New York City Water and Sewer System

A Component Unit of
The City of New York

Annual Comprehensive Financial Report
For the Fiscal Years Ended June 30, 2023 and 2022

New York City
Water and Sewer System

A Component Unit of
The City of New York

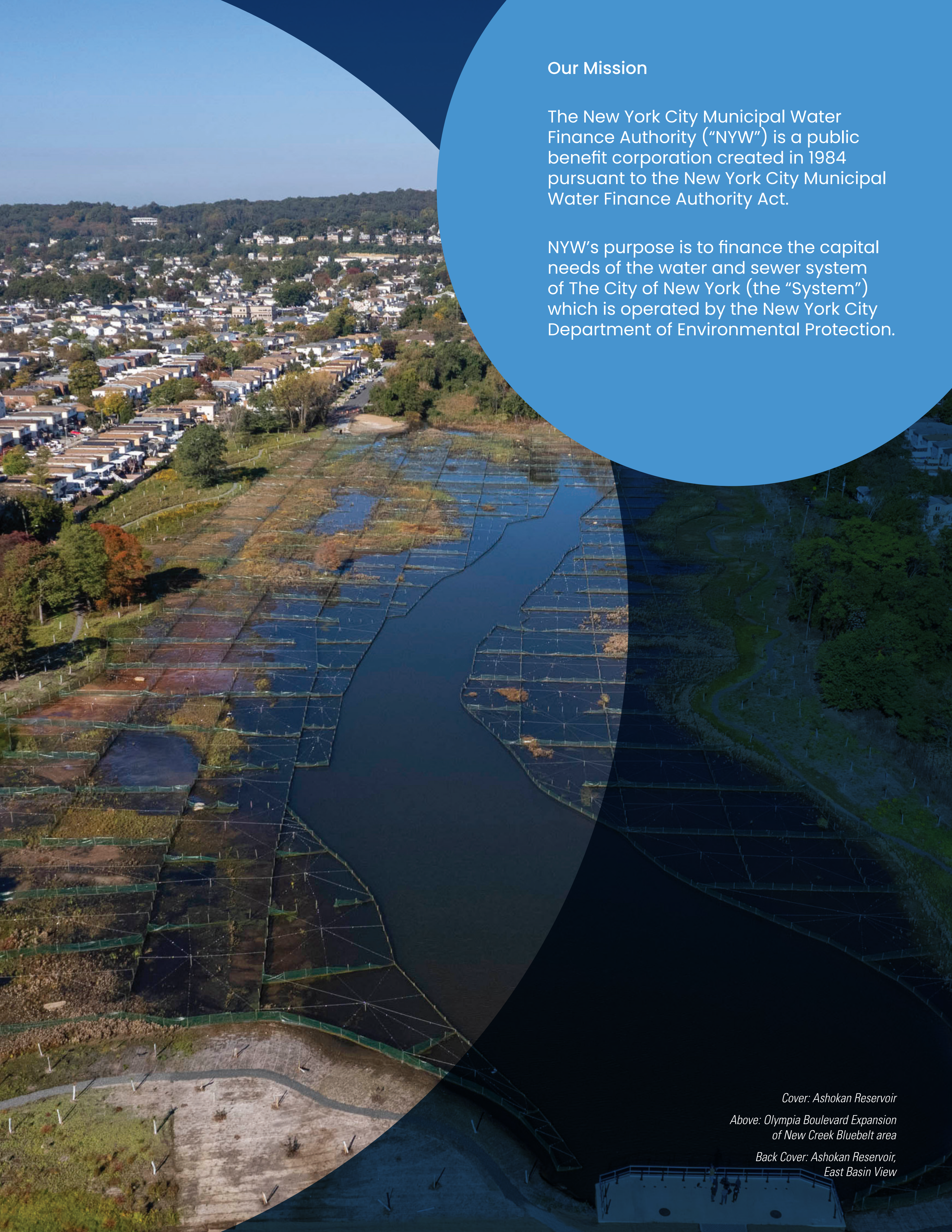
Annual Comprehensive Financial Report
For the Fiscal Years Ended June 30, 2023 and 2022

Prepared by the Accounting Department of the
New York City Municipal Water Finance Authority

Our Mission

The New York City Municipal Water Finance Authority ("NYW") is a public benefit corporation created in 1984 pursuant to the New York City Municipal Water Finance Authority Act.

NYW's purpose is to finance the capital needs of the water and sewer system of The City of New York (the "System") which is operated by the New York City Department of Environmental Protection.



Cover: Ashokan Reservoir

Above: Olympia Boulevard Expansion of New Creek Bluebelt area

Back Cover: Ashokan Reservoir, East Basin View

Table of Contents

Introduction

06 Letter of Transmittal

15 Organizational Chart

18 Certificate of Achievement

19 System Officials

Financial Statements

21 Report of Independent Certified Public Accountants

24 Management's Discussion and Analysis (Unaudited)

COMBINING FINANCIAL STATEMENTS AS OF AND FOR THE YEARS ENDED JUNE 30, 2023 AND 2022

34 Combining Statements of Net Position (Deficit)

38 Combining Statements of Revenues, Expenses and Changes In Net Position (Deficit)

40 Combining Statements of Cash Flows

44 Notes To Combining Financial Statements

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)

76 Schedule of Changes For Total OPEB Plan Liability and Related Ratios

77 Schedule of The Authority's Proportionate Share of The Net Pension Liability

77 Schedule of The Authority's Pension Contributions

Statistical Information

79 Contents

80 Schedules of Financial Trends Information

81 Revenue Capacity Information

83 Schedules of Debt Capacity Information

84 Demographic and Economic Information

86 Operating Information

Introduction

Recreational Boating

Letter of Transmittal

To the

– *Members of the Board of the New York City Municipal Water Finance Authority*

– *Members of the New York City Water Board*

– *Commissioner of the New York City Department of Environmental Protection*

– *Customers of the New York City Water and Sewer System*

December 19, 2023

We are pleased to submit to you this Annual Comprehensive Financial Report of the New York City Water and Sewer System (the "System") for the year ended June 30, 2023. The financial section of this Annual Comprehensive Financial Report includes management's discussion and analysis, the combining financial statements and schedules, as well as the independent auditors' report on these financial statements.

The System is responsible for the accuracy, completeness, and fairness of the presentation, including all disclosures. This letter of transmittal and the management's discussion and analysis, which provides an overview of the System's financial results and is located in the financial section, are intended to complement one another.

The reporting entity consists of two separate and independent corporate bodies that are combined for reporting purposes: the New York City Municipal Water Finance Authority (the "Authority") and the New York City Water Board (the "Water Board"). In addition, the New York City Department of Environmental Protection ("DEP") operates the System. The passage of the New York City Municipal Finance Authority Act of 1984 (the "Act") by the New York State Legislature authorized this financing and operating relationship. The System is a component unit of the City of New York ("the City") for financial reporting purposes.

The Authority is authorized to issue bonds and other debt instruments for construction of and improvements to the System. The Authority also has the power to refund its bonds and notes. The Authority is administered by a Board of Directors composed of seven members, four of whom serve ex-officio, two of whom are appointed by the Mayor of the City, and one of whom is appointed by the Governor of the State of New York (the "State"). The staff of the Authority operates under the direction of its Executive Director.

The Water Board leases the System from the City, sets rates, and collects the System's revenue. The Lease Agreement dated July 1, 1985 (the "Lease"), continues until the later of the fortieth anniversary of the commencement of the Lease or the date on which all bonds, notes or other obligations of the Authority are paid in full or provision for such payment has been made pursuant to the applicable debt instrument. The Water Board is obligated to first allocate the revenues of the System to debt service on the Authority's bonds and to the Authority's expense budget, after which revenues are allocated to the Water Board's expenses, DEP's cost of operating and maintaining the System, and to the rental payment paid to the City, if requested, under the terms of the Lease. The Lease requires the Water Board to make the rental payment to the City, if requested, which is no more than the greater of: i) principal and interest for the fiscal year on the City general obligation bonds issued for water and sewer purposes, or ii) fifteen percent of principal and interest on the Authority's debt for the fiscal year. The rental payment is currently capped at fifteen percent of principal and interest on the Authority's debt for the fiscal year because that is the greater of the two amounts calculated pursuant to the Lease.

The Water Board consists of seven members who are appointed by the Mayor. The Act requires that at least one member has experience in the science of water resource development. Members of the Water Board cannot be members of the Board of Directors of the Authority. The Mayor appoints the Chairman. The staff of DEP supports the operations of the Water Board under the direction of the Water Board's Executive Director.

The operation and maintenance of the water and sewer system is performed by DEP. DEP is managed by a Commissioner who is appointed by the Mayor and oversees a workforce of approximately 5,500 people. DEP works to protect the environmental welfare and health of the City's residents and natural resources, manages the City's water supply, treatment, transmission and distribution system, and collects, treats, and disposes of waste and storm water. DEP supplies water and sewer service to the Boroughs of the Bronx, Brooklyn, Manhattan, Queens and Staten Island, an area of over 300 square miles, and serves approximately 8.3 million people. The City is also required by state law to sell water in counties where its water supply facilities are located. The System currently provides water to approximately 1 million people located in Westchester, Putnam, Orange, and Ulster Counties.

