

Boston Water and Sewer Commission



2020 - 2019 *Comprehensive Annual Financial Report*

For the Years Ended December 31, 2020 and 2019

Boston, Massachusetts

BOSTON WATER AND SEWER COMMISSION

Boston, Massachusetts

Comprehensive Annual Financial Report
For the Years Ended December 31, 2020 and 2019



BOARD OF COMMISSIONERS

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Cathleen Douglas Stone, Commissioner
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Henry F. Vitale
Executive Director and Treasurer

Prepared by the Finance Division

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TABLE OF CONTENTS

I. Introductory Section

Letter of Transmittal.....	1
Acknowledgements.....	13
List of Commissioners and Senior Management	14
Organizational Chart.....	15
GFOA Certificate of Achievement	16
Exhibit I – 2020 Revenues and Expenses, Actual vs. Budget	17
Exhibit II – Revenues and Expenses, 2020 Actual vs. 2019 Actual	18

II. Financial Section

Independent Auditors' Report.....	20
Required Supplementary Information:.....	
Management's Discussion and Analysis.....	23
Basic Financial Statements:	
Statements of Net Position	29
Statements of Revenues, Expenses and Changes in Net Position	30
Statements of Cash Flows	31
Statements of Fiduciary Net Position.....	32
Statements of Changes in Fiduciary Net Position	33
Notes to Financial Statements.....	34
Required Supplementary Information:.....	
Schedule of Proportionate Share of the Net Pension Liability	69
Schedule of Pension Contributions	70
Notes to the Required Supplementary Information – Boston Retirement System.....	71
Schedule of the Changes in Total OPEB Liability and Related Ratios.....	72
Schedule of OPEB Contributions Trust	73
Notes to the Required Supplementary Information – OPEB Trust	74
Supplemental Schedules:	
Supplemental Schedule of Revenues and Expenses – Rate Basis.....	76

III. Statistical Section

Statistical Section Contents.....	78
Net Position by Component (Table 1)	79
Changes in Net Position (Table 2)	80
Revenues and Expenses (Rate Basis) (Table 3)	81
Largest Users (Table 4).....	82
Water Purchased vs. Water Billed (Table 5).....	83
Billings and Collections (Table 6)	84
Water and Sewer Rates Structure (Table 7).....	85
Commission per Capita Debt (Table 8)	86
Revenue Bond Coverage (Table 9).....	87
Population, Income and Employment (Table 10)	88
Demographic and Economic Statistics (Table 11).....	89
Distribution of Customers by Account Type (Table 12)	90
Largest Private Employers (Table 13)	91

III. Statistical Section - continued

Economy, Household Income, Occupation (Table 14)	92
Divisional Breakdown of BWSC Employees (Table 15)	93
Water and Sewer Distribution System (Table 16)	94
Insurance Coverage (Table 17)	95
Retirement System (Table 18)	96

IV. Compliance Section

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 Standard	98
Single Audit	100

Introductory Section

2020 - 2019

**Boston Water and
Sewer Commission**

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October 25, 2021

Board of Commissioners
Boston Water and Sewer Commission

It is our pleasure to submit to you this Comprehensive Annual Financial Report of the Boston Water and Sewer Commission for the years ending December 31, 2020 and 2019. 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, 2020 and 2019.

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 a 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 ensure 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 *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, management and maintenance of the Commission’s automotive fleet for the entire Commission.

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

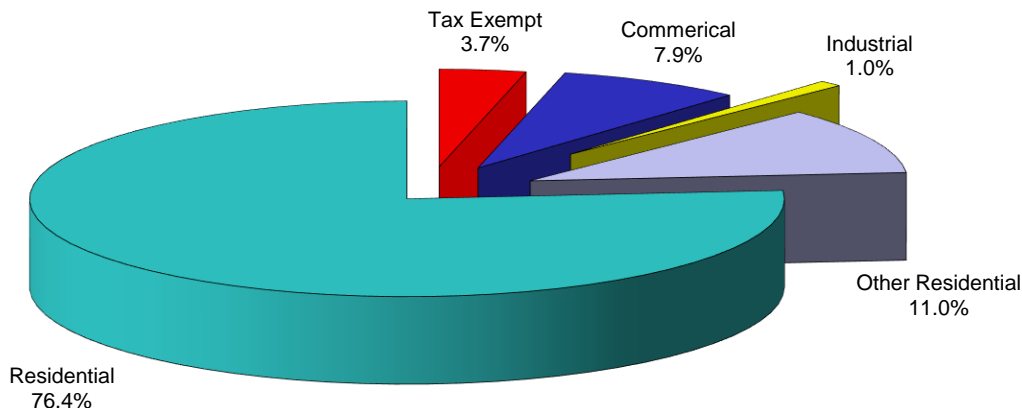


The *Finance Division* provides effective management of the Commission's revenues and all its resources. The Finance Division accomplishes this goal through its financial budgeting, rate setting, accounting and cash management, billing and adjustments. This Division is also responsible for financing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

Customer Base

2020 Distribution of Customers by Account Type

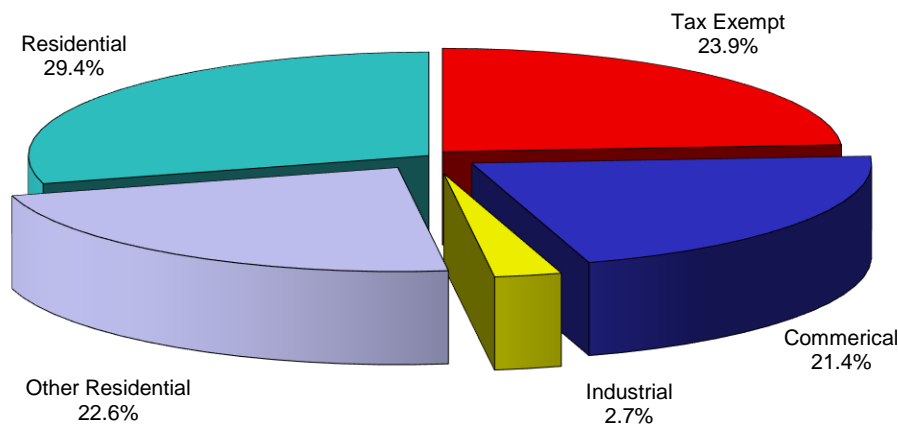
ACCOUNT TYPE BY LAND CODE	NUMBER OF ACCOUNTS	% OF TOTAL ACCOUNTS
Residential	67,184	76.4%
Other Residential	9,696	11.0%
Commercial	6,969	7.9%
Tax Exempt	3,264	3.7%
Industrial	873	1.0%
Total by Consumption	87,986	100.0%



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 87,986 accounts in 2020 as followed: 76.4% were one-to-three-family dwellings; other residential dwellings accounted for 11.0%; 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."

2020 Distribution of Customers by Consumption

ACCOUNT TYPE BY CONSUMPTION	SALES IN CUBIC FEET (000)	% OF TOTAL CONSUMPTION
Residential	701,558	29.4%
Other Residential	541,093	22.6%
Commercial	510,105	21.4%
Tax Exempt	571,421	23.9%
Industrial	64,835	2.7%
Total by Consumption	2,389,012	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 76.4% of the total accounts, the actual consumption was much lower, using only 29.4%. Other residential customers accounted for an additional 22.6%. The non-residential segment of the customer base (commercial, industrial and tax-exempt) represented only 12.6% of customer accounts but generated 48.0% of retail water sales. These accounts are financially strong entities for which water and sewer charges typically represent a relatively small portion of their operating budget. The high percentage of annual consumption by a relatively small number of accounts has had a positive financial impact on the Commission. These accounts, which include hospitals, universities, commercial and industrial businesses, provide the necessary stability and diversity to the customer base while creating a steady stream of revenue on a monthly basis. The composition of the Commission's customer base is highly regarded by credit rating agencies as a major financial strength. Together with the Commission's proven record of financial management, we have achieved excellent credit ratings. As of December 31, 2020, 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's population, as estimated by the United States Census Bureau, went from 692,600 in 2019 to 694,053 in 2020, an increase of 0.2%. Boston is also a well-educated multicultural city with 49.7% of the population at the age of 25 and over having at least a bachelor's degree and 55.5% 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. In March 2020, the Governor of Massachusetts Charlie Baker declared a state of emergency and ordered a shutdown of non-essential businesses to give state agencies and officials more flexibility to control the outbreak. Soon after, the Mayor of Boston Marty Walsh also announced similar restrictions. Daily COVID-19 cases peaked around late April and then flattened, allowing for a multi-phase reopening plan in May. Unfortunately, daily cases rose again during the fall season and forced both the state and the city to announce new restrictions in early November.

According to Boston Planning and Development Agency ("BPDA"), in 2020 approximately 40,000 Boston residents had confirmed cases of COVID-19 with 1,000 of those cases resulting in death. The pandemic not only had significant impacts on the daily lives of Boston residents but also created major disruptions in the national and local economies. Boston's unemployment rate jumped from 2.5% in February to 14.9% in April following the restriction order. The unemployment rate peaked at 16.1% in June before settling down to 7.4% in December. The sharp increase in the unemployment rate was caused by workers leaving the labor force as a result of the stay-at-home advisory. As of December 2020, Boston had about 29,328 unemployed residents with an estimated 7,000 residents who had left the labor force and were not actively looking for work.

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. Many of the workers in these industries were also in the lower group on the pay scale and faced serious struggles protecting their health and seeking financial support. The 2021 Boston's Economy Report by the BPDA found that the Commonwealth's 211 hotline received a greater volume of calls requesting food and housing access throughout 2020. To provide residents with adequate assistance, the City of Boston established the Boston Resiliency Fund in late March and the Rental Relief Fund in early April. As of December 2020, the Boston Resiliency Fund had provided \$30 million to 300+ non-profit organizations with the goals of alleviating hardship and promoting community access to wellness. The Rental Relief Fund, likewise, helped over 1,000 households at risk of eviction with more than \$3 million from April to September. In October, the Department of Neighborhood Development allocated an additional \$5 million to help more Boston residents in need.

Boston's unemployment rate of 7.4% in December 2020 was in line with the national unemployment rate of 6.7%, Massachusetts' unemployment rate of 8.4% and New England's unemployment rate of 7.4% in the same period. In addition to Boston's relief funds, the life science and technology industries also played a crucial role in maintaining economic resiliency during 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 well into the future.

Throughout the year 2020, 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 has 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 with the anticipation of returning to normal operations in the very near future. Because of strong management initiatives, a solid financial foundation and the use of cutting-edge technology, the Commission will continue to meet the needs of Boston residents with reliable wastewater removal and efficient water supply well into the future.

Sources: *United States Quick Facts*, US Census Bureau
Labor Force Statistics, Bureau of Labor Statistics
Boston's Economy 2021, Boston Planning and Development Agency

Major Initiatives and Achievements

Certificate of Achievement for Excellence in Financial Reporting Award

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

Distinguished Budget Presentation Award

For more than 27 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.

MassDEP's Public Water System Award

In 2020, the Commission received the Public Water System Award from the Massachusetts Department of Environmental Protection ("MassDEP") for outstanding performance in 2019. The Commission achieved one of the top compliance scores in the Consecutive System category of the 2020 Public Water System Awards Program.

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 2020, 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. 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.

For the past five years, the Commission has implemented several Green Infrastructure / Low Impact Development (“GI/LID”) projects in collaboration with other Boston city agencies. The latest such effort takes advantage of the Boston Public Schools (“BPS”) comprehensive Educational and Facility Master Planning process known as BuildBPS to construct GI/LID pilot projects at five schools throughout the city, all of which are in areas of high phosphorus loading. Washington Irving Middle School project, which was completed in 2017, is the largest of the pilot schools and has the most GI/LID features. This project includes an extensive bioretention feature, side-by-side concrete and vegetated swales and a new turf field ringed with trench drains, stormwater tree pits and a track.

