130,192,168
Sewer usage	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	163,206,107
Fire pipe	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	4,107,752
Other income	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	5,556,810
<i>Total Operating Revenues:</i>	414,668,545	393,342,126	386,648,379	379,861,682	363,057,230	361,641,962	349,001,618	327,220,182	315,789,674	303,062,837
<i>Operating & Maintenance Expenses:</i>										
Operations	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	57,403,354
Maintenance	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	5,056,953
MWRA assessment (Water)	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	66,818,991
MWRA assessment (Sewer)	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	109,134,450
<i>Total Operating Expenses:</i>	341,605,466	329,213,671	324,774,856	314,832,355	272,766,689	265,536,919	257,314,750	247,508,907	241,143,579	238,413,748
Operating income before depreciation:	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	64,649,089
Depreciation & amortization	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	17,564,424
<i>Excess Operating Revenues:</i>	45,623,131	36,887,180	36,052,606	40,811,844	70,415,260	73,093,618	75,005,877	62,374,597	56,663,149	47,084,665
<i>Non-Operating Revenues (Expenses):</i>										
Interest income	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	9,093,897
Interest expense	(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)	(17,792,962)
<i>Total Nonoperating Expenses:</i>	(11,509,767)	(14,852,091)	(13,105,159)	(12,948,921)	(16,835,510)	(13,482,318)	(18,378,619)	(13,666,324)	(10,184,468)	(8,699,065)
<i>Excess revenues before capital grants & contributions & transfer requirements:</i>	34,113,364	22,035,089	22,947,447	27,862,923	39,524,138	59,611,300	56,627,258	48,708,273	46,478,681	38,385,600
Capital grants and contributions	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	14,322,098
<i>Excess revenues before transfer requirements:</i>	51,916,924	24,595,236	36,659,463	33,845,463	70,073,704	62,965,852	76,125,653	76,391,211	56,264,537	52,707,698
Excess revenues used										
to fund reserves & other deferrals	(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)	(19,100,788)
Change in accumulated revenues										
used to offset future rates	(92,856)	317,649	(13,1347)	(132,363)	(177,678)	(27,773)	(99,742)	(25,974)	90,431	(88,179)
<i>Change in Net Position:</i>	\$ 10,793,150	(\$ 4,612,119)	\$ 3,322,483	(\$ 18,365,707)	\$ 38,442,365	\$ 33,228,380	\$ 45,587,359	\$ 50,093,862	\$ 28,495,524	\$ 33,518,731

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

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

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

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Revenues:										
Water Revenue	\$ 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	\$ 130,192,168
Sewer Revenue	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	163,206,107
Subtotal	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	293,398,275
Less:										
Adjustments	(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)	(7,666,138)
Discounts	(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)	(915,322)
Bad Debt	(41,375)	(51,057)	(378,627)	(1,111,957)	(36,131)	(358,043)	(223,168)	(484,363)	(58,617)	(85,777)
Subtotal	(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)	(8,667,237)
Net Billed Charges	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	284,731,038
Prior Year Surplus	371,904	689,553	558,206	570,607	689,086	521,427	389,062	211,384	183,611	83,871
Miscellaneous Revenues:										
Late Charges Revenue	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	1,272,253
Investment Income	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	3,873,877
Fire Pipe Revenue	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	4,107,752
Other Income	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	5,556,810
Total Revenues	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	299,625,601
Direct Operating Expenses										
Salaries and Wages	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	32,324,690
Overtime	1,541,885	1,229,981	1,185,585	911,159	863,588	752,156	789,500	778,642	815,128	710,291
Fringe Benefits	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	7,260,028
Supplies and Materials	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	2,413,099
Repairs and Maintenance	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	5,441,001
Utilities	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	974,913
Professional Services	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	2,769,362
Space and Equipment Rentals	319,735	291,919	331,653	236,964	303,229	271,702	251,778	235,693	663,354	37,985
Other Service	1,543,822	1,428,584	1,773,605	1,822,935	1,829,979	1,639,759	1,560,244	1,506,245	1,294,110	1,233,922
Insurance	981,380	949,730	717,545	491,401	508,943	509,104	533,935	629,990	764,915	756,934
Inventory	13,540	5,840	62,912	15,104	67,629	70,721	10,778	50,864	30,082	22,235
Capital Outlay	46,492	46,574	257,515	40,060	84,415	4,850	76,327	66,283	180,699	70,624
Travel and Training	33,995	17,890	17,870	79,542	21,183	21,871	73,004	16,759	15,207	18,622
Damage Claims	315,847	4,160	86,952	286,008	59,986	75,494	61,729	57,684	64,941	113,681
Total Direct Operating Expenses	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	54,147,387
Indirect Operating Expenses:										
MWRA Assessment	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	184,878,521
Capital Improvement	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	16,056,935
Debt Service	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	43,814,254
Contractual Funding Obligation	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	340,000
SDWA Assessment	215,437	220,685	194,650	203,864	202,703	195,452	198,327	200,249	200,761	204,893
Total Indirect Operating Expense	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	245,294,603
Total Current Expenses	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	299,441,990
Current Year Rate Surplus	\$ 464,760	\$ 371,904	\$ 689,553	\$ 558,206	\$ 570,607	\$ 689,086	\$ 521,427	\$ 389,062	\$ 211,384	\$ 183,611