City Tunnel 3

The System provides an average of approximately one billion gallons of water per day. Water consumption has decreased since 1980 when an average of approximately 1.5 billion gallons per day was provided by the water system, at a time when the population of the City was 7.1 million. DEP maintains a system of dams, reservoirs, aqueducts, and water tunnels in addition to approximately 6,800 miles of water mains. DEP also maintains approximately 7,500 miles of sewers that collect and transport waste and storm water for treatment at the City's 14 wastewater treatment plants. Additionally, the System operates combined sewer overflow retention facilities, wastewater pump stations, laboratories, sludge dewatering facilities, and inner-harbor vessels, which transport sludge between facilities. The System collects and treats an average of approximately 1.2 billion gallons per day of sewage. Sewer service is provided to virtually the entire City, except for parts of the Borough of Staten Island and the Borough of Queens community of Breezy Point. Sewer service is also provided to certain upstate communities in the System's watershed areas.

DEP is pursuing a comprehensive program to protect the Catskill and Delaware watersheds in order to ensure continuing quality and comply with Federal and State standards.

Pursuant to a Filtration Avoidance Determination, the City is allowed to avoid filtering water from these relatively pristine systems.

Local Economy

The City has a diversified economic base, with a substantial volume of business activity in the financial, professional services, education, healthcare, hospitality, wholesale and retail trade, information services, and technology industries, and is the location of many securities, banking, law, accounting, new media, and advertising

The System provides an average of approximately one billion gallons of water per day.

DEP maintains a system of dams, reservoirs, aqueducts, and water tunnels in addition to approximately 6,800 miles of water mains.

firms. The City is a major seaport and focal point for international business. Many of the major corporations headquartered in the City are multinational in scope and have extensive foreign operations. Numerous foreign-owned companies in the United States are also headquartered in the City.

Economic activity in the City has experienced periods of growth and recession and can be expected to experience subsequent business cycles in the future. Beginning in 2020, the City encountered significant challenges to its economy as a result of the COVID-19 pandemic. The reduction in business activity, travel, and tourism resulting from the pandemic had a severe impact on the City's retail, cultural, hospitality, and entertainment sectors. As a result of the COVID-19 pandemic, unemployment rates throughout the City increased substantially. However, employment in the City has recovered to pre-pandemic levels. The pandemic has also resulted in a decline in the City's estimated population.

PERSONAL INCOME

From 2013 through 2022 (the most recent year for which City personal income data is available), total personal income, unadjusted for the effects of inflation, grew at a compounded annual average rate of 3.7%. The City's total personal income per capita grew at a compounded annual average rate of 4.1% per year for the same period. In 2022, total personal income per capita in the City exceeded the national total personal income per capita by 22%.

EMPLOYMENT TRENDS

The City is a leading center for the banking and securities industry, education, healthcare, life insurance, communications, publishing, fashion design, technology, information services, hospitality, and retail fields. Over time, the City has experienced numerous business cycles. As of October 2023, total employment in the City was 4,723,500 compared to 4,629,800 in October 2022 (growth of 2.0%) based on data provided by the New York State Department of Labor, which is not seasonally adjusted.

Credit Ratings

The Authority's bonds are highly rated by three rating agencies. The Authority's ratings, among other things, reflect the credit strengths resulting from the strong legal protections provided to bondholders and structural features, which provide a gross pledge of the System revenue to bondholders for debt payments. S&P Global Ratings rates the Authority's first (general) resolution debt "AAA," their highest rating. The Authority's second general resolution debt is rated "AA+" by S&P Global Ratings. Fitch Ratings and Moody's Investors Service rate both the Authority's first and second general resolution debt "AA+" and "Aa1," respectively.

New York State Environmental Facilities Corporation ("EFC") Clean Water and Drinking Water Revolving Funds Revenue Bonds, issued for eligible System projects are rated "AAA" by the three rating agencies. EFC's subordinated state revolving fund bonds are also rated "AAA." The bonds that the Authority places with EFC are an element of security for EFC's bonds but are unrated second general resolution bonds of the Authority.

High Bridge Gatehouse

Internal Controls

The managements of the Water Board and the Authority are responsible for establishing and maintaining an internal control structure designed to provide reasonable, but not absolute, assurance that the assets of the System are protected from loss, theft or misuse, and that accounting policies are complied with and the preparation of financial statements conforms with accounting principles generally accepted in the United States of America. Because the cost of internal controls should not exceed anticipated benefits, the objective is to provide reasonable, rather than absolute, assurance that the financial statements are free of any material misstatements. Internal controls cannot provide absolute assurance of achieving financial reporting objectives due to their inherent limitations. Internal controls involve human diligence and compliance; it is subject to human failures and may be circumvented. Because of such limitations, the Authority and the Water Board have designed into the process safeguards to reduce, though not eliminate, this risk.

DEP is subject to the internal control directives and memorandums that originate from the New York City Office of the Comptroller. These directives establish internal controls and accountability, which safeguard the City's assets. In addition, DEP is subject to audit by the City Comptroller's Office, whose auditors periodically audit the City's agencies adherence to internal control policies and procedures.

The Capital Improvement Program, which is designed to maintain a satisfactory level of service and improve the operation of the System, totals nearly $28.3 billion for the ten-year period from fiscal year 2024 through 2033.

Budgetary Controls

The Water Board and the Authority maintain separate control structures for their specific areas of responsibility. The Water Board and the Authority establish separate operating budgets approved by their respective boards.

DEP's capital and operation and maintenance budgets are appropriated through the City's annual budgets. The City also maintains an encumbrance accounting system as another technique of accomplishing budgetary control. The Authority and the Water Board adopt their budgets coterminously with the City's operating budget cycle.

Capital Program Goals

The goals of the System's capital program are:

– To maintain the quality of the water in the City's watersheds and, where necessary, treat the supply to ensure that it continues to be of high quality;

– To maintain and improve the transmission and distribution capacity of the City's water supply system;

– To improve the quality of the surrounding waters by upgrading the City's sewage treatment facilities and by reducing pollution caused by combined sewer overflows; and

– To contain sanitary sewage and prevent flooding by replacing failing sewers and extending service to underserved areas of the City.

Investments in water pollution control are primarily responsible for the improvements to water quality in New York Harbor and the Jamaica Bay watershed.

Capital Improvement Program and Financing Program

The City's Current Capital Plan, which covers fiscal years 2024 through 2027 was published in September 2023. The Current Capital Plan is typically updated three times each fiscal year. Simultaneously with the release of the Current Capital Plan, DEP updated projected capital commitments for the ten-year period covering fiscal years 2024 through 2033, referred to herein as the Capital Improvement Program (the "CIP").

The CIP is designed to maintain a satisfactory level of service and improve the operation of the System. The CIP establishes long-range programmatic goals for the System and reflects a review of the present condition and long-term needs of the plants and equipment constituting the System. The CIP also incorporates the System's requirements for meeting legal mandates, the present replacement cycle for System facilities, extensions to the present service area, and programs to enhance and optimize the operation and dependability of the System.

Additionally, DEP has been engaged in an ongoing review of the effects of climate change on the System, including the impact of rising sea levels and changes to the intensity and frequency of precipitation events throughout the System. DEP is in the process of implementing climate resiliency projects, which include both stand-alone resiliency projects and the integration of resiliency protection into DEP's ongoing investments. Such projects include structural upgrades, and improvements to the Ashokan Reservoir, improvement to wastewater treatment assets to protect them from flooding, stormwater management projects, and resiliency projects along the East River. DEP expects that additional resiliency projects will be identified and implemented in the coming years.

The total capital commitments projected to be provided from the System funds is nearly $28.3 billion for the ten-year period from fiscal year 2024 through 2033. The capital commitments shown in each year represent capital contracts authorized to be entered into each year that will be paid from the City funds and reimbursed by the Authority, largely from bond proceeds. Actual expenditures from such capital contracts and the issuance of the Authority's bonds to fund such expenditures occur in the current and subsequent years. The following table reflects the CIP as of September 2023. For a number of reasons, including unforeseen cost inflation and changes in plans, actual costs may vary from the CIP set forth in the table. The CIP is divided into five project types, each discussed below.

Capital Improvement Program

($ in millions)

	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total
Water Supply and Transmission	$ 850	$ 24	$ 1,027	$ 455	$ 824	$ 9	$ 25	$ 25	$ 25	$ 25	$ 3,289
Water Distribution	388	639	732	890	424	1,130	623	421	591	507	$ 6,345
Water Pollution Control	930	1,332	1,198	842	1,789	1,232	663	336	103	237	$ 8,662
Sewers	296	478	534	922	470	402	1,312	1,313	1,614	1,912	$ 9,253
Equipment	90	137	42	42	26	211	149	30	5	9	$ 741
Total City Funds	$ 2,554	$ 2,610	$ 3,533	$ 3,151	$ 3,533	$ 2,984	$ 2,772	$ 2,125	$ 2,338	$ 2,690	$ 28,290

The System collects and treats an average of approximately 1.2 billion gallons per day of sewage.

DEP maintains approximately 7,500 miles of sewers that collect and transport waste and storm water for treatment at the City's 14 wastewater treatment plants.

WATER SUPPLY AND TRANSMISSION

This component of the CIP includes approximately $1.4 billion for Stage 2 of the City's Water Tunnel No. 3 and upgrades at the Hillview Reservoir. The Hillview Reservoir upgrades include new chemical addition facilities and flow control improvements. In May 2019, a federal court approved a Consent Decree that requires DEP to cover the Hillview Reservoir by 2049. The CIP includes $50 million in funding for planning and design of a cover.