Debt Plan

The Commission issues General Revenue Bonds to finance portions of its Capital Improvement Program (“CIP”). The Commission’s 2021-2023 CIP, which totals \$201.1 million, anticipates that projects totaling \$113.6 million, or 56.5%, will be funded from bond proceeds. The 2021 budget for debt service is \$51.8 million, or approximately 12.8% of the overall expenses. The Commission currently has eight series of General Revenue Bonds outstanding at the end of 2021:

\$ 10.5 million	1994 Series A
3.8 million	2009 Series B
86.7 million	2012 Series A
99.2 million	2014 Series A
72.8 million	2015 Series A
59.7 million	2016 Series A
82.9 million	2016 Series B
77.9 million	2018 Series A

Capital Improvement Program

The overall objectives of the Commission’s 2021-2023 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 2021-2023 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
- Design and Construction of Stormwater Retention at Arnold Arboretum
- Implementation of Stormwater/Green Infrastructure Program
- Improvements to Information Technology
- Projects Affiliated with Consent Decree
- Sampling and Metering for Storm Drain Model Validation
- Sewer and Drain Replacement Program
- Sewer Separation and System Improvements in South Boston
- Sewer Separation in East Boston
- Sewer Separation in Roxbury
- 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 2021-2023 periods:

2021- 2023 Capital Improvement Program Funding Sources

<i>Funding Source</i>	<i>2021</i>	<i>2022</i>	<i>2023</i>	<i>2021-2023</i>
<i>BWSC Bonds</i>	\$ 43,511,000	\$ 42,379,000	\$ 27,683,000	\$ 113,573,000
<i>Rate Revenue</i>	18,690,000	18,573,000	17,834,000	55,097,000
<i>MWRA Water Assistance</i>	1,662,000	7,927,000	8,549,000	18,138,000
<i>MWRA I/I Assistance</i>	8,139,000	3,010,000	3,119,000	14,268,000
<i>Total</i>	\$ 72,002,000	\$ 71,889,000	\$ 57,185,000	\$ 201,076,000

**2021-2023 Capital Improvement Program
Cash Flows**

Program Source	2021	2022	2023	2021-2023
<i>Water</i>	\$ 25,972,000	\$ 31,207,000	\$ 30,009,000	\$ 87,188,000
<i>Sewer</i>	34,470,000	27,290,000	22,573,000	84,333,000
<i>Support</i>	7,001,000	10,511,000	2,883,000	20,395,000
<i>Stormwater</i>	4,559,000	2,881,000	1,720,000	9,160,000
Total	\$ 72,002,000	\$ 71,889,000	\$ 57,185,000	\$ 201,076,000

Note: Although expenditures decrease from 2022 to 2023, it is anticipated that funding for 2023 will be equal to or greater than funding presented in 2022. The decrease in 2023 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 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 \$113.6 million, or 56.5% of the total funding requirement. In 2021, bonds will make up \$43.5 million, or 60.4% 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 \$87.2 million, or 43.4% of the 2021-2023 CIP. Sewer System projects comprise \$84.3 million, or 41.9%. Support projects total \$20.4 million, or 10.1%. Stormwater projects account for \$9.2 million, or 4.6% of the expenditures.

Total capital expenditures of \$72.0 million are outlined for 2021. Water Distribution projects comprise \$26.0 million, or 36.1%. Sewer System projects account for \$34.5 million, or 47.9%. Support projects total \$7.0 million, or 9.7%. Stormwater projects account for \$4.6 million, or 6.3% of the 2021 expenditures.

As in the past, the 2021-2023 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 2021-2023 CIP outlines R&R expenditures of \$55.1 million, or 27.4% of total expenditures over the three years of the program. In 2021, approximately \$18.7 million, or 26.0%, will be expended out of current rate revenues for CIP projects.

The 2021-2023 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 \$363.5 million in water distribution improvements. These improvements have resulted in the replacement of 106.2 miles of water mains and cement lining of 8.0 miles of water mains. The projects scheduled for initiation in 2021 will result in the replacement of approximately 8.0 miles of water mains.

The primary objectives of the 2021-2023 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 coordinate the scheduling of system improvements with related projects of other public agencies

The 2021-2023 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 repair or replacement of approximately 21.0 miles of deteriorated or failing sanitary sewers and storm drains along with the television inspection of approximately 90.0 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 \$94.1 million in MWRA funding for various Infiltration/Inflow and Separation projects. The Commission plans to continue to take advantage of MWRA funding over the 2021-2023 period. \$14.3 million in funding is anticipated to be used for projects that are ongoing along with new projects for the three years 2021-2023.

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 2021. 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 \$52.6 million in LWSAP funding. It is anticipated that for the 2021-2023 CIP, \$18.1 million will be funded using the LWSAP program.

Sources: *2021 Current Expense Budget*, Boston Water and Sewer Commission.

2021-2023 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 \$201.1 million for the three-year period 2021-2023. The CIP is made up of Water, Sewer, Support and Stormwater Programs.

The Commission's Water Program for 2021-2023 accounts for \$87.2 million, or 43.4%, of the total CIP expenditures. The Sewer Program accounts for \$84.3 million, or 41.9%, of the CIP. The Support Program accounts for \$20.4 million, or 10.1%, of the CIP. The Stormwater Program accounts for \$9.2 million, or 4.6% of the CIP.

Monies allocated for the 2021 programs total \$72.0 million. The amount mentioned is distributed as followed: Water \$26.0 million, or 36.1%; Sewer \$34.5 million, or 47.9%; Support \$7.0 million, or 9.7%; Stormwater \$4.6 million, or 6.3% of the 2021 expenditures.

Acknowledgements

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

Respectfully submitted,

A handwritten signature in blue ink, appearing to read "Henry F. Vitale".

Henry F. Vitale
Executive Director and Treasurer

A handwritten signature in blue ink, appearing to read "Nelson W. Piacenza".

Nelson W. Piacenza
Chief Financial Officer

Board of Commissioners

Michael J. Woodall, Chair

Cathleen Douglas Stone, Commissioner

Thomas J. Keady, Jr., Commissioner

Senior Management

Henry F. Vitale, Executive Director and Treasurer

Nelson W. Piacenza, Chief Financial Officer

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

Paul Canavan, Director of Operations

Irene McSweeney, P.E., Chief of Operations

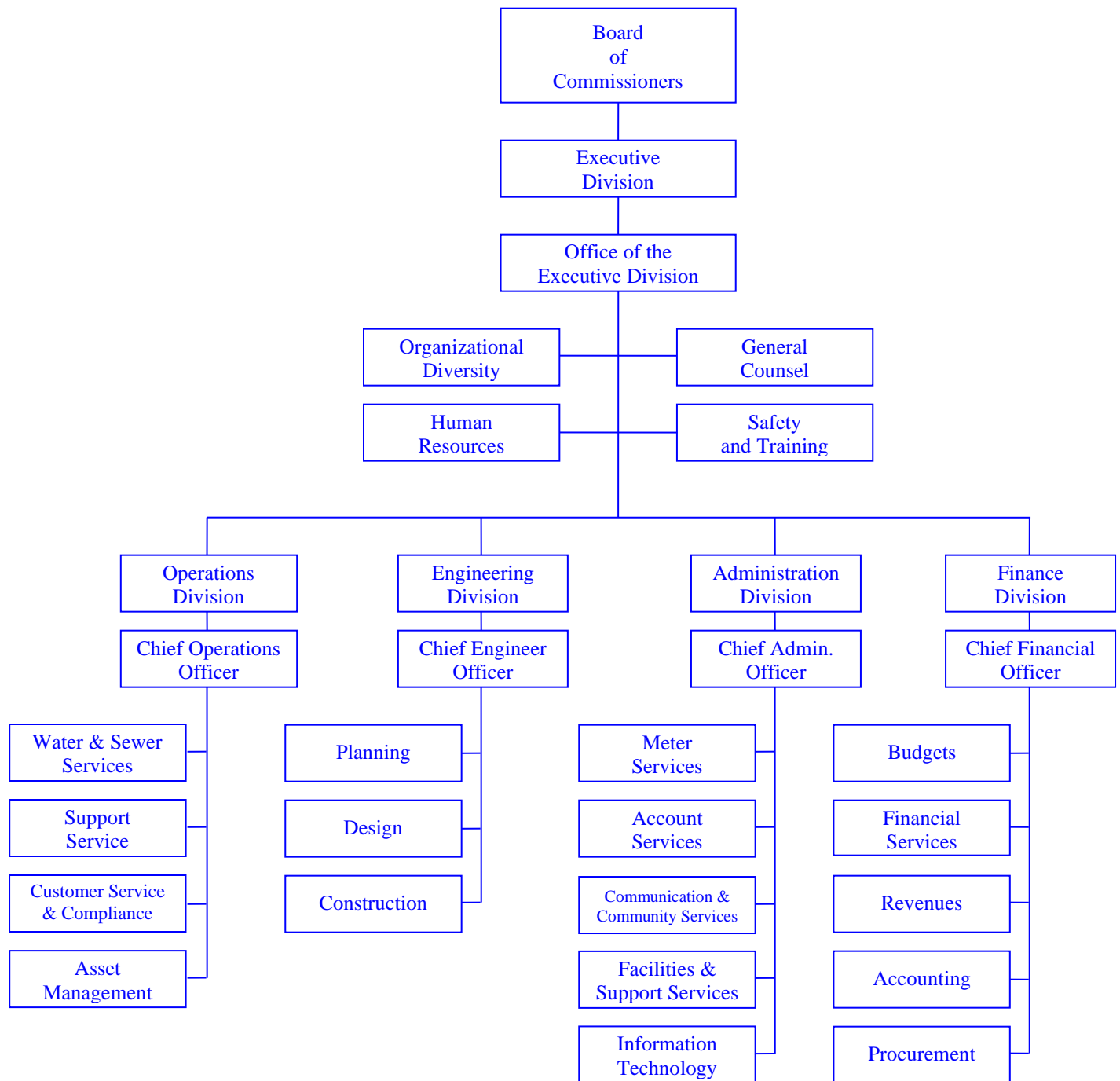
Gerald F. Dwyer, Chief Administrative Officer

Janis Smith, General Counsel

Hussein Dayib, Director of Organizational Diversity

Peter Hunt, Chief Information Officer

Organizational Chart





Government Finance Officers Association

Certificate of
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for Excellence
in Financial
Reporting

Presented to

**Boston Water & Sewer Commission
Massachusetts**

For its Comprehensive Annual
Financial Report
For the Fiscal Year Ended

December 31, 2019

Christopher P. Morill

Executive Director/CEO

EXHIBIT I
2020 BUDGETED REVENUE AND EXPENSE ANALYSIS
(RATE BASIS)