Table 4
Largest Users
Last Ten Fiscal Years Summary

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Boston Housing Authority	\$15,732,313	\$15,119,929	\$13,916,690	\$14,003,864	\$13,695,722	\$13,103,520	\$12,401,671	\$11,425,569	\$11,025,244	\$10,318,374
Boston University	8,079,505	6,547,609	6,642,531	5,510,319	5,217,745	5,279,716	5,058,751	4,874,395	4,519,170	4,418,085
Medical Area Total Energy Corp.	7,042,718	6,184,872	5,625,036	5,259,107	4,790,849	4,829,379	4,764,461	4,329,129	4,088,165	4,088,165
Massachusetts Port Authority	6,808,331	5,606,919	7,323,360	6,700,563	6,166,613	6,081,386	6,485,058	5,137,581	4,967,750	4,608,693
Partners Healthcare	5,966,433	5,367,076	5,238,058	4,819,019	4,361,704	4,596,488	4,148,734	3,605,193	3,931,585	4,273,370
City of Boston	4,154,990	3,981,095	4,686,210	4,228,502	4,017,547	4,305,719	4,186,332	3,665,894	5,309,393	6,056,004
Veolia Boston Energy Corp	3,645,015	3,097,681	2,856,705	3,374,043	2,761,587	3,033,636	2,911,497	2,552,840	3,295,210	2,610,143
Northeastern University	3,041,454	2,505,430	3,412,721	2,868,355	2,777,146	2,730,145	2,609,630	2,571,407	2,531,937	2,506,052
Brigham and Women's Hospital	2,690,775	2,686,564	2,409,372	2,204,619	1,964,995	1,964,754	1,975,281	1,848,262	1,857,475	1,927,653
Boston Medical Center Corp.	2,279,077	1,935,065	2,943,962	4,054,598	3,494,684	3,434,645	3,147,780	2,977,920	3,371,101	3,594,812
Boston Properties LP (PRU)	2,174,635	1,919,398	2,793,157	2,962,946	2,542,794	2,176,143	2,410,207	2,430,536	2,383,931	2,264,170
Harbor Point	2,080,472	1,813,517	1,665,956	1,626,480	1,633,149	1,626,169	1,535,910	1,458,262	1,397,938	1,321,189
Harvard University	2,048,578	2,022,199	3,293,948	3,512,632	3,299,332	3,887,734	4,007,555	3,632,434	3,451,161	3,321,715
Boston College	1,758,757	*	*	*	*	*	*	*	*	*
Children's Hospital	1,692,161	1,238,471	1,265,198	*	*	*	*	*	*	*
EDIC	1,600,371	1,532,724	*	*	*	*	*	*	*	*
Beth Israel Hospital	1,480,505	1,246,190	1,367,702	1,368,967	1,301,944	1,397,939	1,265,430	1,099,090	*	1,015,048
Equity Residence Properties Inc.	1,285,477	1,224,424	2,017,821	2,017,821	1,990,081	2,119,004	2,066,848	1,857,822	1,859,958	1,920,047
Tufts N/E Medical Center Inc.	1,270,124	*	*	*	*	*	*	*	*	*
Mission Main LMTD	1,260,055	1,191,199	*	*	*	*	*	*	*	*
Total	\$76,091,745	\$65,220,362	\$67,458,425	\$64,511,835	\$60,015,893	\$60,566,377	\$58,975,145	\$53,466,334	\$53,990,018	\$54,243,520
% of Total Operating Revenue	18.35%	16.58%	17.45%	16.98%	16.53%	16.75%	16.90%	16.41%	17.10%	17.90%
Operating Revenue	414,668,545	393,342,126	386,648,379	379,861,682	363,057,230	361,641,962	349,001,618	325,863,866	315,789,674	303,062,836