Stage 2 of the City's Water Tunnel No. 3 extends from the end of Stage 1 to supply Queens, Brooklyn, sections of lower Manhattan, and the Richmond Tunnel servicing Staten Island. Water Tunnel No. 3 will augment the transmission capacity from the watersheds into the City, permit the inspection and rehabilitation of Tunnels No. 1 and 2, and provide delivery alternatives to the City in the event of disruption in Tunnels No. 1 or 2, which were put into operation in 1917 and 1936, respectively. Stage 1 of Tunnel No. 3 commenced operation in July 1998. The Manhattan leg of Stage 2 was completed and activated in October 2013. The tunnel and most of the infrastructure work for the Brooklyn/Queens segment of Stage 2 are complete, with two final shafts to be constructed. Designs are also underway to connect the Brooklyn/Queens segment to the Richmond Downtake Chamber, which will provide water from Tunnel No. 3 to Staten Island.

The CIP also includes nearly $1.9 billion for the Kensico-Eastview Connection, which was previously referred to as "Stage III of the City's Water Tunnel No. 3". The Kensico-Eastview Connection will connect the Kensico Reservoir to the Catskill/Delaware ultraviolet facility, which is necessary to provide redundancy in the water supply system.

Roy Wilkins Park dredging project completed with removal of duck weed

Lower Manhattan

The CIP includes approximately $33 million for water conveyance projects. Funds included in the CIP for conveyance include DEP's Water for the Future program, which consists of repair and replacement of the Rondout-West Branch Tunnel of the Delaware Aqueduct, as well as water supply augmentation projects required to ensure an adequate water supply to the City during the shut-down of the tunnel starting in October 2024. Water supply augmentation includes the rehabilitation of the Catskill Aqueduct and a water demand management program to reduce the City water consumption. Shaft construction for the bypass tunnel is underway and funds for construction were committed in prior years.

WATER DISTRIBUTION AND TREATMENT

The System's drinking water is among the best in the country. The CIP includes approximately $6.3 billion for the protection, expansion, and distribution of the City's water supply, including nearly $2.7 billion for trunk and distribution water main replacements and extensions. Also included is nearly $1.2 billion for the dam safety program, including the reconstruction of Gilboa Dam, improvements at the Ashokan Reservoir, including upgrading and stabilizing the thirteen dikes and dams to bring them up to modern standards.

The program also calls for approximately $1.6 billion to be committed to on-going water quality preservation and protection. To ensure its continuing quality and to comply with federal and state standards, DEP is pursuing a comprehensive program to protect the relatively pristine Catskill and Delaware watersheds. DEP continues to acquire and manage environmentally sensitive property in the upstate watershed and undertake other ongoing projects in partnership with watershed residents, as part of the Filtration Avoidance Determination ("FAD") issued by the U.S. Environmental Protection Agency ("USEPA"). The FAD allows the City to avoid filtering water from the Catskill and Delaware systems. In July 2007, USEPA issued, for the first time, a 10-year FAD to the City, extending to 2017. In December 2017, the New York State Department of Health issued a new 10-year FAD. The estimated remaining cost of complying with the 2017 FAD is $159 million, all of which is included in the CIP. USEPA has previously issued a series of FADs to the City for shorter terms, since 1993.

WATER POLLUTION CONTROL

To improve the quality of the City's estuaries and surrounding waterways and to comply with federal Clean Water Act mandates, nearly $8.7 billion is included in the CIP for water pollution control programs. Investments in water pollution control are primarily responsible for the improvements to water quality in New York Harbor and the Jamaica Bay watershed.

The CIP allocates approximately $6.0 billion for the replacement or reconstruction of components at the City's wastewater resource recovery facilities to ensure their continuous and reliable operations. The City has made substantial progress toward the plant upgrades, including the retrofitting of eight plants to achieve additional nitrogen treatment. The remaining funds allocated in the CIP include additional projects to make additional upgrades or to reconstruct the treatment plants, sewage pump stations, motor vessels, and components of the plant treatment system.

DEP's CIP also includes $1.6 billion for mandated projects, which will reduce combined sewer overflow ("CSO"). CSOs are currently a source of pollution in the waterways surrounding the City. CSO events occur during and after heavy rainstorms, when the flow of wastewater and storm water in the sewers exceeds the treatment capacity of a wastewater treatment plant and enters surrounding waterways untreated. In September 2010, DEP released a green infrastructure plan presenting an alternative approach to reducing CSOs. The plan uses a mix of green infrastructure to prevent storm water from reaching the sewers and cost-effective traditional infrastructure that will reduce sewer overflows into waterways. On March 8, 2012, DEP signed a groundbreaking agreement with the New York State Department of Environmental Conservation to reduce CSOs, which incorporated the goals of this innovative plan. As required by the agreement, DEP submitted eleven CSO long-term control plans to ensure the water bodies comply with Clean Water Act requirements and received approval for all eleven of the submitted plans.

Ashokan Reservoir from the rail trail

SEWERS

Nearly $9.3 billion is projected in the CIP to be committed to replace existing sewers in areas requiring increased capacity, to extend sewers to unserved or underserved areas, and to replace failing, flawed, or collapsed sewer mains.

Certain parts of the City, including areas of southeast Queens and Staten Island, do not have built-out storm sewer infrastructure. The CIP allocates $1.8 billion to construction of storm sewer infrastructure in southeast Queens. The complete cost estimate for the buildout, which is expected to take forty-five years, is not available.

EQUIPMENT

Programs in this category of the CIP include reconstruction and rehabilitation of various water and sewer filed operations facilities and DEP administrative offices, utility relocation for sewer and water mains, management information systems, water meter installation and replacement, and the procurement of vehicles and equipment. About $742 million is included in the CIP for these projects.

Approximately 96% of total accounts and approximately 75% of total revenues, are billed on metered basis. The automated meter reading system transmits water usage information by radio signal to DEP. DEP has installed approximately 829,800 transmitters, representing 99% of DEP's installation target. All customers whose accounts have been upgraded for automated meter reading can now access details of their daily water consumption through DEP's website.

On September 7, 2021, DEP launched a new cloud-based computer billing system. Enhancements include new features allowing customers to more closely monitor their bills and water usage, more dynamic business management reporting capabilities, including stronger customer data analytics and accounts receivable reporting, and overall improvements to the system's speed and flexibility.

Independent Audit

Section 6.11 (b) of the Financing Agreement by and among the City, the Authority, and the Water Board dated as of July 1, 1985, requires that the Authority shall submit to the Mayor, the Comptroller and the Director of Management and Budget of the City, audited annual financial statements of the Authority and the Water Board. The financial section of this 2023 Annual Comprehensive Financial Report begins with the report of our independent auditors, Grant Thornton LLP. This report expresses an unmodified opinion as to the fairness of the presentation of our financial statements.

Ashokan Reservoir

The Authority's high bond ratings, among other things, reflects the credit strengths resulting from the strong legal protections provided to bondholders and structural features that provide a gross pledge of System Revenues.

Award

Government Finance Officers Association of the United States and Canada ("GFOA") awarded a Certificate of Achievement for Excellence in Financial Reporting to New York City Water and Sewer System for its annual comprehensive financial report for the fiscal year ended June 30, 2022. This was the 27th consecutive year that the government has achieved this prestigious award. In order to be awarded a Certificate of Achievement, a government must publish an easily readable and efficiently organized annual comprehensive financial report. This report must satisfy both generally accepted accounting principles and applicable legal requirements.

A Certificate of Achievement is valid for a period of one year only. We believe that our current annual comprehensive financial report continues to meet the Certificate of Achievement Program's requirements and we are submitting it to GFOA to determine its eligibility for another certificate.