	2020 ACTUAL	2020 BUDGET	VARIANCE	PERCENT VARIANCE
Revenues:				
Water & Sewer	\$363,501,373	\$393,460,397	(\$29,959,024)	-7.6%
Less:				
Adjustments	10,720,098	10,820,161	100,063	0.9%
Discounts	1,321,341	1,647,293	325,952	19.8%
Bad Debt	51,057	393,460	342,403	87.0%
Subtotal	12,092,496	12,860,914	768,418	6.0%
Net Billed Charges	351,408,877	380,599,483	(29,190,606)	-7.7%
Prior Year Surplus	689,553	533,846	155,707	29.2%
Miscellaneous Revenues:				
Late Charges	350,258	1,573,842	(1,223,584)	-77.7%
Investment Income	1,980,534	3,889,934	(1,909,400)	-49.1%
Fire Pipe	5,110,863	4,941,880	168,983	3.4%
Other Income	24,379,632	7,219,499	17,160,133	237.7%
Total Revenues	383,919,717	398,758,484	(14,838,767)	-3.7%
Direct Operating Expenses:				
Salaries and Wages	44,008,211	44,430,793	422,582	1.0%
Overtime Wages	1,229,981	839,440	(390,541)	-46.5%
Fringe Benefits	8,652,971	9,857,354	1,204,383	12.2%
Supplies and Materials	2,195,934	3,065,384	869,450	28.4%
Repairs and Maintenance	10,745,786	12,730,485	1,984,699	15.6%
Utilities	1,456,755	1,920,440	463,685	24.1%
Professional Services	3,288,593	4,959,469	1,670,876	33.7%
Space and Equipment Rentals	291,919	356,250	64,331	18.1%
Other Services	1,428,584	2,009,890	581,306	28.9%
Insurance	949,730	978,613	28,883	3.0%
Travel and Training	17,890	93,500	75,610	80.9%
Damage Claims	4,160	145,000	140,840	97.1%
Inventory	5,840	23,000	17,160	74.6%
Capital Outlay	46,574	88,500	41,926	47.4%
Total Direct Operating Expenses	74,322,928	81,498,118	7,175,190	8.8%
Indirect Operating Expense:				
MWRA Assessment	241,360,172	243,671,143	2,310,971	0.9%
Capital Improvement	15,948,387	17,155,000	1,206,613	7.0%
Debt Services	50,179,641	52,480,058	2,300,417	4.4%
Contractual Funding Obligations	1,516,000	3,756,709	2,240,709	59.6%
SDWA Assessment	220,685	197,456	(23,229)	-11.8%
Total Indirect Operating Expenses	309,224,885	317,260,366	8,035,481	2.5%
Total Current Expenses	\$383,547,813	\$398,758,484	\$15,210,671	3.8%

EXHIBIT II
REVENUES AND EXPENSES - BUDGETARY BASIS
FOR THE YEARS ENDED DECEMBER 31, 2020 AND 2019
(RATE BASIS)

	2020	2019	CHANGE	PERCENT
Water Revenue	\$151,395,689	\$155,856,895	(\$4,461,206)	-2.9%
Sewer Revenue	212,105,684	213,568,719	(1,463,035)	-0.7%
Revenue Adjustments	(12,092,496)	(12,159,309)	66,813	-0.5%
Prior Period Surplus	689,553	558,206	131,347	23.5%
Other Revenues				
Fire Pipe	5,110,863	4,958,922	151,941	3.1%
Late Charges	350,258	679,568	(329,310)	-48.5%
Investment Income	1,980,534	4,609,528	(2,628,994)	-57.0%
Other Income	24,379,632	11,584,275	12,795,357	110.5%
Total Revenue	383,919,717	379,656,804	4,262,913	1.1%
Operating Expenses	74,322,928	74,051,884	(271,044)	-0.4%
MWRA Assessment	241,360,172	235,786,344	(5,573,828)	-2.4%
SDWA Assessment	220,685	194,650	(26,035)	-13.4%
Other Nonoperating Expenses:				
Capital Improvement	15,948,387	15,382,251	(566,136)	-3.7%
Deposit to Reserves	1,516,000	1,768,000	252,000	14.3%
Debt Service	50,179,641	51,784,122	1,604,481	3.1%
Total Expenses	383,547,813	378,967,251	(4,580,562)	-1.2%
Current Surplus	\$371,904	\$689,553	(\$317,649)	-46.1%

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Financial Section

2020 - 2019



INDEPENDENT AUDITORS' REPORT

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

Report on the Financial Statements

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, 2020 and 2019, and the related notes to the financial statements, which collectively comprise the Commission's basic financial statements as listed in the table of contents.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes 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.

Auditors' Responsibility

Our responsibility is to express opinions on these financial statements based on our audits. 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. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinions

In our opinion, the financial statements referred to above present fairly, in all material respects, the net position and fiduciary net position of Boston Water and Sewer Commission as of December 31, 2020, and 2019, and the respective changes in net position and fiduciary net position and cash flows thereof for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Other Matters

Required Supplementary Information


Accounting principles generally accepted in the United States of America require that 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, although not a part of the basic financial statements, is required by the Government 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 historic 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 with 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.

Other Supplementary Information

Our audit was conducted for the purpose of forming opinions on the financial statements that collectively comprise the Boston Water and Sewer 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 financial statements. The information has been subjected to the auditing procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the financial statements or to the 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 Reporting Required by Government Auditing Standards

In accordance with *Government Auditing Standards*, we have also issued our report dated August 31, 2021, on our consideration of Boston Water and Sewer 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 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 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 the Boston Water and Sewer Commission's internal control over financial reporting and compliance.



Certified Public Accountants
Braintree, Massachusetts

August 31, 2021

BOSTON WATER AND SEWER COMMISSION

Management's Discussion and Analysis

Required Supplementary Information

December 31, 2020 and 2019

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 67 of this report.

BOSTON WATER AND SEWER COMMISSION

Management's Discussion and Analysis

Required Supplementary Information

December 31, 2020 and 2019

Condensed Financial Information

(in thousands)

	2020	2019	2018
Current assets	\$ 311,314	323,923	332,759
Capital assets, net	1,472,358	1,445,700	1,416,709
Total assets	1,783,672	1,769,623	1,749,468
Total deferred outflows	90,555	99,774	122,720
Current liabilities	112,449	79,515	61,726
Noncurrent liabilities	587,234	630,154	671,319
Total liabilities	699,683	709,669	733,045
Total deferred inflows	783,719	764,291	747,028
Net position:			
Net investment in capital assets	878,726	856,310	800,309
Restricted	114,653	113,573	111,813
Unrestricted net deficit	(602,554)	(574,446)	(520,007)
Total net position	\$ 390,825	395,437	392,115

During the year, the Commission saw an increase in total assets and a decrease in total liabilities, resulting in a decrease in total net position of \$4.6 million, or 1.2%. In 2019, net position totaled \$395.4 million, an increase of \$3.3 million, or 0.9% from 2018. The Commission's 2020 operations resulted in a rate basis surplus of \$371,904 compared to \$689,553 in 2019.

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 2020, which is 1.8% higher than in 2019. In 2019, these investments totaled \$1.4 billion, an increase of \$29.0 million, or 2.1% over the 2018 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 2020 were \$393.3 million, which is 1.7% greater than in 2019. Total operating revenues in 2019 were \$386.6 million, which is 1.8% greater than 2018. Operating revenues consist of water and sewer revenue, late charge revenue, fire pipe revenue and other income. Water and sewer revenue in 2020 and 2019 represented 92.5% and 95.7% of total operating revenues, respectively. The increases in 2020 and 2019 operating revenues were primarily driven by a 7.90% and 2.85% average rate increase, respectively.

BOSTON WATER AND SEWER COMMISSION

Management's Discussion and Analysis

Required Supplementary Information

December 31, 2020 and 2019

Total operating expenses in 2020 were \$356.5 million, which represents an increase of 1.7% from 2019. The increase in 2020 operating expenses was primarily due to a combined additional spending of 4.4%, or \$3.0 million in three-line items (operations, maintenance and Massachusetts Water Resources Authority ("MWRA") assessment). Total operating expenses in 2019 were \$350.6 million, which represents an increase of 3.5% from 2018. This increase in 2019 operating expenses was primarily due to a combined additional spending of 3.2%, or \$9.9 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 67.7% and 67.3% in 2020 and 2019, respectively, of total operating expenses.

In both 2020 and 2019, 85% 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)

	2020	2019	2018
Operating revenues:			
Water and sewer usage	\$ 363,852	370,105	367,443
Other	29,490	16,543	12,418
Operating expenses	(356,455)	(350,596)	(339,050)
Excess operating revenues	36,887	36,052	40,811
Investment income	2,514	5,602	5,491
Interest expense	(17,366)	(18,707)	(18,439)
Total nonoperating net expense	(14,852)	(13,105)	(12,948)
Excess revenues before capital grants, contributions and transfer requirements	22,035	22,947	27,863
Capital grants and contributions	2,560	13,712	5,983
Excess revenues used to fund reserves and other deferrals	(29,525)	(33,206)	(32,017)
Change in accumulated revenues used to offset future rates	318	(131)	12
Change in net position	(4,612)	3,322	1,841
Net position, beginning of year	395,437	392,115	390,274
Net position, end of year	<u>390,825</u>	<u>395,437</u>	<u>392,115</u>

BOSTON WATER AND SEWER COMMISSION

Management's Discussion and Analysis

Required Supplementary Information

December 31, 2020 and 2019

Capital Assets

In fiscal year 2020, major Commission project additions totaled \$32.5 million, of which \$12.6 million was financed with bond proceeds. Major project expenditures (in millions) are as follows:

Relay of water mains	\$ 14.8
Rehabilitation/replacement of sewers or storm drains	12.8
Interceptor improvements	0.0
Separation of combined sewers	3.3
Meter replacement	0.3
Stormwater	1.3
	<u>\$ 32.5</u>

The Commission's 2021-2023 capital budget includes projected expenditures of \$201.1 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 2021-2023 capital budget, which totals \$201.1 million, anticipates that projects totaling \$113.6 million, or 56.5% of the Commission's 2021-2023 capital budget, will be funded from bond proceeds. The 2021 budget for debt service is \$51.8 million including \$45.9 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, 2020 and 2019

The Commission currently has eight series of General Revenue Bonds outstanding at the end of 2020, totaling approximately \$493.5 million as follows (in millions):

1994 Series A	\$ 10.5
2009 Series B	3.8
2012 Series A	86.7
2014 Series A	99.2
2015 Series A	72.8
2016 Series A	59.7
2016 Series B	82.9
2018 Series A	77.9
	\$ 493.5

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, 2020 and 2019

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 2020 and 2019, the Commission increased its water and sewer rates by an average of 7.90% and 2.85% 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, 2021, the Commission increased its water and sewer rates by an average of 8.90%.

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, 2020 and 2019

	Assets	2020	2019
Current assets:			
Cash and cash equivalents		\$ 11,410,613	4,636,257
Restricted cash and investments (Notes 5 and 11)		236,649,402	259,903,906
Accounts receivable, net:			
Customers, less allowances of \$2,465,797 and \$2,465,932 in 2020 and in 2019, respectively (Note 1)		34,430,503	27,778,831
Unbilled revenues, less allowances of \$1,702,361 in 2020 and 2019		27,963,579	30,737,492
Prepaid expenses		860,224	865,970
Total current assets		311,314,321	323,922,456
Noncurrent assets:			
Capital assets (Note 4):			
Depreciable, net		1,345,311,978	1,311,941,247
Nondepreciable		127,045,760	133,759,235
Total noncurrent assets		1,472,357,738	1,445,700,482
Total Assets		1,783,672,059	1,769,622,938
Deferred Outflows of Resources			
Deferred charges (Note 2)		90,554,918	99,774,382
Liabilities			
Current liabilities:			
Payable from current assets:			
Accounts payable		18,405,430	15,411,556
Other accrued liabilities		8,910,337	9,800,931
Commercial paper notes (Note 6)		50,000,000	20,000,000
Current portion of long-term notes (Note 5)		5,935,167	5,837,295
Current portion of revenue bonds (Note 5)		29,197,776	28,464,951
Total current liabilities		112,448,710	79,514,733
Noncurrent liabilities:			
Long-term notes (Note 5)		27,035,748	25,496,783
Revenue bonds, net (Note 5)		493,321,458	522,519,255
Net pension liability (Note 9)		29,011,883	34,808,595
Net OPEB liability (Note 10)		35,868,760	45,642,150
Other long-term liabilities (Note 13)		1,996,733	1,687,510
Total noncurrent liabilities		587,234,582	630,154,293
Total Liabilities		699,683,292	709,669,026
Deferred Inflows of Resources			
Deferred credits and reserves (Note 3)		783,718,805	764,291,295
Commitments and contingencies (Notes 12 and 14)			
Net Position			
Net position:			
Net investment in capital assets, net of related debt		878,725,980	856,309,985
Restricted for debt service		53,902,568	55,293,433
Restricted for capital assets		471,799	212,933
Restricted for debt covenants		60,278,650	58,066,734
Unrestricted net deficit		(602,554,117)	(574,446,086)
Total Net Position		\$ 390,824,880	395,436,999

See accompanying notes to financial statements.