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
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%
2012	64.3	54.7	85.0%

(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
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%
2012	271,843,871	276,144,828	101.58%

Source: Commission's Billing System (UMAX)

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

2021

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	\$81.16	\$10.850
Next 20	63.64	8.508	88.29	11.804
Next 50	69.40	9.279	95.27	12.737
Next 260	73.97	9.890	100.60	13.449
Next 950	77.86	10.409	106.72	14.268
Over 1299	81.05	10.836	110.79	14.812

2012

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	\$42.83	\$5.725	\$55.45	\$7.414
Next 20	44.83	5.994	57.16	7.642
Next 50	46.69	6.242	58.31	7.796
Next 260	49.64	6.636	61.52	8.225
Next 950	51.80	6.925	64.92	8.677
Over 1299	53.62	7.169	67.16	8.979

The average one family customer using 180 gallons per day (“GPD”) in 2021 will be charged \$106.75 per 31-day month or approximately \$1256.93 annually. A multi-unit residence using 600 GPD will be charged \$387.56 per 31-day month or approximately \$4,563.15 annually. A small commercial property using 4,000 GPD will be charged \$2,902.41 per 31- day month or approximately \$34,173.50 annually.

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
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%
2012	431,632	26,427	49,437	507,496	637,516	796	22,009,755	2.31%

* Source U.S. Census Bureau, Population Division, Population Estimates Program, 2018 (preliminary estimate subject to revision)

** 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)

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Cash Receipts*	409,774	382,187	375,863	373,194	358,235	358,026	345,972	321,348	313,317	295,979
Transfers**	(327,103)	(316,219)	(317,079)	(306,966)	(302,400)	(305,857)	(278,726)	(263,488)	(257,281)	(247,076)
Net Revenues	82,671	65,968	58,784	66,228	55,835	52,169	67,246	57,860	56,036	48,903
Debt Service										
Senior Debts Service	36,265	44,522	45,642	42,779	42,646	38,961	38,141	35,509	35,421	32,959
Total Debt Service	36,265	44,522	45,642	42,779	42,646	38,961	38,141	35,509	35,421	32,959
Debt Coverage										
Senior Coverage	228%	148%	129%	155%	131%	134%	176%	163%	158%	148%
Total Coverage	228%	148%	129%	155%	131%	134%	176%	163%	158%	148%