Acknowledgements

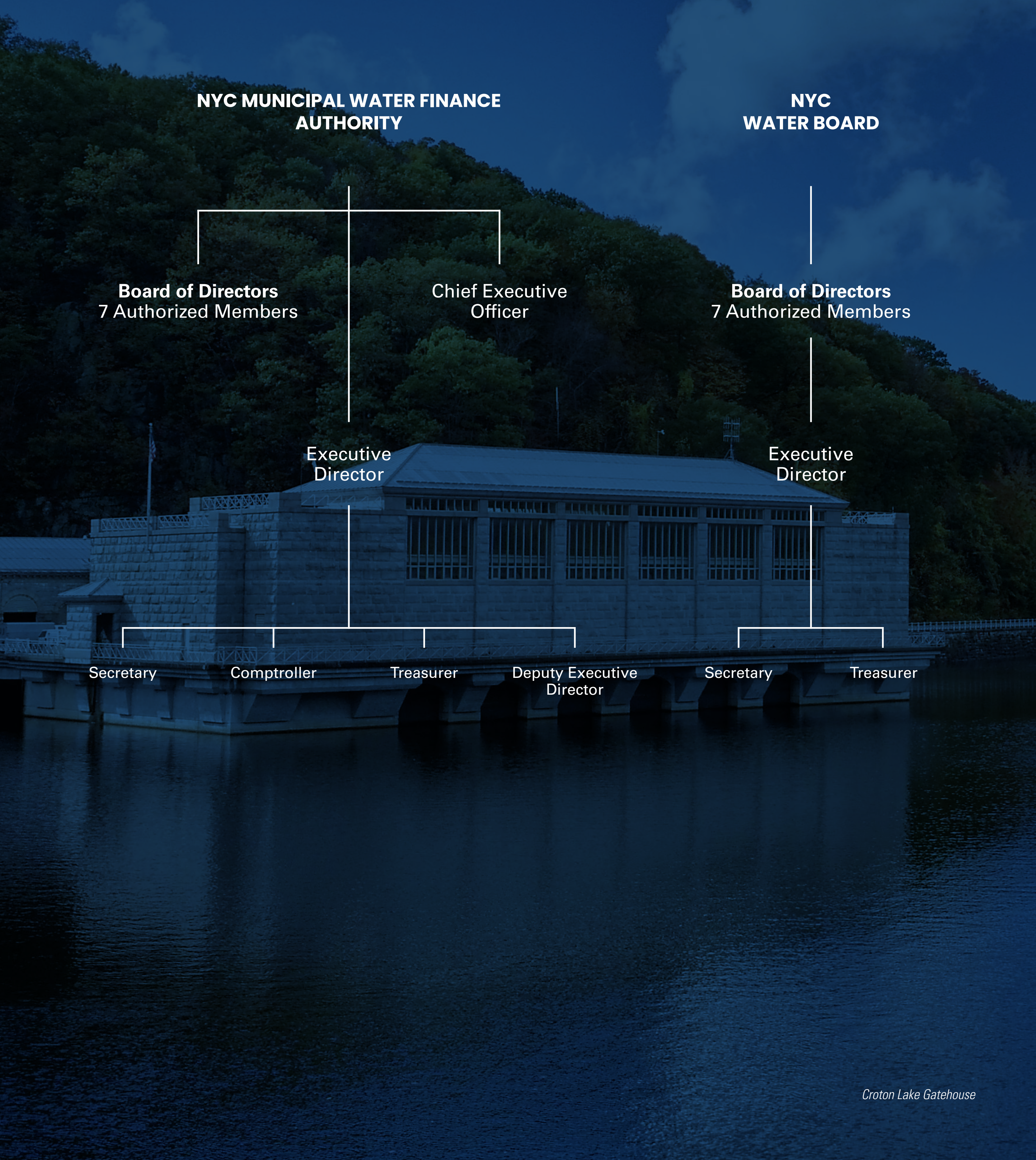
This report could not have been prepared without the dedicated and tireless work of the staff at the Authority, the Water Board, the DEP, and without the support of the board members of both the Authority and the Water Board.

Respectfully submitted,

Philip Wasserman
Executive Director

Raymond Lee
Comptroller

ORGANIZATIONAL CHART



Croton Lake Gatehouse

ORGANIZATIONAL CHART

NYC DEPARTMENT OF ENVIRONMENTAL PROTECTION

Commissioner

- Chief Operating Officer
  - Wastewater Treatment
  - Water Supply
  - Water & Sewer Operations
  - Engineering Design & Construction
  - Customer Services
  - Sustainability
  - Environmental Health and Safety
  - Police & Infrastructure Security
- Public Affairs & Communications
- General Counsel
- Energy Resource and Recovery
- Organizational Development & Human Resources
- Office of Strategy and Innovation
- EEO, Diversity & Inclusion
- Chief Financial Officer
  - Agency Administrative Functions and Procurement
  - Budget
  - Business Information Technology
  - Water Board

Croton Lake Gatehouse

Delaware System
Catskill System
Cannonsville Reservoir
Schoharie Reservoir
Gilboa
West Branch
Pepacton Reservoir
Shandaken Tunnel
Schoharie Creek
Catskill
Walton
Esopus Creek
Ashokan Reservoir
Downsville
Deposit
NEW YORK
CONNECTICUT
West Delaware Tunnel
East Delaware Tunnel
N.Y.
PENN.
East Branch
Kingston
Hancock
Rondout Reservoir
Delaware River
Liberty
Grahamsville
Neversink Reservoir
Neversink Tunnel
Rondout Creek
Croton System
Ellenville
Poughkeepsie
Hudson River
Neversink River
Delaware Aqueduct
West Branch Reservoir
Catskill Aqueduct
Port Jervis
Milford
Montague
New Croton Reservoir
NEW YORK
NEW JERSEY
New Croton Aqueduct
Delaware River
Kensico Reservoir
Hillview Reservoir
Valhalla
Catskill/Delaware UV Water Treatment Plant
Long Island Sound
Jerome Park Reservoir
Croton Filtration Plant
LONG ISLAND
City Tunnel No. 3
Stage 1
EAST RIVER
City Tunnel No. 2
City Tunnel No. 3
Stage 2 Manhattan Section
Groundwater Wells
City Tunnel No. 1
City Tunnel No. 3
Stage 2 Queens/Brooklyn Section
Richmond Tunnel
STATEN ISLAND
Silver Lake Park
(Underground Storage Tanks)
New York Harbor
ATLANTIC OCEAN

Government Finance Officers Association

Certificate of Achievement for Excellence in Financial Reporting

Presented to

New York City Water and Sewer System
New York

For its Annual Comprehensive
Financial Report
For the Fiscal Year Ended

June 30, 2022

Christopher P. Morrill

Executive Director/CEO

System Officials

New York City Municipal Water Finance Authority

BOARD OF DIRECTORS

Jacques Jiha, *Ex Officio Member*

Basil Seggos, *Ex Officio Member*

Rohit T. Aggarwala, *Ex Officio Member*

Preston Niblack, *Ex Officio Member*

Marc V. Shaw, *Member*

Max Von Hollweg, *Member*

STAFF

David Womack, *Chief Executive Officer*

Philip Wasserman, *Executive Director*

Sanna Wong-Chen, *Deputy Executive Director*

Jeffrey M. Werner, *Secretary*

Albert M. Rodriguez, *Assistant Secretary*

Raymond Lee, *Comptroller*

Nameca Sharma, *Deputy Comptroller*

Laura Neesley, *Assistant Treasurer*

New York City Water Board

MEMBERS

Alfonso L. Carney Jr., *Chairman*

Evelyn Fernandez-Ketcham, *Member*

Adam Freed, *Member*

Jonathan E. Goldin, *Member*

Jukay Hsu, *Member*

Arlene M. Shaw, *Member*

Daniel A. Zarrilli, *Member*

STAFF

Joseph P. Murin, *Executive Director*

Omar A. Nazem, *Treasurer*

Albert M. Rodriguez, *Secretary*

New York City Department of Environmental Protection

Rohit T. Aggarwala, P.E., *Commissioner*

OFFICE OF THE CHIEF FINANCIAL OFFICER AND BUDGET

Joseph P. Murin, *Chief Financial Officer*

Elisa Velazquez, *Deputy Commissioner and Deputy Chief Financial Officer*

CUSTOMER SERVICES

Jeff Lynch, *Deputy Commissioner*

LEGAL AFFAIRS

Elissa Stein Cushman, *General Counsel*

WASTEWATER TREATMENT

Angela Delillo, P.E., *Deputy Commissioner*

WATER AND SEWER OPERATIONS

Anastasos Georgelis, P.E., *Deputy Commissioner*

SUSTAINABILITY

Angela Licata, *Deputy Commissioner*

POLICE AND SECURITY

Frank Milazzo, *Acting Deputy Commissioner*

ENGINEERING DESIGN AND CONSTRUCTION

Ana Barrio, *Deputy Commissioner*

ORGANIZATIONAL DEVELOPMENT AND HUMAN RESOURCES

Zoe Ann Campbell, *Deputy Commissioner*

WATER SUPPLY

Paul V. Rush, P.E., *Deputy Commissioner*

BUSINESS INFORMATION TECHNOLOGY

Michael Shum, *Chief Information Officer*

PUBLIC AFFAIRS & COMMUNICATIONS

Beth Defalco, *Deputy Commissioner*

As of October 27, 2023

Financial Statements

Titicus Reservoir and Dam

Grant Thornton

GRANT THORNTON LLP
757 Third Ave., 9th Floor
New York, NY 10017-2013

D +1 212 599 0100
F +1 212 370 4520

REPORT OF INDEPENDENT CERTIFIED PUBLIC ACCOUNTANTS

To the Members of the Joint Audit Committee of the
New York City Municipal Water Finance Authority and New York City Water Board

Opinion

We have audited the combining financial statements of the New York City Municipal Water Finance Authority (the "Authority") and the New York City Water Board, which collectively comprise the New York City Water and Sewer System (the "System"), a component unit of The City of New York, which collectively comprise the combining statements of net position (deficit), and the related combining statements of revenues, expenses, and changes in net position (deficit) and combining statements of cash flows as of and for the years ended June 30, 2023 and 2022, and the related notes to the combining financial statements.

In our opinion, the accompanying combining financial statements present fairly, in all material respects, the financial position of the New York City Municipal Water Finance Authority and the New York City Water Board as of June 30, 2023 and 2022, and the respective changes in their financial position and their cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for opinion

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

Responsibilities of management for the financial statements

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

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

Grant Thornton LLP is the U.S. member firm of Grant Thornton International Ltd (GTIL). GTIL and each of its member firms are separate legal entities and are not a worldwide partnership.