BOSTON WATER AND SEWER COMMISSION

Statements of Revenues, Expenses and Changes in Net Position

Years ended December 31, 2020 and 2019

	2020	2019
Operating revenues:		
Water and sewer usage (Note 1)	\$ 363,851,631	370,105,182
Fire pipe	5,110,863	4,958,922
Other	24,379,632	11,584,275
Total operating revenues	393,342,126	386,648,379
Operating expenses:		
Operations	77,107,713	78,864,974
Maintenance	10,745,786	10,123,538
MWRA assessment (Note 7)	241,360,172	235,786,344
Depreciation and amortization	27,241,275	25,820,917
Total operating expenses	356,454,946	350,595,773
Operating Income	36,887,180	36,052,606
Nonoperating revenue (expense):		
Investment income	2,513,502	5,602,152
Interest expense	(17,365,593)	(18,707,311)
Total nonoperating net expense	(14,852,091)	(13,105,159)
Excess revenues before capital grants and contributions and transfer requirements	22,035,089	22,947,447
Capital grants and contributions: (Note 1)	2,560,147	13,712,016
Excess revenues before transfer requirements	24,595,236	36,659,463
Excess revenues used to fund reserves and other deferrals (Note 3)	(29,525,004)	(33,205,633)
Change in accumulated revenues used to offset future rates (Note 3)	317,649	(131,347)
Change in net position	(4,612,119)	3,322,483
Net position, beginning of year	395,436,999	392,114,516
Net position, end of year	\$ 390,824,880	395,436,999

See accompanying notes to financial statements.

BOSTON WATER AND SEWER COMMISSION

Statements of Cash Flows

Years ended December 31, 2020 and 2019

	2020	2019
Cash flows from operating activities:		
Receipts from customers	\$ 370,464,367	371,032,953
Payments to suppliers	(270,936,349)	(270,472,025)
Payments to employees	(54,295,774)	(53,565,036)
Net cash provided by operating activities	45,232,244	46,995,892
Cash flows from investing activities:		
Investment income	2,513,502	5,602,152
Sales of investments	215,917,921	241,355,673
Purchases of investments	(130,473,346)	(215,917,922)
Net cash provided by investing activities	87,958,077	31,039,903
Cash flows from capital and related financing activities:		
Purchase of capital assets	(53,493,375)	(54,343,853)
Proceeds from long-term notes	7,474,132	738,025
Payment of long-term notes	(5,837,295)	(6,215,529)
Payment of revenue bonds	(23,710,000)	(23,730,000)
Proceeds from commercial paper	30,000,000	20,000,000
Capital grants and contributions	2,560,147	13,712,016
Payment of interest	(21,219,503)	(22,535,578)
Net cash applied to capital and related financing activities	(64,225,894)	(72,374,919)
Net increase	68,964,427	5,660,876
Cash and cash equivalents, beginning of year	102,727,691	97,066,815
Cash and cash equivalents, end of year	\$ 171,692,118	102,727,691
Reconciliation of operating income to net cash provided by operating activities:		
Operating Income	\$ 36,887,180	36,052,606
Adjustment to reconcile operating income to net cash:		
Depreciation and amortization	27,241,275	25,820,917
GASB 62 working capital adjustment	(19,000,000)	(4,900,000)
Bad debts	(135)	378,627
Deferred outflows of resources	17,370,223	10,527,656
Change in assets and liabilities:		
Accounts receivable, net	(6,651,537)	(6,197,135)
Unbilled revenues	2,773,913	(4,896,918)
Prepaid expenses	5,746	(225,171)
Accounts payable	2,588,718	(1,884,455)
Other accrued liabilities	(722,260)	(80,184)
Other long-term liabilities	309,223	241,828
Net pension activity	(5,796,712)	(5,639,408)
Net OPEB activity	(9,773,390)	(2,202,471)
Net cash provided by operating activities	\$ 45,232,244	46,995,892
Noncash capital and related financing activities:		
Retainage payable	\$ 405,156	486,709
Cash and cash equivalents are comprised of the following:		
Cash and cash equivalents	\$ 11,410,613	4,636,257
Money market in restricted cash and investments	111,267,271	53,410,685
Cash in restricted cash and investments	49,014,234	44,680,749
Total	\$ 171,692,118	102,727,691

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, 2020 and 2019

	Assets	2020	2019
Cash and cash equivalents:		\$ 227,483	690,855
Investments:			
Mutual funds		5,352,190	5,488,828
Equity		17,387,424	17,781,879
Fixed Income		8,006,586	3,727,403
Receivables		-	1,149,779
Total Assets		<u>30,973,683</u>	<u>28,838,744</u>
	Net Position		
Restricted for OPEB purposes		<u>30,973,683</u>	<u>28,838,744</u>
Total Net Position		<u>\$ 30,973,683</u>	<u>28,838,744</u>

See accompanying notes to financial statements.

BOSTON WATER AND SEWER COMMISSION
 Statements of Changes in Fiduciary Net Position
 Other Post-Employment Benefits (“OPEB”) Trust Fund
 Years ended December 31, 2020 and 2019

ADDITIONS:	2020	2019
Contributions:		
Employer	\$ 3,867,341	4,200,341
Total Contributions	<u>3,867,341</u>	<u>4,200,341</u>
Investment earnings:		
Investment income	1,155,302	4,519,177
Less investment expenses	<u>(44,195)</u>	<u>(45,553)</u>
Total net investment income	<u>1,111,107</u>	<u>4,473,624</u>
Total additions	<u>4,978,448</u>	<u>8,673,965</u>
DEDUCTIONS:		
Benefit payments	<u>2,887,704</u>	<u>2,783,496</u>
Change in Net Position	2,090,744	5,890,469
Net Position Restricted for OPEB		
Beginning of Year	<u>28,838,744</u>	<u>22,902,722</u>
End of Year	<u>\$ 30,929,488</u>	<u>28,793,191</u>

See accompanying notes to financial statements.

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements

December 31, 2020 and 2019

(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, 2020, is provided below:

	<u>Revenues</u>	<u>Expenses</u>
As presented in the statements of revenues and expenses:		
Operating revenues/expenses	\$ 393,342,126	356,454,946
Investment income/interest expense	2,513,502	17,365,593
Total	395,855,628	373,820,539
Reclassifications and deferrals:		
Contributions to reserves	-	1,516,000
GAAP adjustments	(12,092,496)	(12,092,497)
Excess bond payments over depreciation and amortization	-	5,572,777
Interest expense (escrowed funds)	-	-
Investment income (escrowed funds)	(532,968)	-
Capital expenditures	-	15,994,961
Excess revenue used to offset current rates	689,553	-
Other deferrals	-	(1,263,967)
As presented in the supplemental schedule of revenues and expenses - rate basis	<u>\$ 383,919,717</u>	<u>383,547,813</u>

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2020 and 2019

(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 \$371,904 and \$689,553 for the years ended December 31, 2020 and 2019, 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. 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, 2020 and 2019 were approximately \$36.9 million and \$30.2 million, respectively. These net billing amounts are reduced by an allowance for uncollectible accounts of approximately \$2.5 million in 2020 and 2019, 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 2020 and 2019 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 2020 and 2019.

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2020 and 2019

(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, 2020 and 2019

(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, 2020 and 2019

(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) Adoption of New Accounting Pronouncement

During FY20 the Commission implemented GASB Statement No. 84, *Fiduciary Activities*. This statement established criteria for identifying and reporting fiduciary activities of all state and local governments. The Commission implemented this statement on a retrospective basis. The implementation of this statement did not have a material effect on these financial statements.

(p) 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. Management is in the process of evaluating this standard and has not yet determined its impact on the financial statements.

GASB Statement 89 – *Accounting for Interest Costs Incurred before the End of a Construction Period* is effective for reporting periods beginning after December 15, 2020. The objectives of this Statement are (1) to enhance the relevance and comparability of information about capital assets and the cost of borrowing for a reporting period and (2) to simplify accounting for interest cost incurred before the end of a construction period. Management has not completed its review of the requirements of this standard and its applicability.

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. Management has not completed its review of the requirements of this standard and its applicability.

GASB Statement 93 – *Replacement of Interbank Offered Rates* is effective for reporting periods beginning after June 15, 2021. The objective of this Statement is to provide government entities relief with replacing or amending financial instruments for the purpose of replacing LIBOR, which is expected to cease to exist in December 2021. Before the implementation of this Standard, hedge accounting terminates if material terms are amended. Management has not completed its review of the requirements of this standard and its applicability.

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. Management has not completed its review of the requirements of this standard and its applicability.

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2020 and 2019

(1) Organization, Basis of Presentation, and Summary of Significant Accounting Policies - Continued**(p) New Government Accounting Pronouncements - continued**

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. Management has not completed its review of the requirements of this standard and its applicability.

(q) Reclassification

Certain amounts on the 2019 financial statements have been reclassified to conform to the 2020 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,

	2020	2019
Cost to be recovered through future revenues:		
Pension obligation	\$ 29,011,883	34,808,595
OPEB obligation	35,868,760	45,642,150
Pension:		
Pension related	6,376,916	-
Differences between expected and actual experience in the total pension liability	322,880	387,456
Changes in assumptions	5,404,986	3,077,370
Contributions made after the plan measurement date	-	734,972
OPEB:		
OPEB related	1,711,102	1,448,552
Contributions made after the plan measurement date	-	747,500
Deferred loss on defeasance	11,858,391	12,927,787
Total:	\$ 90,554,918	99,774,382

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2020 and 2019

(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,:

	2020	2019
Contributions to reserves	\$ 1,516,000	1,768,000
Principal payments on long-term debt	29,547,295	29,945,528
Capital expenditures	15,994,961	15,469,203
Depreciation and amortization	(18,842,466)	(18,754,445)
Investment income on project and escrow funds	1,443,163	4,408,405
Other	(133,949)	368,942
	<u>\$ 29,525,004</u>	<u>33,205,633</u>

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

	2020	2019
Debt service	\$ 167,495,770	166,197,284
Capital improvements	628,479,677	599,935,510
Pension:		
Pension related	-	1,010,645
Differences between expected and actual experience - pension	8,010,786	2,235,600
Net differences between expected and actual earnings		
on plan investments - pension	4,093,997	218,581
OPEB:		
Differences between expected and actual experience		
in the total OPEB liability	845,047	-
Changes of assumptions	453,808	231,098
Net differences between projected and actual earnings		
on OPEB plan investments	412,247	1,217,454
Working capital	(28,684,431)	(9,684,431)
Self-insurance	2,240,000	2,240,000
	<u>783,346,901</u>	<u>763,601,741</u>
Reduction of future rates	<u>371,904</u>	<u>689,554</u>
Total	<u>783,718,805</u>	<u>764,291,295</u>

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2020 and 2019

(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, 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, 2020 and 2019

(4) Capital Assets - Continued

	Balance at December 31, 2018	Additions	Disposals	Reclassifications	Balance at December 31, 2019
Capital assets, not being depreciated:					
Land	\$ 5,884,243	-	-	-	5,884,243
Construction in progress	109,853,370	49,096,812	-	(31,075,190)	127,874,992
Total capital assets, not being depreciated	115,737,613	49,096,812	-	(31,075,190)	133,759,235
Capital assets, being depreciated:					
Buildings and improvements	68,112,671	-	-	-	68,112,671
Machinery and equipment	35,133,610	5,658,250	-	303,763	41,095,623
Infrastructure	1,599,882,092	57,500	-	30,771,427	1,630,711,019
Total capital assets, being depreciated	1,703,128,373	5,715,750	-	31,075,190	1,739,919,313
Less: accumulated depreciation for:					
Buildings and improvements	32,189,308	1,626,591	-	-	33,815,899
Machinery and equipment	24,200,408	3,891,172	-	-	28,091,580
Infrastructure	345,767,433	20,303,154	-	-	366,070,587
Total accumulated depreciation	402,157,149	25,820,917	-	-	427,978,066
Total capital assets being depreciated, net	1,300,971,224	(20,105,167)	-	31,075,190	1,311,941,247
Capital assets, net	\$ 1,416,708,837	28,991,645	-	-	1,445,700,482