* 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

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
United States										
Total Personal Income(\$000)	\$21,056,622	\$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	\$13,401,868,693
Per Capita Income (\$)	\$63,444	\$59,147	\$56,474	\$64,327	\$51,731	\$49,204	\$48,190	\$46,129	\$44,765	\$42,693
Population	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	313,914,040
Employment	N/A	190,776,800	203,809,500	200,746,000	196,132,200	193,668,400	190,195,400	185,798,800	182,278,200	179,603,300
New England										
Total Personal Income (\$000)	\$1,156,875	\$1,086,528	\$1,035,507	\$1,008,436	\$927,575,829	\$903,272,776	\$886,594,738	\$831,543,055	\$801,066,757	\$763,754,701
Per Capita Income (\$)	\$76,651	\$71,949	\$69,733	\$68,003	\$64,334	\$61,207	\$60,271	\$56,642	\$54,797	\$52,446
Population	15,092,739	15,101,332	14,849,662	14,829,322	14,853,290	14,757,573	14,710,229	14,680,722	14,618,806	14,562,704
Employment	N/A	9,337,320	10,127,365	10,032,617	9,886,800	9,795,354	9,571,509	9,378,271	9,217,266	9,125,273
Massachusetts										
Total Personal Income (\$000)	\$576,064	\$540,855	\$511,334	\$483,657,400	\$463,930,700	\$437,551,353	\$425,352,524	\$399,204,457	\$383,152,205	\$363,459,345
Per Capita Income (\$)	\$82,475	\$77,021	\$74,161	\$70,073	\$67,596	\$64,122	\$62,697	\$59,182	\$57,248	\$54,687
Population	6,984,723	7,022,220	6,894,883	6,902,149	6,863,246	6,823,721	6,784,240	6,745,408	6,692,824	6,646,144
Employment	N/A	4,522,091	4,936,751	4,872,851	4,777,678	4,720,200	4,542,723	4,428,064	4,322,176	4,250,566
Metropolitan Boston(1)										
Total Personal Income (\$000)	N/A	180,910,263	397,139,161	383,664,542	358,021,100	336,362,967	327,531,997	308,732,928	289,275,938	284,366,840
Per Capita Income (\$)	N/A	88,911	81,498	78,694	74,024	70,157	68,712	65,142	61,754	61,258
Population	N/A	2,034,729	4,873,019	4,875,390	4,836,531	4,794,447	4,766,755	4,739,385	4,684,299	4,642,095
Employment	N/A	1,538,029	3,743,187	3,689,664	3,610,562	3,562,104	3,493,027	3,344,480	3,239,069	3,173,395

(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
2021	654,776	N/A	N/A	N/A
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%
2012	637,516	22,034,466	32,413	6.0%

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

2021		
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%

2012		
Account Type by Land Code	Number of Accounts	% of Total Accounts
Residential	66,381	75.8%
Residential (other)	9,284	10.6%
Commercial	7,160	8.2%
Tax Exempt	3,755	4.3%
Industrial	941	1.1%
Total By Land Code	87,521	100.0%

Source: Commission's billing system.

Table 13
Largest Private Employers
Current and Nine Years Ago

Employer	Year End 2021			Year End 2012		
	Employees	Rank	Percentage of Total City Employment	Employees	Rank	Percentage of Total City Employment
Massachusetts General Hospital	17,575	1	2.10%	14,207	1	2.15%
Brigham and Women's Hospital	13,785	2	1.40%	11,607	2	1.76%
Boston University	10,406	3	1.20%	9,301	3	1.41%
Beth Israel Deaconess Medical Center	8,599	4	1.00%	7,192	5	1.09%
Boston Children's Hospital,	7,945	5	0.90%	7,603	4	1.15%
State Street Bank & Trust Company	7,500	6	0.90%	5,600	7	0.85%
Boston Medical Center Corporation	6,705	7	0.80%			
Harvard University Graduate Schools	6,532	8	0.80%	4,875	9	0.74%
Northeastern University	6,332	9	0.70%			
Fidelity Investments	5,950	10	0.70%	5,467	8	0.83%
Liberty Mutual Holding Company				7,125	6	1.08%
Tufts Medical Center				3,915	10	0.59%
Total	91,329		10.50%	76,892		11.65%

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

Note 2: No new survey was made available in 2020. The figures shown are from 2017.