Grant Thornton

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

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

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

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

Required supplementary information
Accounting principles generally accepted in the United States of America require that the management's discussion and analysis on pages 24 through 33, the schedule of changes for total OPEB plan liability and related ratios on page 76, the schedule of the Authority's proportionate share of the net pension liability on page 77, and the schedule of the Authority's pension contributions on page 77 be presented to supplement the basic combining financial statements. Such information is the responsibility of management and, although not a required part of the basic combining financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic combining financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with US GAAS. These limited procedures consisted of

inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic combining financial statements, and other knowledge we obtained during our audits of the basic combining 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 information

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

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

Grant Thornton LLP

New York, New York
October 12, 2023

Management’s Discussion and Analysis (Unaudited)

June 30, 2023 and 2022

Overview of the Combining Financial Statements

The following is an overview of the financial activities of the New York City Water and Sewer System (the “System”) as of and for the fiscal years ended June 30, 2023 and 2022. The System is a joint operation consisting of two legally separate and independent entities: the New York City Municipal Water Finance Authority (the “Authority”) and the New York City Water Board (the “Water Board”). The System is a component unit of The City of New York (the “City”).

The combining financial statements consist of four parts: (1) management’s discussion and analysis (this section), (2) the basic combining financial statements, (3) the notes to the combining financial statements and (4) required supplementary information.

The basic combining financial statements of the System, which include the combining statements of net position (deficit), the combining statements of revenues, expenses and changes in net position (deficit) and the combining statements of cash flows, are presented for the purposes of displaying entity-wide information in accordance with Governmental Accounting Standards Board (“GASB”) requirements. These combining financial statements are prepared using the economic resources measurement focus and the accrual basis of accounting. Accordingly, revenues are recognized when earned, and expenses are recorded when a liability is incurred, regardless of the timing of the related cash flows.

Financial Analysis and Results of Operations

The following summarizes the activities of the System for the fiscal years 2023, 2022, and 2021, respectively (in thousands):

				Variance	
	2023	2022	2021	2023 vs 2022	2022 vs 2021
REVENUES:					
Operating revenues:					
Water supply and distribution	$ 1,582,456	$ 1,441,310	$ 1,375,769	$ 141,146	$ 65,541
Sewer collection and treatment	2,516,104	2,291,683	2,187,473	224,421	104,210
Bad debt expense	(98,632)	(10,013)	(81,390)	(88,619)	71,377
Other operating revenues	203,039	156,062	174,139	46,977	(18,077)
Total operating revenues	4,202,967	3,879,042	3,655,991	323,925	223,051
Non-operating revenues:					
Subsidies/grants	183,001	156,389	154,105	26,612	2,284
Investment income (loss)	96,007	(5,985)	1,949	101,992	(7,934)
Total non-operating revenues	279,008	150,404	156,054	128,604	(5,650)
TOTAL REVENUES	4,481,975	4,029,446	3,812,045	452,529	217,403
EXPENSES:					
Other operating expenses	164,464	89,395	128,064	75,069	(38,669)
Operations and maintenance	1,710,007	1,574,864	1,687,273	135,143	(112,409)
General and administrative	47,153	46,450	46,600	703	(150)
Depreciation and amortization	1,022,165	1,037,925	973,433	(15,760)	64,492
Capital distributions	161,577	37,967	23,090	123,610	14,877
Net loss on retirement and impairment of capital assets	1,566	3,080	3,540	(1,514)	(460)
Gain on defeasance	—	(9,244)	(11,568)	9,244	2,324
Interest expense and cost of issuance	1,161,526	1,049,642	1,075,697	111,884	(26,055)
TOTAL EXPENSES	4,268,458	3,830,079	3,926,129	438,379	(96,050)
Net income (loss) before capital contributions	213,517	199,367	(114,084)	14,150	313,451
CAPITAL CONTRIBUTIONS	19,765	18,544	24,463	1,221	(5,919)
CHANGE IN NET POSITION (DEFICIT)	233,282	217,911	(89,621)	15,371	307,532
NET POSITION (DEFICIT)—Beginning	1,660,466	1,442,555	1,532,176	217,911	(89,621)
NET POSITION (DEFICIT)—Ending	$ 1,893,748	$ 1,660,466	$ 1,442,555	$ 233,282	$ 217,911

Operating Revenues

Operating revenues are comprised of water supply and distribution, sewer collection and treatment, bad debt expense, and other operating revenues.

2023–2022

Operating revenues increased by $324 million, or 8.4% compared to fiscal year 2022. The increase in revenues reflects a combination of (a) 4.90% rate increase for fiscal year 2023, (b) an overall increase in water consumption by customers, and (c) revenues received from customers participating in the Board's Water Bill Amnesty Program and from amounts received through the New York State Office of Temporary Disability Assistance's Low Income Household Water Assistance Program.

Bad debt expense increased by $88.6 million. During fiscal year 2023, management reviewed the methodology for estimating accounts receivable and reserves for non-utility charges and updated its methodology for reserving those balances.

2022–2021

Operating revenues increased by $223 million, or 6.1% compared to fiscal year 2021. The increase in revenues reflects a combination of (a) 2.76% rate increase for fiscal year 2022, (b) an overall increase in water consumption by customers.

Other Operating Revenues

The following further details other operating revenues for fiscal years 2023, 2022, and 2021, respectively (in thousands):

				Variance	
	2023	2022	2021	2023 vs 2022	2022 vs 2021
Upstate water fees	$ 92,645	$ 76,071	$ 89,016	$ 16,574	$ (12,945)
Late payment fees	69,092	29,864	31,854	39,228	(1,990)
Change in residual interest in sold liens	114	—	(4,653)	114	4,653
Connection fees and permits	10,391	9,793	13,569	598	(3,776)
Service line protection program	30,797	40,334	44,353	(9,537)	(4,019)
TOTAL OTHER OPERATING REVENUES	$ 203,039	$ 156,062	$ 174,139	$ 46,977	$ (18,077)

2023–2022

Upstate water fees increased by $16.6 million. This was due to a combination of an increase in the volume of water supplied to these customers, including increases to the volume of water sold at both the entitlement and excess rates, and increases to the entitlement and excess rates of 1.4% and 4.9%.

Late payment fees increased by $39.2 million compared to fiscal year 2022 due to more payments made for delinquent accounts, an increase in the average effective interest rate the Board was authorized by the New York City Council to charge, and the ability of DEP's new billing system to charge multiple tiers of interest rates depending on assessed property values. This amount fluctuates depending on the timeliness of customer payment.

The amounts received for the service line protection program decreased by $9.5 million, due to a decrease in the number of policies in effect during the year and an increase in customer delinquencies.

2022–2021

Upstate water fees decreased by $12.9 million. This was due primarily to a decrease in the volume of water supplied to these customers, including decreases to the volume of water sold at both the entitlement and excess rates.

Late payment fees decreased by $2.0 million compared to fiscal year 2021 due to fewer payments made for delinquent accounts. This amount fluctuates depending on the timeliness of customer payment.

The amounts received for the service line protection program decreased by $4.0 million. The number of effective policies decreased from approximately 272 thousand on June 30, 2021, to approximately 236 thousand by the end of fiscal year 2022.

Non-Operating Revenues

Non-operating revenues are comprised of subsidies, grants and investment income.

2023–2022

Investment income increased by $102 million compared to fiscal year 2022. The increase was mainly due to higher yields on new securities purchased and more funds available to invest during fiscal year 2023.

2022–2021

Investment income decreased by $7.9 million compared to fiscal year 2021. The decline was mainly due to unrealized losses on fixed income investments because of a decline in value of fixed income investments as a result of higher forward interest rates.

Operating Expenses

Operating expenses are comprised of operations and maintenance, general and administrative, depreciation and amortization, and other operating expenses.

2023–2022

Total operations and maintenance expense increased by $135 million or 8.6% compared to fiscal year 2022. This is due primarily to the City's collective bargaining settlement with DC37, an increase in the rate used to calculate fringe benefits, and increases in other than personal services expenses.

Depreciation and amortization decreased by $15.8 million compared to fiscal year 2022.

Other operating expenses increased $75.1 million compared to fiscal year 2022, primarily due to increases in program expenses, pollution remediation expenses, and expenses related to the System's filtration avoidance determination.

2022–2021

Total operations and maintenance expense decreased by $112.4 million or 6.7% compared to fiscal year 2021. This is due primarily to the City not requesting a rental payment in fiscal year 2022 offset by an increase in the wastewater operating cost.

Depreciation and amortization increased by $64.5 million compared to fiscal year 2021.

Non-Operating Expenses

Non-operating expenses are comprised of interest expense, gain on defeasance, cost of issuance, net loss on retirement of capital assets, and capital distribution.

2023–2022

Capital distribution increased by $124 million in fiscal year 2023 compared to fiscal year 2022. In fiscal year 2023, DEP distributed over $50.0 million for the South Shore of Staten Island Coastal Storm Risk Management project. DEP is collaborating with the U.S. Army Corps of Engineers and other City agencies to design and construct the protective seawall at the Shoreline Parks in Staten Island. DEP is responsible for the interior drainage and stormwater retention components of this project, including bluebelts, to reduce runoff into the sewer system. The capital distributions amount also varies each year based on the land acquired and then granted to the City.

Interest expense and cost of issuance increased by $112 million. This increase was primarily due to the issuance of new bonds and higher interest expense, offset by amortization of bond premium and deferred refunding cost which decrease interest expense.

Gain on defeasance decreased by $9.2 million because there was no cash defeasance in fiscal year 2023.

2022–2021

Capital distribution increased by $14.9 million in fiscal year 2022 compared to fiscal year 2021. This amount varies each year based on the land acquired and then granted to the City.

Interest expense and cost of issuance decreased by $26.1 million. This decrease was primarily due to the amortization of bond premium and deferred refunding cost which are offsets to interest expense. Prior to such offsets the amount of interest expense was comparable to interest expense in fiscal year 2021.