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2020 and 2019

(5) Long-Term Obligations

Long term liabilities at December 31, consist of:

	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
	Balance at December 31, 2018	Additions	Reductions	Balance at December 31, 2019	Current Portion
Notes payable:					
Long-term notes	\$ 36,811,582	738,025	(6,215,529)	31,334,078	5,837,295
Revenue bonds	540,965,000	-	(23,730,000)	517,235,000	23,710,000
Revenue bonds premiums	38,623,318	-	(4,874,112)	33,749,206	4,754,951
Total notes payable and bonds	616,399,900	738,025	(34,819,641)	582,318,284	34,302,246
Other long-term liabilities					
Net pension liability	40,448,003	-	(5,639,408)	34,808,595	-
Net OPEB liability	47,844,621	-	(2,202,471)	45,642,150	-
Other long-term liabilities	1,445,682	940,332	(698,504)	1,687,510	-
Total other long-term liabilities	89,738,306	940,332	(8,540,383)	82,138,255	-
Total long-term liabilities	706,138,206	1,678,357	(43,360,024)	664,456,539	34,302,246

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2020 and 2019

(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, 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, 2020 and 2019

(5) Long-Term Obligations - Continued

(a) Revenue Bonds - Continued

Description	Balance at December 31, 2018	Additions	Reductions	Balance at December 31, 2019	Amounts due within one year
Revenue bonds:					
1993 Series A, bearing interest ranging from 2.2% to 5.25% issued September 17, 1993, maturing 1993 to 2019	\$ 5,155	-	5,155	-	-
1994 Series A, bearing a variable interest rate based on the daily Municipal Market Data scale issued August 20, 1994, maturing 1995 to 2024	14,800	-	2,100	12,700	2,200
2009 Series A, bearing interest ranging from 3.0% to 5.0% issued March 26, 2009, maturing 2010 to 2028	5,085	-	4,400	685	685
2009 Series B, bearing interest ranging from 3.0% to 5.0% issued March 26, 2009, maturing 2009 to 2021	15,840	-	8,340	7,500	3,660
2010 Series A, bearing interest ranging from 2.5% to 5.0% issued January 26, 2010, maturing 2010 to 2031	5,565	-	165	5,400	5,400
2012 Series A, bearing interest ranging from 3.0% to 5.0% issued June 6, 2012, maturing 2015 to 2037	99,445	-	2,970	96,475	9,790
2014 Series A, bearing interest ranging from 3.0% to 5.0% issued July 22, 2014, maturing 2017 to 2044	99,800	-	100	99,700	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	-	-	60,155	475
2016 Series B, bearing interest ranging from 3.0% to 5.0% issued September 13, 2016, maturing 2017 to 2046	83,960	-	500	83,460	500
2018 Series A, bearing interest ranging from 3.0% to 5.0% issued May 30, 2018, maturing 2020 to 2048	78,400	-	-	78,400	500
	540,965	-	23,730	517,235	23,710
Unamortized issue premiums/discounts	38,623	-	4,874	33,749	4,754
Net revenue bonds	\$ 579,588	-	28,604	550,984	28,464

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2020 and 2019

(5) Long-Term Obligations - Continued**(a) Revenue Bonds - Continued**

Debt principal and interest maturities for future years as of December 31, 2020 are as follows (amounts in thousands):

	Revenue bonds	
	Principal	Interest
2021	24,790	20,394
2022	24,005	15,408
2023	25,585	18,971
2024	26,400	17,644
2025	27,825	15,740
2026-2030	117,680	63,179
2031-2035	89,710	41,305
2036-2040	76,955	25,955
2041-2045	63,815	12,208
2046-2049	16,760	1,318
	<u>\$ 493,525</u>	<u>232,122</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, 2020 and 2019 totaled \$(3,266,754) and \$(3,131,283), 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, 2020, and 2019, approximately \$45.7M and \$47.3M, 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.

(b) Prior Year Debt Refunding (Defeasements)

In the aggregate, \$237,625,000 and \$253,815,000 remains outstanding at December 31, 2020 and 2019, respectively, on bond issues that were defeased "in-substance" in prior years.

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2020 and 2019

(5) Long Term Obligations - Continued**(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:

	2020	2019
Trustee:		
U.S. Government agency obligations	\$ 44,655,700	129,438,484
Money market	109,383,468	53,191,104
Repurchase agreements	8,416,250	8,416,250
	<u>162,455,418</u>	<u>191,045,838</u>
Nontrustee:		
U.S. Government agency obligations	-	1,466,178
Cash	49,014,234	44,693,635
Money market	1,883,803	219,581
Open-ended mutual funds	23,295,947	22,478,674
	<u>74,193,984</u>	<u>68,858,068</u>
Restricted cash and investments	236,649,402	259,903,906
Less nontrustee cash	<u>(49,014,234)</u>	<u>(44,693,635)</u>
Trustee and nontrustee investments	<u>\$ 187,635,168</u>	<u>215,210,271</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, 2020 and 2019

(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, 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	<u>\$ 31,334,078</u>	<u>7,474,133</u>	<u>5,837,296</u>	<u>32,970,915</u>	<u>5,935,167</u>
Description	Balance at December 31, 2018	Additions	Reductions	Balance at December 31, 2019	Amounts due within one year
MWRA I/I Program Phase VIII, interest free, due May 15, 2022	\$ 824,086	-	206,022	618,064	206,022
MWRA I/I Program Phase IX, interest free, due May 15, 2029	1,777,235	738,025	390,520	2,124,740	464,322
MWRA S.A.P. Program, interest free, due November 15, 2028	32,459,142	-	4,517,410	27,941,732	4,517,410
MWRA P.A.P. Program, interest free, due August 15, 2020	1,751,119	-	1,101,577	649,542	649,541
Total long-term notes	<u>\$ 36,811,582</u>	<u>738,025</u>	<u>6,215,529</u>	<u>31,334,078</u>	<u>5,837,295</u>

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2020 and 2019

(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):

2021	\$ 5,935
2022	5,534
2023	4,480
2024	4,036
2025	3,437
2026-2029	9,549
	<u>\$ 32,971</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, 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>

Description	Balance at December 31, 2018	Additions	Reductions	Balance at December 31, 2019
Commercial paper notes, Bank of America program due December 3, 2019 through March 3, 2020	\$ -	20,000,000	-	20,000,000
Total short-term notes	<u>\$ -</u>	<u>20,000,000</u>	<u>-</u>	<u>20,000,000</u>

As noted in Note 15, subsequent to year-end, the Commission repaid all outstanding commercial paper as part of the bond issuance.

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2020 and 2019

(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>2020</u>	<u>2019</u>
Assessments based on:		
Water usage	\$ 95,459,497	92,082,863
Wastewater usage	<u>145,900,675</u>	<u>143,703,481</u>
Total	<u>\$ 241,360,172</u>	<u>235,786,344</u>

(8) Transactions with the City of Boston

Departments of the City of Boston were billed approximately \$4.0 million and \$5.4 million during 2020 and 2019, 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 \$1,079,000 and \$1,198,000 during the years ended December 31, 2020 and 2019, respectively, and capital costs billed by the City were approximately \$922,000 and \$1,500,000 during the years ended December 31, 2020 and 2019, 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, 2020 can be obtained through the BRS, Boston City Hall, Room 816, Boston, MA 02201 or by accessing the website www.cityofboston.gov/retirement/investment.asp.

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2020 and 2019

(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, 2020 and 2019).

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, 2020 and 2019

(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, 2020, 2019 and 2018, amounted to \$2,800,819, \$3,166,395, and \$7,507,131, respectively, representing its contractually required contribution for each year along with additional funds to reduce the unfunded liability. Employer contributions, based on actuarially determined amounts, aggregated \$6,208,445, \$5,951,949, and \$4,868,286, or 16.0%, 16.8% and 13.7% of covered payroll in 2020, 2019 and 2018, respectively. At December 31, 2020 and 2019, the Commission had an immaterial deficiency in contributions covered by net excess contribution to the pension plan at December 31, 2020.

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, 2020 and 2019, the Commission reported a liability of \$29.0 million and \$34.8 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, 2020 and 2019, the reporting date, was measured as of December 31, 2020 and 2019, 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 and 2018, rolled forward to December 31, 2020 and 2019, respectively. At December 31, 2020 and 2019, the Commission's proportion was 3.76% and 4.13%.

For the years ended December 31, 2020 and 2019, the Commission recognized pension expense of \$734,972 and \$915,028, 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, 2020 and 2019, 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, 2020 and 2019

(9) Pension Benefits - Continued

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

	<u>2020</u>	<u>2019</u>
<u>Deferred Outflows of Resources</u>		
Contributions subsequent to the measurement date	\$ -	734,972
Differences between expected and actual experience	322,880	387,456
Changes in assumptions	5,404,986	3,077,370
Total	\$ <u>5,727,866</u>	<u>4,199,798</u>
<u>Deferred Inflows of Resources</u>		
Net difference between projected and actual earnings on pension plan investments	\$ 4,093,997	218,581
Differences between expected and actual experience	8,010,786	2,235,600
Total	\$ <u>12,104,783</u>	<u>2,454,181</u>

Contributions of \$0 and \$734,972 and are reported as deferred outflows of resources related to pensions resulting from contributions in calendar years 2021 and 2020, respectively, after the measurement date, and will be recognized as a reduction of the net pension liability for the years ended December 31, 2021 and 2020, respectively.

Other 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,**

2021	\$ (1,213,955)
2022	(19,992)
2023	(3,188,537)
2024	(888,677)
2025	(500,590)
2026	(565,166)
	\$ <u>(6,376,917)</u>

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2020 and 2019

(9) Pension Benefits - Continued

(e) Actuarial Assumptions

The total pension liability as of December 31, 2020 and 2019, was determined using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	3.00% for 2020; 3.50% for 2019
Salary increases	4.00% for 2020; 4.50% for 2019
Investment rate of return	7.00% for 2020; 7.25% for 2019
Post-retirement cost of living adjustment	3.00% of first \$14,000 for both periods

For 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. For 2019, mortality rates for pre-retirees, healthy retirees and disabled retirees were based on RP-2014 Blue Collar Mortality Table projected generationally using MP-2017 set forward one year for females.

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, 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%	

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2020 and 2019

(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, 2019 are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return
Domestic equity	24.00%	6.15%
International developed markets equity	13.00%	6.78%
International emerging markets equity	8.00%	8.65%
Core fixed income	10.00%	1.11%
High-yield fixed income	15.00%	3.51%
Real Estate	8.00%	4.33%
Hedge fund, GTAA, Risk parity	17.00%	3.19%
Private equity	5.00%	9.99%
Total	100.00%	

(f) Discount Rate

The discount rate used to measure the total pension liability was 7.00% and 7.25% for 2020 and 2019. 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% and 7.25% for the years ended December 31, 2020 and 2019, 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:

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

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2020 and 2019

(9) Pension Benefits - Continued

(f) Discount Rate - Continued

	2019 Current Discount Rate	
1.00% Decrease (6.25%)	(7.25%)	1.00% Increase (8.25%)
\$52,937,316	\$34,808,595	\$19,435,798

(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 and 2017, the valuation date for both years ended December 31, 2020 and 2019, 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, 2020 and 2019, the Commission's average contribution rate was 9.96% and 11.82%, respectively, of covered-employee payroll. At December 31, 2020 and 2019, the Commission has an immaterial deficiency in contributions covered by net excess contribution to the OPEB plan at December 31, 2020.