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

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Executive	37	36	36	36	35	34	32	32	52	52
Executive Director	3	4	4	5	4	4	3	3	4	4
Organizational Diversity	4	3	3	2	7	7	6	3	3	3
Labor Relations	0	0	0	0	3	3	4	11	4	4
General Counsel	15	14	14	15	14	13	12	15	12	12
Human Resources	9	8	8	8	7	7	7	-	-	-
MIS	-	-	-	-	-	-	-	-	29	29
Safety and Training	6	7	7	6	-	-	-	-	-	-
Operations	206	206	206	205	206	204	209	211	206	210
Chief Operations Officer	4	4	4	-	-	-	-	-	6	6
Director of Operations	0	0	0	3	3	4	4	-	-	-
Operations Services	-	-	-	-	-	-	-	4	-	-
Water & Sewer Services	120	117	117	115	117	114	117	113	125	127
Work Order, Compliance & C. S.	31	32	32	32	32	33	33	35	10	10
Asset Management	32	32	32	34	34	34	35	36	-	-
Facilities & Support Services	19	21	21	21	20	19	20	23	25	26
Fleet	-	-	-	-	-	-	-	-	10	11
Storeroom	-	-	-	-	-	-	-	-	8	8
Enforcement	-	-	-	-	-	-	-	-	22	22
Engineering	82	83	83	84	85	85	83	84	95	89
Chief Engineer	4	4	4	4	6	5	5	5	4	4
Design	31	31	31	32	32	32	32	30	16	16
Planning	7	7	7	8	8	8	7	6	6	4
Construction	40	41	41	40	39	40	39	43	34	32
Eng. Services	-	-	-	-	-	-	-	-	35	33
Administration	126	125	125	126	123	125	128	127	78	78
Chief Admn. Officer	1	1	1	1	1	2	2	2	1	1
Meter Services	32	30	30	31	30	30	30	29	29	29
Account Services	36	35	35	36	36	35	36	38	36	36
Comm. & Community Svcs.	10	10	10	8	7	7	8	7	5	5
Facilities & Support Svcs	20	21	21	20	20	22	22	22	-	-
Information Technology	27	28	28	30	29	29	30	29	-	-
Human Resources	-	-	-	-	-	-	-	-	7	7
Finance	51	52	52	51	53	54	53	54	50	50
CFO	3	3	3	3	4	4	5	6	4	4
Budget	8	8	8	8	8	8	7	7	7	7
Accounting	8	8	8	8	8	8	8	8	8	8
Procurement	3	4	4	4	5	5	5	4	4	4
Financial Services	9	9	9	9	9	9	9	9	9	9
Revenues	20	20	20	19	19	20	19	20	18	18
Total Full Time Employees	502	502	502	502	502	502	505	508	481	479
Percent of Total										
Executive	7.37%	7.17%	7.17%	7.17%	6.97%	6.77%	6.34%	6.30%	10.81%	10.86%
Operations	41.04%	41.04%	41.04%	40.84%	41.04%	40.64%	41.39%	41.54%	42.83%	43.84%
Engineering	16.33%	16.53%	16.53%	16.73%	16.93%	16.93%	16.44%	16.54%	19.75%	18.58%
Administration	25.10%	24.90%	24.90%	25.10%	24.50%	24.90%	25.35%	25.00%	16.22%	16.28%
Finance	10.16%	10.36%	10.36%	10.16%	10.56%	10.76%	10.50%	10.63%	10.40%	10.44%
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