Fiscal year 2022 cash defeasance resulted in an accounting gain of $9.2 million. This represents the difference between the carrying value of the defeased bonds and the amount transferred to fund the escrow account (using current resources) to defease the bonds. This gain was reported in the System's combining statement of revenues, expenses and changes in net position (deficit).

Capital Contributions

Capital Contributions are comprised of federal, state and other contributions to the System's capital projects.

2023–2022

Capital contributions increased by $1.2 million in fiscal year 2023.

2022–2021

Capital contributions decreased by $5.9 million in fiscal year 2022.

Change in Net Position (Deficit)

2023–2022

The change in net position (deficit) represents the net total of operating revenues and expenses, non-operating revenues and expenses, and capital contributions. The change in net position (deficit) increased by $15.4 million in fiscal year 2023 compared to fiscal year 2022. As explained in more detail above, such increase was due primarily to the combined effect of a $324 million increase in operating revenue and $102 million increase in investment income, offset by a $124 million increase in capital distributions, a $112 million increase in interest expense and cost of issuance, a $135 million increase in operations and maintenance expense, and a $75.1 million increase in other operating expenses.

2022–2021

The change in net position (deficit) represents the net total of operating revenues and expenses, non-operating revenues and expenses, and capital contributions. The change in net position (deficit) increased by $308 million in fiscal year 2022 compared to fiscal year 2021. As explained in more detail above, such increase was due to the combined effect of a $217 million increase in total revenue and a $96.0 million reduction in total expenses offset by a decrease in capital contribution of $5.9 million.

Ending Net Position (Deficit)

2023–2022

The ending net position (deficit) represents the net total of operating revenues and expenses, non-operating revenues and expenses, capital contributions, and beginning balance of net position (deficit). Ending net position (deficit) increased by $233 million or 14.0% compared to fiscal year 2022.

2022–2021

The ending net position (deficit) represents the net total of operating revenues and expenses, non-operating revenues and expenses, capital contributions, and beginning balance of net position (deficit). Ending net position (deficit) increased by $218 million or 15.1% compared to fiscal year 2021.

The following is a summary of the System's assets, deferred outflows of resources, liabilities, deferred inflows of resources and net position (deficit) as of June 30 (in thousands):

				Variance	
	2023	2022	2021	2023 vs 2022	2022 vs 2021
ASSETS:					
Current assets	$ 4,132,652	$ 3,670,122	$ 3,264,799	$ 462,530	$ 405,323
Residual interest in sold liens	63,505	63,391	59,831	114	3,560
Capital assets	33,555,582	33,058,749	32,525,985	496,833	532,764
Total assets	37,751,739	36,792,262	35,850,615	959,477	941,647
DEFERRED OUTFLOWS OF RESOURCES:					
Accumulated decrease in fair value of hedging derivative	36,705	60,991	120,682	(24,286)	(59,691)
Deferred changes in net pension liability	412	707	514	(295)	193
Unamortized asset retirement obligation	9,640	10,158	11,135	(518)	(977)
Deferred changes in OPEB liability	672	632	414	40	218
Total deferred outflows of resources	47,429	72,488	132,745	(25,059)	(60,257)
Total assets and deferred outflows of resources	$ 37,799,168	$ 36,864,750	$ 35,983,360	$ 934,418	$ 881,390
LIABILITIES:					
Current liabilities	$ 1,445,031	$ 1,127,273	$ 1,006,584	$ 317,758	$ 120,689
Long-term liabilities	34,264,447	33,957,896	33,490,664	306,551	467,232
Total liabilities	35,709,478	35,085,169	34,497,248	624,309	587,921
DEFERRED INFLOWS OF RESOURCES:					
Deferred changes in net pension liability	36	125	662	(89)	(537)
Deferred changes in OPEB liability	846	1,032	590	(186)	442
Unamortized deferred bond refunding costs	195,060	117,958	42,305	77,102	75,653
Total deferred inflows of resources	195,942	119,115	43,557	76,827	75,558
NET POSITION (DEFICIT):					
Net investment in capital assets	718,114	685,990	598,975	32,124	87,015
Restricted for debt service	1,905,323	1,573,633	1,533,139	331,690	40,494
Restricted for operations and maintenance	322,235	285,656	278,207	36,579	7,449
Unrestricted deficit	(1,051,924)	(884,813)	(967,766)	(167,111)	82,953
Total net position (deficit)	1,893,748	1,660,466	1,442,555	233,282	217,911
Total liabilities, deferred inflows of resources, and net position (deficit)	$ 37,799,168	$ 36,864,750	$ 35,983,360	$ 934,418	$ 881,390

Current Assets

Current assets are comprised of restricted cash and cash equivalents, restricted investments, accrued interest and subsidy receivable, receivable from the City, and accounts receivable.

2023–2022

Current assets increased by $463 million or 12.6%. Restricted investments, including restricted cash and cash equivalents, increased by $397 million primarily in the revenue fund and construction fund. Construction fund balances fluctuate due to the timing of bonds issuances and payments to the City for capital costs. Restricted assets held in the Authority's escrow accounts and in the debt service reserve fund declined by $84.6 million and $68.0 million, respectively. Assets held in the escrow accounts decline when funds are applied to repayment of debt. The decline in the debt service reserve fund is largely due to a $60.5 million release of funds held in the reserve fund as a result of a reduction in the reserve requirement. Accounts receivable net of allowance for uncollectable increased by $84.7 million and receivable from the City decreased by $23.5 million.

2022–2021

Current assets increased by $405 million or 12.4%. Restricted investments, including restricted cash and cash equivalents, increased by $244 million primarily in the revenue fund and construction fund. Construction fund balances fluctuate due to the timing of bonds issuances and payments to the City for capital costs. Restricted assets held in the Authority's escrow accounts and in the debt service reserve fund declined by $118 million and $80.0 million, respectively. Assets held in the escrow accounts decline when funds are applied to repayment of debt. The decline in the debt service reserve fund is largely due to a $55.0 million release of funds held in the reserve fund as a result of a reduction in the reserve requirement. Accounts receivable net of allowance for uncollectable increased by $102 million and receivable from the City increased by $59.3 million.

Current Liabilities

Current liabilities are comprised of accounts payable, interest payable, revenue received in advance, current portion of bonds and notes payable, payable to the City, and service credits on customer accounts.

2023–2022

Current liabilities increased by $318 million, or 28.2%, compared to fiscal year 2022. This was primarily due to an increase in the current portion of bonds and notes payable.

2022–2021

Current liabilities increased by $121 million, or 12%, compared to fiscal year 2021. This was primarily due to an increase in the current portion of bonds and notes payable.

Long-Term Liabilities

Long-term liabilities are comprised of bonds and notes payable, pollution remediation obligation, interest rate swap agreements net of revenue requirements payable to the Authority, net pension liability, net OPEB liability, and other long-term liabilities.

2023–2022

Long-term liabilities increased by $307 million, or 1.0%, primarily due to the issuance of new debt to fund capital projects, offset by the retirement of existing debt through debt service payments and refundings.

2022–2021

Long-term liabilities increased by $467 million, or 1.4%, primarily due to the issuance of new debt to fund capital projects.

Capital Assets

The System's capital assets include buildings, machinery and equipment, vehicles, water supply and wastewater treatment systems, and water distribution and sewage collection systems, as well as utility construction.

Capital assets as of June 30 are detailed as follows (in thousands):

	2023	2022	2021	Variance 2023 vs 2022	Variance 2022 vs 2021
NONDEPRECIABLE ASSETS:					
Utility construction in progress	$ 6,881,740	$ 6,271,077	$ 5,769,893	$ 610,663	$ 501,184
DEPRECIABLE ASSETS:					
Utility plant in service:					
Buildings	35,821	35,821	35,821	—	—
Machinery and equipment	5,630,449	5,549,134	5,338,988	81,315	210,146
Vehicles	277,656	287,885	277,890	(10,229)	9,995
Water supply and distribution and wastewater treatment and sewage collection systems	40,416,747	39,595,255	38,752,739	821,492	842,516
Total utility plant in service	46,360,673	45,468,095	44,405,438	892,578	1,062,657
LESS ACCUMULATED DEPRECIATION FOR:					
Buildings	31,184	30,900	30,618	284	282
Machinery and equipment	3,404,626	3,156,160	2,890,886	248,466	265,274
Vehicles	146,626	146,485	135,200	141	11,285
Water supply and distribution and wastewater treatment and sewage collection systems	16,104,395	15,346,878	14,592,642	757,517	754,236
Total accumulated depreciation	19,686,831	18,680,423	17,649,346	1,006,408	1,031,077
TOTAL UTILITY PLANT IN SERVICE—NET	26,673,842	26,787,672	26,756,092	(113,830)	31,580
TOTAL CAPITAL ASSETS—NET	$ 33,555,582	$ 33,058,749	$ 32,525,985	$ 496,833	$ 532,764

2023–2022

The Authority issues debt to pay for the capital improvements to the System and related costs. Costs related to the System's filtration avoidance determination, including land acquisition in the upstate watershed area and certain costs associated with pollution remediation, are financed with debt but are not recorded as the System's assets on the combining statements of net position (deficit). The cumulative amount of expenses not capitalized as assets as of June 30, 2023, was $1.77 billion. These costs or distributions are expensed in the System's combining statements of revenues, expenses, and changes in net position (deficit) in the years incurred. The land purchased is granted to the City and becomes the City's capital asset because it is not subject to the method of capitalization under which the System reports its capital assets.