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2020 and 2019

(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 \$35,868,760 and \$45,642,150 was measured as of December 31, 2020 and 2019, respectively, and was determined by an actuarial valuation as of December 31, 2019 and 2017, respectively. 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:	6.25% for 2020; 6.50% for 2019
Investment Rate of Return:	6.25% for 2020; 6.50% for 2019

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 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. For 2019, the mortality rates for pre-retired participants are calculated using RP-2014 Blue Collar Employee Mortality Table projected generationally with Scale MP-2017 set forward one year for females. Mortality rates for retirees and disabled participants is calculated using RP-2014 Blue Collar Annuitant Mortality Table projected generationally with Scale MP-2017 set forward one year for females.

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, 2020 and 2019

(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	2020	
	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%	

Asset Class	2019	
	Allocation	Long-Term Expected Real Rate of Return
Domestic equity	30.00%	6.15%
International developed markets equity	21.00%	6.78%
International emerging markets equity	9.00%	8.65%
Core fixed income	20.00%	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 6.25% and 6.50% as of December 31, 2020 and 2019, 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, 2020 and 2019

(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, 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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The components of the net OPEB liability for the Plan as of December 31, 2019:

Total OPEB Liability	\$ 74,480,894
Fiduciary net position	(28,838,744)
Commission's net OPEB liability	<u>\$ 45,642,150</u>

Fiduciary net position as a percentage of the total OPEB liability	38.72%
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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, 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	<u>(7,638,451)</u>	<u>2,134,939</u>	<u>(9,773,390)</u>
Balances at December 31, 2020	<u>\$ 66,842,443</u>	<u>\$ 30,973,683</u>	<u>\$ 35,868,760</u>

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2020 and 2019

(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, 2018	\$ 70,747,343	\$ 22,902,722	\$ 47,844,621
Changes for the year:			
Service cost	2,134,311	-	2,134,311
Interest	4,646,844	-	4,646,844
Contributions - employer	-	4,200,341	(4,200,341)
Net investment income	-	4,519,177	(4,519,177)
Assumptions	(264,108)	-	(264,108)
Benefit payments	(2,783,496)	(2,783,496)	-
Net changes	3,733,551	5,936,022	(2,202,471)
Balances at December 31, 2019	\$ 74,480,894	\$ 28,838,744	\$ 45,642,150

(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):

2020			
Discount Rate			
	1.00% Decrease (5.5%)	Current Rate (6.5%)	1.00% Increase (7.5%)
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
2019			
Discount Rate			
	1.00% Decrease (5.5%)	Current Rate (6.5%)	1.00% Increase (7.5%)
Net OPEB Liability	\$56,336,917	\$45,642,150	\$37,016,522
Health Care Rate			
	1.00% Decrease	Trend Rate	1.00% Increase
Net OPEB Liability	\$35,180,139	\$45,642,150	\$58,919,702

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2020 and 2019

(10) Postemployment Benefits other than Pensions (OPEB) - Continued**(g) *OPEB Expense and Deferred Outflows or Resources and Deferred Inflows of Resources Related to OPEB***

For the years ended December 31, 2020 and 2019, the Commission recognized OPEB expense of \$747,500 and \$1,902,500, respectively. 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, 2020 and 2019, the Commission reported deferred outflows of resources and deferred inflows of resources related to OPEB as follows:

	<u>2020</u>	<u>2019</u>
<u>Deferred Outflows of Resource:</u>		
Contributions subsequent to measurement date	\$ -	747,500
<u>Deferred Inflows of Resources</u>		
Change in assumptions	\$ 453,808	231,098
Net difference between projected and actual earnings on OPEB plan investments	412,247	1,217,454
Difference between expected and actual experience	845,047	-
Total	\$ <u>1,711,102</u>	<u>1,448,552</u>

The Commission's 2019 and 2018 contributions of \$0 and \$747,500, respectively, reported as deferred outflows of resources related to OPEB resulting from Commission contributions subsequent to the measurement date will be recognized as a reduction of the net OPEB liability in the following year. Other 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>	
2021	\$ (244,419)
2022	(244,418)
2023	(644,422)
2024	(40,056)
2025	(190,267)
Thereafter	(347,520)
	\$ <u>(1,711,102)</u>

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2020 and 2019

(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, 2020, and 2019, the cash balances of uninsured and uncollateralized deposits totaled \$111,267,271 and \$53,410,685, 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, 2020 and 2019

(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,:

		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>
		2019			
Investment type	Fair value	Less than 1	1-5	6-10	More than 10
U.S. Government agencies	\$ 130,904,662	83,312,031	7,876,168	15,991,903	23,724,560
Guaranteed investment contract	8,416,250	-	-	8,416,250	-
Money market	53,410,685	53,410,685	-	-	-
Open ended mutual funds	22,478,674	22,478,674	-	-	-
	<u>\$ 215,210,271</u>	<u>159,201,390</u>	<u>7,876,168</u>	<u>24,408,153</u>	<u>23,724,560</u>

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2020 and 2019

(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, 2020 and 2019 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	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>

Investment type	2020			
	Fair value	AAA	AA	Not Rated
U.S. Government agencies	\$ 130,904,662	107,180,102	-	23,724,560
Guaranteed investment contract	8,416,250	-	-	8,416,250
Money market	53,410,685	-	53,410,685	-
Open ended mutual funds	22,478,674	22,478,674	-	-
	<u>\$ 215,210,271</u>	<u>129,658,776</u>	<u>53,410,685</u>	<u>32,140,810</u>

As of December 31, 2020, and 2019, the Commission had \$36,124,498 and \$23,724,560, 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, 2020 and 2019. Individually, these investments in money market funds range between \$10 million and \$42 million for 2020 and \$11 million and \$20 million for 2019. In the aggregate, they approximate \$93 million and \$63 million for the years ended December 31, 2020 and 2019, respectively.

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2020 and 2019

(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 \$54.3 million as of December 31, 2020.

The Commission has committed to capital improvement projects of approximately \$143.9 million for 2021 through 2022, 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 \$106.6 million represents extension and improvement projects and \$37.3 million represents renewal and replacement projects. The extension and improvement projects will be 19% 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.

A single insurance claim has exceeded coverage by a material amount 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, 2020 and 2019

(13) Risk Management and Other Insurance - Continued

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

	<u>2020</u>	<u>2019</u>
Beginning balance of reserves	\$ 1,687,510	1,445,682
Payment of claims attributable to events of both current and prior years:		
Workers' compensation	-	-
General liability	438,996	940,332
Incurred claims	<u>(129,773)</u>	<u>(698,504)</u>
Ending balance of reserves	\$ <u>1,996,733</u>	<u>1,687,510</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, 2020, as well as the PRO payments made during 2020 and 2019 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 2020, 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.

BOSTON WATER AND SEWER COMMISSION

Notes to Financial Statements - Continued

December 31, 2020 and 2019

(15) Subsequent Event

Subsequent to year-end, the Commission issued \$158 million in general revenue and refunding bonds (2021 Series A) and \$41 million in general revenue bonds (2021 Series B). The bonds are being issued to advance refund certain maturities of the Commission's outstanding bonds and to permanently finance certain capital improvements previously financed by outstanding commercial paper.

REQUIRED SUPPLEMENTARY INFORMATION

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

Year ended	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, 2018	January 1, 2018	January 1, 2016	January 1, 2016	January 1, 2014
Measurement date	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	3.76%	4.13%	4.28%	4.20%	4.20%	2.60%
Commission's proportionate share of the net pension liability	\$ 29,011,883	34,808,595	40,448,003	25,976,537	26,503,599	38,931,280
Commission's covered payroll	\$ 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	74.75%	97.96%	114.03%	74.77%	79.34%	124.14%
Plan fiduciary net position as a percentage of the total pension liability	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,

	2020	2019	2018	2017	2016	2015
Contractually required contribution	\$ 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	2,800,819	3,166,395	7,507,131	4,129,227	11,057,791	7,907,306
Contribution deficiency (excess)	\$ 3,407,626	2,785,554	(2,638,845)	538,358	(6,139,214)	(3,913,038)
Commission's covered payroll	\$ 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	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, 2020 and 2019

Note 1 -

Change in Assumptions

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, 2020	December 31, 2019	December 31, 2018
Total OPEB liability:			
Service cost	\$ 2,190,830	\$ 2,134,311	\$ 2,069,043
Interest	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	(292,259)	(264,108)	-
Benefit payments	<u>(2,887,704)</u>	<u>(2,783,496)</u>	<u>(2,480,017)</u>
Net change in total OPEB liability	(7,638,451)	3,733,551	3,983,812
Total OPEB liability, beginning of year	<u>74,480,894</u>	<u>70,747,343</u>	<u>66,763,531</u>
Total OPEB liability, end of year	<u>66,842,443</u>	<u>74,480,894</u>	<u>70,747,343</u>
Plan fiduciary net position:			
Contributions - employer	3,867,341	4,200,341	6,301,842
Net investment income	1,155,302	4,519,177	(596,759)
Benefit payments	<u>(2,887,704)</u>	<u>(2,783,496)</u>	<u>(2,480,017)</u>
Net change in plan fiduciary net position	2,134,939	5,936,022	3,225,066
Plan fiduciary net position, beginning of year	<u>28,838,744</u>	<u>22,902,722</u>	<u>19,677,656</u>
Plan fiduciary net position, end of year	<u>30,973,683</u>	<u>28,838,744</u>	<u>22,902,722</u>
Net OPEB liability, end of year	<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	46.34%	38.72%	32.37%
Covered payroll	\$ 38,809,388	\$ 35,533,839	\$ 35,472,896
Net OPEB liability as a percentage of covered payroll	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,

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

Note 1 -

Change in Assumptions

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,

	2020	2019
Revenues		
Water revenue	\$ 151,395,689	155,856,895
Sewer revenue	212,105,684	213,568,719
Subtotal	363,501,373	369,425,614
Less:		
Adjustments	10,720,098	10,562,235
Discounts	1,321,341	1,218,447
Bad debt	51,057	378,627
Subtotal	12,092,496	12,159,309
Net billed charges	351,408,877	357,266,305
Prior year surplus	689,553	558,206
Miscellaneous revenues:		
Late charge revenue	350,258	679,568
Investment income	1,980,534	4,609,528
Fire pipe revenue	5,110,863	4,958,922
Other income	24,379,632	11,584,275
Total revenues	383,919,717	379,656,804
Direct operating expenses:		
Salaries and wages	44,008,211	43,648,298
Overtime wages	1,229,981	1,185,585
Fringe benefits	8,652,971	8,519,218
Supplies and materials	2,195,934	2,372,934
Repairs and maintenance	10,745,786	10,123,538
Utilities	1,456,755	1,617,652
Professional services	3,288,593	3,336,607
Space and equipment rentals	291,919	331,653
Other services	1,428,584	1,773,605
Insurance	949,730	717,545
Travel and training	17,890	62,912
Damage claims	4,160	257,515
Inventory	5,840	17,870
Capital outlay	46,574	86,952
Total direct operating expenses	74,322,928	74,051,884
Nonoperating expenses:		
MWRA assessment	241,360,172	235,786,344
Capital improvements	15,948,387	15,382,251
Principal payments	29,547,295	29,945,528
Interest expense	20,632,346	21,838,594
Deposits to reserve funds	1,516,000	1,768,000
SDWA assessment	220,685	194,650
Total nonoperating expenses	309,224,885	304,915,367
Total current expenses	383,547,813	378,967,251
Current year rate surplus	\$ 371,904	689,553

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

2020 - 2019

This part of the Commission's comprehensive annual 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 79-81.

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 82-85.

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 86 and 87.

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 88-92.