2021

Appurtenances		Water Distribution System:		Pressure Zone	
		Water Main City Wide			
Hydrants	12,750	Total Linear Feet	5,355,890	High Pressure Fire System	15 Miles
MWRA Meters	0	Total Linear Miles	1,014	Northern High	4 Miles
Gate Valves*	17,699	Pumping Stations	1	Northern Low	89 Miles
				Southern Extra High	80 Miles
				Southern High	561 Miles
				Southern Low	265 Miles
		Sewer Distribution System:			
Appurtenances		Sewer Pipes City Wide		Sewer System Code	
Catch Basins	30,316	Total Linear Feet	8,096,751	Combined Sewer	143 Miles
Manholes	49,761	Total Linear Miles	1,533	Combined Sewer Overflow	12 Miles
Outfalls	279	Pumping Stations	8	Sanitary Sewer	710 Miles
Regulators	81			Storm Drain	667 miles
Tide Gates	201				

2012

Division Gates	227	Total Linear Feet	5,320,682	High Pressure Fire System	17 Miles
Hydrants	13,593	Total Linear Miles	1,008	Northern High	5 Miles
MWRA Meters	29			Northern Low	89 Miles
Gate Valves*	18,170			Southern Extra High	81 Miles
				Southern High	560 Miles
				Southern Low	256 Miles
		Sewer Distribution System:			
Appurtenances		Sewer Pipes City Wide		Sewer System Code	
Catch Basins	38,871	Total Linear Feet	8,046,815	Combined Sewer	186 Miles
Manholes	52,344	Total Linear Miles	1,524	Combined Sewer Overflow	4 Miles
Outfalls	495	Pumping Stations	8	Sanitary Sewer	677 Miles
Regulators	168	Active CSO		Storm Drain	657 Miles
Tide Gates	200				

Source: Commission's CIP

* Includes only facilities owned by BWSC

Table 16
Insurance Coverage
Current Year and Nine Years Ago

2021 - 2022

Provider	Policy Period	Type of Coverage	Liability Limits	Annual Premium
Alliant	07/01/21 - 06/30/22	Property	\$250,000,000	\$120,869
Argonaut	07/01/21 - 06/30/22	Vehicles	1,000,000	195,921
Arch	07/01/21 - 06/30/22	Excess Workers Compensation	Statutory	94,380
Various	07/01/21 - 06/30/22	Excess Liability	18,000,000	595,559
Hanover	07/01/21 - 06/30/22	Fidelity and Crime	8,000,000	13,494
U.S. Specialty	07/01/21 - 06/30/22	Fiduciary	5,000,000	21,900
Lloyds of London	07/01/21 - 06/30/22	Cyber	4,000,000	52,837

2012 - 2013

Provider	Policy Period	Type of Coverage	Liability Limits	Annual Premium
Alliant	6/1/12 - 6/1/13	Property	\$151,607,610	\$48,653
Discover RE	6/1/12 - 6/1/13	Automobile	1,000,000	213,972
Discover RE	6/1/12 - 6/1/13	Excess Workers Compensation	25,000,000	109,885
AEGIS	6/1/12 - 6/1/13	Excess Liability	10,000,000	331,732
AEGIS	6/1/12 - 6/1/13	Public Officials Liability	5,000,000	108,181
Great American	6/1/12 - 6/1/13	Fidelity and Crime	5,000,000	11,020
U.S. Specialty	6/1/12 - 6/1/13	Fiduciary	5,000,000	14,791

Source: Commission's General Counsel

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)
1/1/2010	71,120,461	89,057,766	80%	17,937,305	28,871,087	62%
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%

*Covered employee payroll for 2021 as estimated in the January 1, 2022 actuarial valuation and for 2020 as estimated in the January 1, 2021 valuation.

Information provided by Segal Group, Inc. from December 31, 2021 pension valuation report

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Compliance Section

2021 - 2020



**Independent Auditors' 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
Boston, Massachusetts

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, 2021 and the related notes to the financial statements, which collectively comprise Commission's basic financial statements, and have issued our report thereon dated July 27, 2022.

Report on Internal Control over Financial Reporting

In planning and performing our audit of the financial statements, we considered 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 Commission's internal control. Accordingly, we do not express an opinion on the effectiveness of 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 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.

O'Connor and Duen, P.C.

Certified Public Accountants
Braintree, Massachusetts

July 27, 2022

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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