Total gross additions to non-depreciable assets utility construction in progress were $1.52 billion and a total of $909 million of completed projects were moved from utility construction in progress into depreciable assets utility plant in service. This resulted in a $611 million increase in utility construction in progress, representing a 9.7% net increase compared to fiscal year 2022. The System completed the construction of 1,900 bioswales around the areas of Jamaica Bay Watershed of $104 million, constructed Level 1 Biological Nutrient Removal system at Coney Island Waste Water Treatment Plant of $51.8 million, completed the overflow chamber expansions at Westchester Creek of $30.4 million, and built bluebelt, storm and sanitary sewers, and water main replacement at New Creek in Staten Island for $49.0 million. Total capital assets, net of depreciation, increased by $497 million, a 1.5% increase from fiscal year 2022 (see Note 3).

2022–2021

The Authority issues debt to pay for the capital improvements to the System and related costs. Costs related to the System's filtration avoidance determination, including land acquisition in the upstate watershed area and certain costs associated with pollution remediation, are financed with debt but are not recorded as the System's assets on the combining statements of net position (deficit). The cumulative amount of expenses not capitalized as assets as of June 30, 2022, was $1.78 billion. These costs or distributions are expensed in the System's combining statements of revenues, expenses, and changes in net position (deficit) in the years incurred. The land purchased is granted to the City and becomes the City's capital asset because it is not subject to the method of capitalization under which the System reports its capital assets.

Total gross additions to non-depreciable assets utility construction in progress were $1.57 billion and a total of $1.07 billion of completed projects were moved from utility construction in progress into depreciable assets utility plant in service. This resulted in a $501 million increase in utility construction in progress, representing an 8.7% net increase compared to fiscal year 2021. The system completed the construction of a new flow division structure and primary settling tank and other improvements at 26th Ward Waste Water Treatment Plant of $172 million, installed a high level sewer separation system including more than two miles of high-level storm sewers, 16 miles of sanitary sewers and 2 miles of combined sewers in Canarsie and East New York for $59.0 million, and over 700 bioswales around Newtown Creek area in the borough of Brooklyn for $41.0 million. The system also completed the implementation of a new $27.0 million billing system during the fiscal year. Total capital assets, net of depreciation, increased by $533 million, a 1.6% increase from fiscal year 2021 (see Note 3).

Deferred Outflows of Resources

Deferred outflows of resources are comprised of accumulated decrease in fair value of hedging derivative, deferred changes in net pension liability, unamortized asset retirement obligation, and deferred changes in OPEB liability.

2023–2022

Deferred outflows from hedging decreased by $24.3 million, or 39.8%, compared to fiscal year 2022 due to an increase in the fair value of the hedging derivative instruments.

2022–2021

Deferred outflows from hedging decreased by $59.7 million, or 49.5%, compared to fiscal year 2021 due to an increase in the fair value of the hedging derivative instruments.

Debt Administration

The debt program of the Authority includes commercial paper notes and long-term debt issued to the public, as well as bond anticipation notes ("BANs") and interest-subsidized bonds issued to the New York State EFC. Commercial paper notes and BANs are interim financing instruments. In fiscal years 2023 and 2022, the Authority did not issue any commercial paper notes, relying instead on bond and BANs proceeds to reimburse the City for payments made for water and sewer capital projects. The Authority periodically issues long-term debt to retire outstanding BANs and commercial paper notes. The Authority also issues refunding bonds to refinance higher coupon debt and uses current revenues to defease debt.

As of June 30, 2023, the total outstanding debt of the System was $32.3 billion, which was comprised of adjustable-rate bonds, fixed-rate bonds and BANs. The following table summarizes debt program activities for the fiscal year ended June 30, 2023 (in thousands) (see Note 9):

	Outstanding Principal Balance at June 30, 2022	Issued	Principal Retired	Principal Defeased	Outstanding Principal Balance at June 30, 2023
First Resolution Bonds	$ 789,871	$ —	$ —	$ (334,130)	$ 455,741
Second Resolution Bonds	30,651,162	3,317,911	(348,911)	(2,003,165)	31,616,997
Second Resolution BANs	101,126	613,298	—	(534,567)	179,857
Total Bonds Payable	$ 31,542,159	$ 3,931,209	$ (348,911)	$ (2,871,862)	$ 32,252,595

In fiscal year 2023, the Authority issued $2.4 billion of water and sewer system revenue bonds to the public, including $1.8 billion of refunding bonds and $596 million of new money bonds. Additionally, the Authority issued $367 million of refunding water and sewer system revenue bonds and $538 million of new money bonds to EFC. The Authority also drew down $613 million of proceeds from BANs issued to EFC. The Authority used new money bond proceeds to finance capital improvements to the System and to pay for bond issuance costs.

During fiscal year 2023, the Authority issued $2.2 billion of bonds to refund $2.3 billion of outstanding bonds. These refundings resulted in an accounting gain of $106 million. This amount is deferred and amortized over the shorter of the remaining life of the old debt or the life of the new debt. The Authority reduced its aggregate debt service for principal and interest by $298 million and obtained an economic benefit (present value savings) of $200 million.

During fiscal year 2023, the Authority did not legally defease any outstanding bonds using current resources.

As of June 30, 2022, the total outstanding debt of the System was $31.5 billion, which was comprised of adjustable-rate bonds, fixed-rate bonds and BANs. The following table summarizes debt program activities for the fiscal year ended June 30, 2022 (in thousands) (see Note 9):

	Outstanding Principal Balance at June 30, 2021	Issued	Principal Retired	Principal Defeased	Outstanding Principal Balance at June 30, 2022
First Resolution Bonds	$ 889,871	$ —	$ —	$ (100,000)	$ 789,871
Second Resolution Bonds	30,001,898	3,203,869	(297,665)	(2,256,940)	30,651,162
Second Resolution BANs	155,029	375,835	—	(429,738)	101,126
Total Bonds Payable	$ 31,046,798	$ 3,579,704	$ (297,665)	$ (2,786,678)	$ 31,542,159

In fiscal year 2022, the Authority issued $2.5 billion of water and sewer system revenue bonds to the public, including $1.5 billion of refunding bonds and $1 billion of new money bonds. Additionally, the Authority issued $341 million of refunding water and sewer system revenue bonds and $404 million of new money bonds to EFC. The Authority also drew down $376 million of proceeds from BANs issued to EFC. The Authority used new money bond proceeds to finance capital improvements to the System and to pay for bond issuance costs.

During fiscal year 2022, the Authority issued $1.9 billion of bonds to refund $2.1 billion of outstanding bonds. These refundings resulted in an accounting gain of $92.6 million. This amount is deferred and amortized over the shorter of the remaining life of the old debt or the life of the new debt. The Authority reduced its aggregate debt service for principal and interest by $585 million and obtained an economic benefit (present value savings) of $447 million.

During fiscal year 2022, the Authority legally defeased $243 million of outstanding bonds using current resources. This resulted in an accounting gain of $9.2 million and a debt service reduction of $295 million.

Request for Information

This financial report is provided as an overview of the System's finances. Questions concerning any of the information in this report or requests for additional information should be directed to Investor Relations, New York City Municipal Water Finance Authority, 255 Greenwich Street, New York, New York 10007 or to NYWInvestors@omb.nyc.gov.

* * * * * *

Combining Statement of Net Position (Deficit)

June 30, 2023 (in thousands)

ASSETS AND DEFERRED OUTFLOWS OF RESOURCES	Water Board	New York City Municipal Water Finance Authority	Eliminations	Total
ASSETS:				
CURRENT ASSETS:				
Restricted cash and cash equivalents	$ 311,573	$ 2,677,390	$ —	$ 2,988,963
Restricted investments	22,991	4,598	—	27,589
Accrued interest and federal subsidy receivable	692	10,050	—	10,742
Accounts receivable:				
Billed—less allowance for uncollectable water and sewer receivables of $623,506	700,077	—	—	700,077
Unbilled—less allowance for uncollectable water and sewer receivables of $29,082	330,526	—	—	330,526
Receivable from The City of New York	74,755	—	—	74,755
Total current assets	1,440,614	2,692,038	—	4,132,652
NON-CURRENT ASSETS:				
Utility plant in service—less accumulated depreciation of $19,686,831	26,673,842	—	—	26,673,842
Utility plant construction	6,881,740	—	—	6,881,740
Total capital assets	33,555,582	—	—	33,555,582
Residual interest in sold liens	63,505	—	—	63,505
Revenue required to be billed by and received from the Water Board	—	9,829,264	(9,829,264)	—
Total non-current assets	33,619,087	9,829,264	(9,829,264)	33,619,087
Total assets	35,059,701	12,521,302	(9,829,264)	37,751,739
DEFERRED OUTFLOWS OF RESOURCES:				
Accumulated decrease in fair value of hedging derivative	—	36,705	—	36,705
Deferred changes in net pension liability	—	412	—	412
Unamortized asset retirement obligations	9,640	—	—	9,640
Deferred changes in OPEB liability	—	672	—	672
Total deferred outflows of resources	9,640	37,789	—	47,429
Total assets and deferred outflows of resources	$ 35,069,341	$ 12,559,091	$ (9,829,264)	$ 37,799,168

See notes to combining financial statements.