Population, Income and Employment – Last Ten Fiscal Years
Demographic and Economic Statistics – Last Ten Fiscal Years
Distribution of Customers by Account Type – Current and Nine Years Ago
Largest Private Employers – Current and Nine Years Ago
Economy, Household Income, Occupation – Year-end 2017 Summary

Operating and Capital Information

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

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

Table 1
Net Position by Component
Last Ten Fiscal Years Summary

	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
								*		
Net investment in capital assets:	\$878,725,980	\$856,309,985	\$814,480,511	\$838,757,300	\$755,338,577	\$764,282,627	\$724,198,689	\$800,137,309	\$717,850,640	\$704,696,145
Restricted for debt service:	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	41,540,947
Restricted for capital assets:	471,799	212,933	202,791	200,300	199,829	200,044	0	100,002	157,941	118,327
Restricted for debt covenants:	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	49,641,373
Unrestricted:	(602,554,117)	(574,446,086)	(534,178,114)	(554,084,031)	(465,829,076)	(473,792,441)	(448,829,430)	(517,415,068)	(450,206,031)	(454,992,268)
Total net position:	<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>	<u>\$341,004,524</u>

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

Source: Commission's Financial Statements.

Table 2
Changes in Net Position
Last Ten Fiscal Years Summary

	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
<i>Operating Revenues:</i>				*		*				
Water usage	\$ 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	\$ 122,406,596
Sewer usage	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	153,214,217
Fire pipe	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	3,990,578
Other income	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	10,276,765
<i>Total Operating Revenues:</i>	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	289,888,156
<i>Operating & Maintenance Expenses:</i>										
Operations	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	53,946,929
Maintenance	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	4,643,428
MWRA assessment (Water)	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	65,889,100
MWRA assessment (Sewer)	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	105,758,794
<i>Total Operating Expenses:</i>	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	230,238,251
Operating income before depreciation:	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	59,649,905
Depreciation & amortization	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	17,907,873
<i>Excess Operating Revenues:</i>	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	41,742,032
<i>Non-Operating Revenues (Expenses):</i>										
Interest income	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	3,866,347
Interest expense	(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)	(14,935,105)
<i>Total Nonoperating Expenses:</i>	(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)	(11,068,758)
<i>Excess revenues before capital grants & contributions & transfer requirements:</i>	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	30,673,274
Capital grants and contributions	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	27,185,487
<i>Excess revenues before transfer requirements:</i>	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	57,858,761
Excess revenues used										
to fund reserves & other deferrals	(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)	(24,208,767)
Change in accumulated revenues										
used to offset future rates	317,649	(131,347)	(132,363)	(177,678)	(27,773)	(99,742)	(25,974)	90,431	(88,179)	20,606
<i>Change in Net Position:</i>	(\$ 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	\$ 33,670,600

* 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

	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Revenues:										
Water Revenue	\$ 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	\$ 122,406,596
Sewer Revenue	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	153,214,217
Subtotal	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	275,620,813
Less:										
Adjustments	(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)	(6,669,240)
Discounts	(1,321,341)	(1,218,447)	(1,250,369)	(1,213,001)	(1,270,584)	(1,238,639)	(912,695)	(908,846)	(915,322)	(890,903)
Bad Debt	(51,057)	(378,627)	(1,111,957)	(36,131)	(358,043)	(223,168)	(484,363)	(58,617)	(85,777)	(72,431)
Subtotal	(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)	(7,632,574)
Net Billed Charges	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	267,988,239
Prior Year Surplus	689,553	558,206	570,607	689,086	521,427	389,062	211,384	183,611	83,871	57,897
Miscellaneous Revenues:										
Late Charges Revenue	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	1,228,499
Investment Income	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	4,034,159
Fire Pipe Revenue	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	3,990,578
Other Income	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	10,276,765
Total Revenues	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	287,576,137
Direct Operating Expenses										
Salaries and Wages	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	31,900,473
Overtime	1,229,981	1,185,585	911,159	863,588	752,156	789,500	778,642	815,128	710,291	737,763
Fringe Benefits	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	7,761,174
Supplies and Materials	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	2,423,659
Repairs and Maintenance	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	5,167,230
Utilities	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	1,189,571
Professional Services	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	2,661,520
Space and Equipment Rentals	291,919	331,653	236,964	303,229	271,702	251,778	235,693	663,354	37,985	48,066
Other Service	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	1,142,055
Insurance	949,730	717,545	491,401	508,943	509,104	533,935	629,990	764,915	756,934	761,796
Inventory	5,840	62,912	15,104	67,629	70,721	10,778	50,864	30,082	22,235	19,065
Capital Outlay	46,574	257,515	40,060	84,415	4,850	76,327	66,283	180,699	70,624	222,279
Travel and Training	17,890	17,870	79,542	21,183	21,871	73,004	16,759	15,207	18,622	19,935
Damage Claims	4,160	86,952	286,008	59,986	75,494	61,729	57,684	64,941	113,681	94,158
Total Direct Operating Expenses	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	54,148,744
Indirect Operating Expenses:										
MWRA Assessment	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	179,514,194
Capital Improvement	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	10,425,758
Debt Service	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	42,598,897
Contractual Funding Obligation	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	598,598
SDWA Assessment	220,685	194,650	203,864	202,703	195,452	198,327	200,249	200,761	204,893	206,075
Total Indirect Operating Expense	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	233,343,522
Total Current Expenses	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	287,492,266
Current Year Rate Surplus	\$ 371,904	\$ 689,553	\$ 558,206	\$ 570,607	\$ 689,086	\$ 521,427	\$ 389,062	\$ 211,384	\$ 183,611	\$ 57,897

Table 4
Largest Users
Last Ten Fiscal Years Summary

	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Boston Housing Authority	\$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	\$10,123,840
Boston University	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	4,232,416
Medical Area Total Energy Corp.	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	3,940,249
Massachusetts Port Authority	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	4,643,237
Partners Healthcare	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	3,735,918
City of Boston	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	5,285,350
Veolia Boston Energy Corp	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	2,570,724
Brigham and Women's Hospital	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	1,591,990
Northeastern University	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	2,337,021
Harvard University	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	3,049,096
Boston Medical Center Corp.	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	2,717,789
Boston Properties LP (PRU)	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	2,046,149
Harbor Point	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	1,186,874
EDIC	1,532,724	*	*	*	*	*	*	*	*	*
Beth Israel Hospital	1,246,190	1,367,702	1,368,967	1,301,944	1,397,939	1,265,430	1,099,090	*	1,015,048	1,229,007
Children's Hospital	1,238,471	1,265,198	*	*	*	*	*	*	*	*
Equity Office Properties Inc.	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	*
Mission Main LMTD	1,191,199	*	*	*	*	*	*	*	*	*
New Georgetowne	1,160,772	*	*	*	*	*	*	*	*	*
Suffolk House of Correction	1,095,783	*	*	*	*	*	*	*	*	*
Total	\$67,476,917	\$67,458,425	\$64,511,835	\$60,015,893	\$60,566,377	\$58,975,145	\$53,466,334	\$53,990,018	\$54,243,520	\$48,689,660
% of Total Operating Revenue	17.15%	19.33%	20.43%	19.80%	20.89%	20.56%	19.58%	20.03%	20.71%	19.89%

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
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%
2011	64.7	54.9	84.9%

(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
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%
2011	271,792,931	273,104,981	100.48%

Source: Commission's Billing System (UMAX)

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

2020

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	\$53.86	\$7.201	\$75.39	\$10.078
Next 20	57.52	7.689	82.02	10.965
Next 50	62.73	8.387	88.50	11.831
Next 260	66.86	8.938	93.45	12.493
Next 950	70.37	9.408	99.14	13.255
Over 1299	73.26	9.794	102.92	13.759

2011

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	\$40.31	\$5.388	\$52.19	\$6.978
Next 20	42.19	5.641	53.80	7.192
Next 50	43.94	5.875	54.88	7.337
Next 260	46.72	6.246	57.90	7.741
Next 950	48.75	6.518	61.10	8.167
Over 1299	50.47	6.747	63.21	8.451

The average one family customer using 180 gallons per day (“GPD”) in 2020 will be charged \$98.03 per 31-day month or approximately \$1,157.51 annually. A multi-unit residence using 600 GPD will be charged \$355.87 per 31-day month or approximately \$4,201.54 annually. A small commercial property using 4,000 GPD will be charged \$2,665.28 per 31- day month or approximately \$31,467.50 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
2020	493,525	28,994	32,971	555,490	N/A	N/A	N/A	N/A
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%
2011	374,246	14,131	42,937	431,314	624,969	690	20,964,076	2.06%

* 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)

	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Cash Receipts*	382,187	375,863	373,194	358,235	358,026	345,972	321,348	313,317	295,979	286,737
Transfers**	(316,219)	(317,079)	(306,966)	(302,400)	(305,857)	(278,726)	(263,488)	(257,281)	(247,076)	(241,202)
Net Revenues	65,968	58,784	66,228	55,835	52,169	67,246	57,860	56,036	48,903	45,535
Debt Service										
Senior Debts Service	44,522	45,642	42,779	42,646	38,961	38,141	35,509	35,421	32,959	32,880
Total Debt Service	44,522	45,642	42,779	42,646	38,961	38,141	35,509	35,421	32,959	32,880
Debt Coverage										
Senior Coverage	148%	129%	155%	131%	134%	176%	163%	158%	148%	138%
Total Coverage	148%	129%	155%	131%	134%	176%	163%	158%	148%	138%

* 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

	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
United States										
Total Personal Income (\$000)	\$ 19,679,715	\$ 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	\$ 12,949,905,000
Per Capita Income (\$)	\$ 59,729	\$ 56,474	\$ 64,327	\$ 51,731	\$ 49,204	\$ 48,190	\$ 46,129	\$ 44,765	\$ 42,693	\$ 41,560
Population	329,484,123	328,329,953	326,687,501	325,147,121	323,405,935	320,896,618	318,857,056	316,128,839	313,914,040	311,591,917
Employment	N/A	203,809,500	200,746,000	196,132,200	193,668,400	190,195,400	185,798,800	182,278,200	179,603,300	175,834,700
New England										
Total Personal Income (\$000)	\$ 1,098,141	\$ 1,035,507	\$ 1,008,436	\$ 927,575,829	\$ 903,272,776	\$ 886,594,738	\$ 831,543,055	\$ 801,066,757	\$ 763,754,701	\$ 743,087,880
Per Capita Income (\$)	\$ 73,961	\$ 69,733	\$ 68,003	\$ 64,334	\$ 61,207	\$ 60,271	\$ 56,642	\$ 54,797	\$ 52,446	\$ 51,274
Population	14,847,468	14,849,662	14,829,322	14,853,290	14,757,573	14,710,229	14,680,722	14,618,806	14,562,704	14,492,360
Employment	N/A	10,127,365	10,032,617	9,886,800	9,795,354	9,571,509	9,378,271	9,217,266	9,125,273	9,002,996
Massachusetts										
Total Personal Income (\$000)	\$ 549,565	\$ 511,334	\$ 483,657,400	\$ 463,930,700	\$ 437,551,353	\$ 425,352,524	\$ 399,204,457	\$ 383,152,205	\$ 363,459,345	\$ 352,242,665
Per Capita Income (\$)	\$ 79,721	\$ 74,161	\$ 70,073	\$ 67,596	\$ 64,122	\$ 62,697	\$ 59,182	\$ 57,248	\$ 54,687	\$ 53,471
Population	6,893,574	6,894,883	6,902,149	6,863,246	6,823,721	6,784,240	6,745,408	6,692,824	6,646,144	6,587,536
Employment	N/A	4,936,751	4,872,851	4,777,678	4,720,200	4,542,723	4,428,064	4,322,176	4,250,566	4,168,887
Metropolitan Boston (1)										
Total Personal Income (\$000)	N/A	397,139,161	383,664,542	358,021,100	336,362,967	327,531,997	308,732,928	289,275,938	284,366,840	\$ 265,794,170
Per Capita Income (\$)	N/A	81,498	78,694	74,024	70,157	68,712	65,142	61,754	61,258	\$ 57,893
Population	N/A	4,873,019	4,875,390	4,836,531	4,794,447	4,766,755	4,739,385	4,684,299	4,642,095	4,591,112
Employment	N/A	3,743,187	3,689,664	3,610,562	3,562,104	3,493,027	3,344,480	3,239,069	3,173,395	3,124,251

(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 2021

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
2020	N/A	N/A	N/A	N/A
2019	692,600	30,952,294	44,690	2.1%
2018	694,583	29,179,432	42,010	2.5%
2017	685,094	27,188,640	39,686	3.4%
2016	673,184	25,101,685	37,288	4.1%
2015	667,137	23,835,471	35,728	4.6%
2014	656,051	22,810,893	34,770	5.2%
2013	644,710	22,009,755	34,139	6.8%
2012	637,516	20,964,076	32,884	6.5%
2011	624,969	20,670,225	33,074	7.0%

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

Sources:

Population:

2020 - U.S. Census Bureau, Population Division, Population Estimates Program

2011-2013 - U.S. Census Bureau, 1 year American Community Survey

Income: U.S. Census Bureau, 1-year American Community Survey estimates, BP&DA Research Division Analysis

Converted to 2013 dollars using the Consumer Price Index

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

Recent unemployment numbers are preliminary and subject to revision

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

2020		
Account Type by Land Code	Number of Accounts	% of Total Accounts
Residential	67,184	76.4%
Residential (other)	9,696	11.0%
Commercial	6,969	7.9%
Tax Exempt	3,264	3.7%
Industrial	873	1.0%
Total By Land Code	87,986	100.0%
2011		
Account Type by Land Code	Number of Accounts	% of Total Accounts
Residential	66,340	75.9%
Residential (other)	9,226	10.6%
Commercial	7,115	8.1%
Tax Exempt	3,745	4.3%
Industrial	947	1.1%
Total By Land Code	87,373	100.0%

Source: Commission's billing system.

Table 13
Largest Private Employers
Current and Nine Years Ago

Employer	Year End 2020			Year End 2011		
	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	11,394	2	1.40%	11,607	2	1.76%
Boston University	10,348	3	1.20%	9,301	3	1.41%
Beth Israel Deaconess Medical Center	8,500	4	1.00%	7,192	5	1.09%
Children's Hospital, Boston	7,757	5	0.90%	7,603	4	1.15%
State Street Bank & Trust Company	7,500	6	0.90%	5,600	7	0.85%
Harvard University Graduate Schools	6,477	7	0.80%			
Boston Medical Center Corporation	6,308	8	0.80%	4,875	9	0.74%
Northeastern University	5,956	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	87,765		10.50%	76,892		11.65%

Note 1: Employment numbers for State Street Bank & Trust Company is currently as of 2017.

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
Economy, Household Income, Occupation
Year-end 2020* Summary

ECONOMY	Boston, MA	United States
Unemployment Rate	3.10%	3.90%
Recent Job Growth	4.30%	1.59%
Future Job Growth	42.50%	33.50%
Sales Taxes	6.25%	7.30%
Income Taxes	5.10%	4.60%
Income per Capita	\$39,686	\$31,177
Household Income	\$62,021	\$57,652
Family Meridian Income	\$69,616	\$70,850
HOUSEHOLD INCOME (ESTIMATED)		
Income less than 15K	15.09%	9.82%
Income between 15K and 25K	6.71%	8.27%
Income between 25K and 35K	5.69%	8.39%
Income between 35K and 50K	7.51%	11.94%
Income between 50K and 75K	13.03%	17.37%
Income between 75K and 100K	10.04%	12.83%
Income between 100K and 150K	14.88%	15.72%
Income between 150K and 200K	7.17%	11.16%
Income over 200K	15.88%	8.49%
POPULATION BY OCCUPATION		
Agriculture, forestry, fishing, hunting	0.10%	1.30%
Construction	3.31%	6.20%
Manufacturing	4.40%	10.40%
Wholesale trade	1.40%	2.70%
Retail trade	8.40%	11.60%
Transportation and warehousing	2.70%	4.10%
Utilities	0.40%	0.90%
Information	2.40%	2.10%
Finance and insurance	7.20%	4.70%
Real estate, rental, leasing	2.00%	1.90%
Professional, scientific, technical services	11.70%	6.70%
Management companies	0.10%	0.10%
Administrative, support, waste mgt. svcs.	4.50%	4.30%
Educational services	13.40%	9.30%
Health care and social assistance	18.40%	13.80%
Arts, entertainment, recreation	2.10%	2.20%
Accommodation, food services	8.50%	7.40%
Other services	4.60%	4.90%
Public administration	4.40%	4.80%

Source: Boston Economy Sperling Views, 2017 & Data USA

*Data unavailable for 2020

Table 15
Divisional Breakdown of BWSC Employees
Last Ten Fiscal Years Summary

	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Executive	36	36	36	35	34	32	32	52	52	53
Executive Director	4	4	5	4	4	3	3	4	4	4
Organizational Diversity	3	3	2	7	7	6	3	3	3	3
Labor Relations	0	0	0	3	3	4	11	4	4	4
General Counsel	14	14	15	14	13	12	15	12	12	12
Human Resources	8	8	8	7	7	7	-	-	-	-
MIS	-	-	-	-	-	-	-	29	29	30
Safety and Training	7	7	6	-	-	-	-	-	-	-
Operations	206	206	205	206	204	209	211	206	210	214
Chief Operations Officer	4	4	-	-	-	-	-	6	6	6
Director of Operations	0	0	3	3	4	4	-	-	-	-
Operations Services	-	-	-	-	-	-	4	-	-	-
Water & Sewer Services	117	117	115	117	114	117	113	125	127	134
Work Order, Compliance & C. S.	32	32	32	32	33	33	35	10	10	10
Asset Management	32	32	34	34	34	35	36	-	-	-
Facilities & Support Services	21	21	21	20	19	20	23	25	26	25
Fleet	-	-	-	-	-	-	-	10	11	10
Storeroom	-	-	-	-	-	-	-	8	8	9
Enforcement	-	-	-	-	-	-	-	22	22	20
Engineering	83	83	84	85	85	83	84	95	89	91
Chief Engineer	4	4	4	6	5	5	5	4	4	4
Design	31	31	32	32	32	32	30	16	16	16
Planning	7	7	8	8	8	7	6	6	4	4
Construction	41	41	40	39	40	39	43	34	32	34
Eng. Services	-	-	-	-	-	-	-	35	33	33
Administration	125	125	126	123	125	128	127	78	78	78
Chief Admn. Officer	1	1	1	1	2	2	2	1	1	1
Meter Services	30	30	31	30	30	30	29	29	29	29
Account Services	35	35	36	36	35	36	38	36	36	37
Comm. & Community Svcs.	10	10	8	7	7	8	7	5	5	4
Facilities & Support Svcs	21	21	20	20	22	22	22	-	-	-
Information Technology	28	28	30	29	29	30	29	-	-	-
Human Resources	-	-	-	-	-	-	-	7	7	7
Finance	52	52	51	53	54	53	54	50	50	51
CFO	3	3	3	4	4	5	6	4	4	4
Budget	8	8	8	8	8	7	7	7	7	7
Accounting	8	8	8	8	8	8	8	8	8	8
Procurement	4	4	4	5	5	5	4	4	4	4
Financial Services	9	9	9	9	9	9	9	9	9	8
Revenues	20	20	19	19	20	19	20	18	18	20
Total Full Time Employees	502	502	502	502	502	505	508	481	479	487
Percent of Total										
Executive	7.17%	7.17%	7.17%	6.97%	6.77%	6.34%	6.30%	10.81%	10.86%	10.88%
Operations	41.04%	41.04%	40.84%	41.04%	40.64%	41.39%	41.54%	42.83%	43.84%	43.94%
Engineering	16.53%	16.53%	16.73%	16.93%	16.93%	16.44%	16.54%	19.75%	18.58%	18.69%
Administration	24.90%	24.90%	25.10%	24.50%	24.90%	25.35%	25.00%	16.22%	16.28%	16.02%
Finance	10.36%	10.36%	10.16%	10.56%	10.76%	10.50%	10.63%	10.40%	10.44%	10.47%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Table 16
Water and Sewer Distribution System
Current Year and Nine Years ago

2020

Appurtenances		Water Distribution System:		Pressure Zone	
		Water Main City Wide			
Hydrants	12,724	Total Linear Feet	5,323,872	High Pressure Fire System	15 Miles
MWRA Meters	0	Total Linear Miles	1,007	Northern High	4 Miles
Gate Valves*	17,635	Pumping Stations	1	Northern Low	89 Miles
				Southern Extra High	80 Miles
				Southern High	560 Miles
				Southern Low	259 Miles
		Sewer Distribution System:			
		Sewer Pipes City Wide		Sewer System Code	
Catch Basins	30,321	Total Linear Feet	8,112,171	Combined Sewer	144 Miles
Manholes	50,605	Total Linear Miles	1,536	Combined Sewer Overflow	12 Miles
Outfalls	273	Pumping Stations	18	Sanitary Sewer	710 Miles
Regulators	148			Storm Drain	670 miles
Tide Gates	201				

2011

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:			
		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 17
Insurance Coverage
Current Year and Nine Years Ago

2020 - 2021

Provider	Policy Period	Type of Coverage	Liability Limits	Annual Premium
Alliant	07/01/20 - 06/30/21	Property	\$250,000,000	\$107,792
Argonaut	07/01/20 - 06/30/21	Vehicles	1,000,000	166,130
Arch	07/01/20 - 06/30/21	Excess Workers Compensation	Statutory	90,200
Various	07/01/20 - 06/30/21	Excess Liability	36,000,000	925,482
Hanover	07/01/20 - 06/30/21	Fidelity and Crime	5,000,000	12,242
U.S. Specialty	07/01/20 - 06/30/21	Fiduciary	5,000,000	20,867
Lloyds of London	07/01/20 - 06/30/21	Cyber	5,000,000	35,400

2011 - 2012

Provider	Policy Period	Type of Coverage	Liability Limits	Annual Premium
Alliant	6/1/11 - 6/1/12	Property	\$151,607,610	\$48,653
Discover RE	6/1/11 - 6/1/12	Automobile	1,000,000	196,336
Discover RE	6/1/11 - 6/1/12	Excess Workers Compensation	25,000,000	105,970
AEGIS	6/1/11 - 6/1/12	Excess Liability	10,000,000	385,194
AEGIS	6/1/11 - 6/1/12	Public Officials Liability	5,000,000	99,531
Great American	6/1/11 - 6/1/12	Fidelity and Crime	5,000,000	10,495
U.S. Specialty	6/1/11 - 6/1/12	Fiduciary	5,000,000	13,446

Source: Commission's General Counsel

Table 18
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)
1/1/2009	66,104,693	87,661,174	75%	21,556,481	29,601,958	73%
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	130,445,069	161,527,980	81%	29,011,883	38,809,388	75%

*Covered employee payroll for 2020 as estimated in the January 1, 2021 actuarial valuation and for 2019 as estimated in the January 1, 2020 valuation.

Information provided by Segal Group, Inc. from December 31, 2019 pension valuation report

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Compliance Section

2020 - 2019



**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 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 Boston Water and Sewer Commission (the "Commission") as of and for the years ended December 31, 2020 and 2019, and the related notes to the financial statements, which collectively comprise the Commission's basic financial statements, and have issued our report thereon dated August 31, 2021.

Internal Control over Financial Reporting

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

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

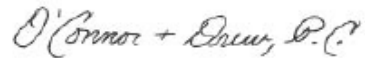
Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or significant deficiencies. Given these limitations, during our audit we did not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

Compliance and Other Matters

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

Purpose of this Report

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



**Certified Public Accountants
Braintree, Massachusetts**

August 31, 2021

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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