(Continued)

Combining Statement of Net Position (Deficit)

June 30, 2023 (in thousands)

LIABILITIES, DEFERRED INFLOWS OF RESOURCES AND NET POSITION (DEFICIT)	Water Board	New York City Municipal Water Finance Authority	Eliminations	Total
LIABILITIES:				
CURRENT LIABILITIES:				
Accounts payable	$ 21,496	$ 5,507	$ —	$ 27,003
Interest payable	—	60,228	—	60,228
Current portion of bonds and notes payable	—	725,401	—	725,401
Payable to the City of New York	—	542,710	—	542,710
Service credits on customer accounts	89,689	—	—	89,689
Total current liabilities	111,185	1,333,846	—	1,445,031
LONG-TERM LIABILITIES:				
Bonds and notes payable	—	34,141,381	—	34,141,381
Pollution remediation obligation	62,240	—	—	62,240
Interest rate swap agreement—net	—	36,705	—	36,705
Revenue requirements payable to the Authority	9,829,264	—	(9,829,264)	—
Net pension liability	—	824	—	824
Net OPEB liability	—	2,024	—	2,024
Other long-term liability	18,048	3,225	—	21,273
Total long-term liabilities	9,909,552	34,184,159	(9,829,264)	34,264,447
Total liabilities	10,020,737	35,518,005	(9,829,264)	35,709,478
DEFERRED INFLOWS OF RESOURCES:				
Unamortized deferred bond refunding costs	—	195,060	—	195,060
Deferred changes in net pension liability	—	36	—	36
Deferred changes in OPEB liability	—	846	—	846
Total deferred inflows of resources	—	195,942	—	195,942
NET POSITION (DEFICIT):				
Net investment in capital assets	33,555,582	(32,837,468)	—	718,114
Restricted for debt service	—	1,905,323	—	1,905,323
Restricted for operations and maintenance	322,235	—	—	322,235
Unrestricted (deficit)	(8,829,213)	7,777,289	—	(1,051,924)
Total net position (deficit)	25,048,604	(23,154,856)	—	1,893,748
Total liabilities, deferred inflows of resources and net position (deficit)	$ 35,069,341	$ 12,559,091	$ (9,829,264)	$ 37,799,168

See notes to combining financial statements.

(Concluded)

Combining Statement of Net Position (Deficit)

June 30, 2022 (in thousands)

ASSETS AND DEFERRED OUTFLOWS OF RESOURCES	Water Board	New York City Municipal Water Finance Authority	Eliminations	Total
ASSETS:				
CURRENT ASSETS:				
Restricted cash and cash equivalents	$ 161,004	$ 2,033,116	$ —	$ 2,194,120
Restricted investments	136,920	288,790	—	425,710
Accrued interest and federal subsidy receivable	160	5,972	—	6,132
Accounts receivable:				
Billed—less allowance for uncollectable water and sewer receivables of $525,680	618,947	—	—	618,947
Unbilled—less allowance for uncollectable water and sewer receivables of $28,277	326,986	—	—	326,986
Receivable from The City of New York	98,227	—	—	98,227
Total current assets	1,342,244	2,327,878	—	3,670,122
NON-CURRENT ASSETS:				
Utility plant in service—less accumulated depreciation of $18,680,423	26,787,672	—	—	26,787,672
Utility plant construction	6,271,077	—	—	6,271,077
Total capital assets	33,058,749	—	—	33,058,749
Residual interest in sold liens	63,391	—	—	63,391
Revenue required to be billed by and received from the Water Board	—	10,437,153	(10,437,153)	—
Total non-current assets	33,122,140	10,437,153	(10,437,153)	33,122,140
Total assets	34,464,384	12,765,031	(10,437,153)	36,792,262
DEFERRED OUTFLOWS OF RESOURCES:				
Accumulated decrease in fair value of hedging derivative	—	60,991	—	60,991
Deferred changes in net pension liability	—	707	—	707
Unamortized asset retirement obligations	10,158	—	—	10,158
Deferred changes in OPEB liability	—	632	—	632
Total deferred outflows of resources	10,158	62,330	—	72,488
Total assets and deferred outflows of resources	$ 34,474,542	$ 12,827,361	$ (10,437,153)	$ 36,864,750

See notes to combining financial statements.

(Continued)

Combining Statement of Net Position (Deficit)

June 30, 2022 (in thousands)

LIABILITIES, DEFERRED INFLOWS OF RESOURCES AND NET POSITION (DEFICIT)	Water Board	New York City Municipal Water Finance Authority	Eliminations	Total
LIABILITIES:				
CURRENT LIABILITIES:				
Accounts payable	$ 13,565	$ 5,420	$ —	$ 18,985
Interest payable	—	53,531	—	53,531
Current portion of bonds and notes payable	—	435,969	—	435,969
Payable to the City of New York	—	523,152	—	523,152
Service credits on customer accounts	95,636	—	—	95,636
Total current liabilities	109,201	1,018,072	—	1,127,273
LONG-TERM LIABILITIES:				
Bonds and notes payable	—	33,822,909	—	33,822,909
Pollution remediation obligation	51,678	—	—	51,678
Interest rate swap agreement—net	—	60,991	—	60,991
Revenue requirements payable to the Authority	10,437,153	—	(10,437,153)	—
Net pension liability	—	1,014	—	1,014
Net OPEB liability	—	1,771	—	1,771
Other long-term liability	17,726	1,807	—	19,533
Total long-term liabilities	10,506,557	33,888,492	(10,437,153)	33,957,896
Total liabilities	10,615,758	34,906,564	(10,437,153)	35,085,169
DEFERRED INFLOWS OF RESOURCES:				
Unamortized deferred bond refunding costs	—	117,958	—	117,958
Deferred changes in net pension liability	—	125	—	125
Deferred changes in OPEB liability	—	1,032	—	1,032
Total deferred inflows of resources	—	119,115	—	119,115
NET POSITION (DEFICIT):				
Net investment in capital assets	33,058,749	(32,372,759)	—	685,990
Restricted for debt service	—	1,573,633	—	1,573,633
Restricted for operations and maintenance	285,656	—	—	285,656
Unrestricted (deficit)	(9,485,621)	8,600,808	—	(884,813)
Total net position (deficit)	23,858,784	(22,198,318)	—	1,660,466
Total liabilities, deferred inflows of resources and net position (deficit)	$ 34,474,542	$ 12,827,361	$ (10,437,153)	$ 36,864,750

See notes to combining financial statements.

(Concluded)

Combining Statement of Revenues, Expenses and Changes In Net Position (Deficit)

For the year ended June 30, 2023 (in thousands)

	New York City Water Board	New York City Municipal Water Finance Authority	Total
OPERATING REVENUES:			
Water supply and distribution	$ 1,582,456	$ —	$ 1,582,456
Sewer collection and treatment	2,516,104	—	2,516,104
Bad debt expense	(98,632)	—	(98,632)
Other operating revenues	203,039	—	203,039
Total operating revenues	4,202,967	—	4,202,967
OPERATING EXPENSES:			
Operations and maintenance	1,710,007	—	1,710,007
General and administrative	4,222	42,931	47,153
Other operating expenses	164,464	—	164,464
Depreciation and amortization	1,022,165	—	1,022,165
Total operating expenses	2,900,858	42,931	2,943,789
OPERATING INCOME (LOSS)	1,302,109	(42,931)	1,259,178
NON-OPERATING REVENUES (EXPENSES):			
Interest expense	—	(1,142,733)	(1,142,733)
Gain on defeasance	—	—	—
Cost of issuance	—	(18,793)	(18,793)
Net loss on retirement and impairment of capital assets	(1,566)	—	(1,566)
Subsidy income	—	183,001	183,001
Capital distributions	(161,577)	—	(161,577)
Investment income	31,089	64,918	96,007
NET INCOME (LOSS) BEFORE CAPITAL CONTRIBUTIONS	1,170,055	(956,538)	213,517
Capital contributions	19,765	—	19,765
CHANGE IN NET POSITION (DEFICIT)	1,189,820	(956,538)	233,282
NET POSITION (DEFICIT)—Beginning of year	23,858,784	(22,198,318)	1,660,466
NET POSITION (DEFICIT)—End of year	$ 25,048,604	$ (23,154,856)	$ 1,893,748

See notes to combining financial statements.

Combining Statement of Revenues, Expenses and Changes In Net Position (Deficit)

For the year ended June 30, 2022 (in thousands)

	New York City Water Board	New York City Municipal Water Finance Authority	Total
OPERATING REVENUES:			
Water supply and distribution	$ 1,441,310	$ —	$ 1,441,310
Sewer collection and treatment	2,291,683	—	2,291,683
Bad debt expense	(10,013)	—	(10,013)
Other operating revenues	156,062	—	156,062
Total operating revenues	3,879,042	—	3,879,042
OPERATING EXPENSES:			
Operations and maintenance	1,574,864	—	1,574,864
General and administrative	1,497	44,953	46,450
Other operating expenses	89,395	—	89,395
Depreciation and amortization	1,037,925	—	1,037,925
Total operating expenses	2,703,681	44,953	2,748,634
OPERATING INCOME (LOSS)	1,175,361	(44,953)	1,130,408
NON-OPERATING REVENUES (EXPENSES):			
Interest expense	—	(1,029,524)	(1,029,524)
Gain on defeasance	—	9,244	9,244
Cost of issuance	—	(20,118)	(20,118)
Net loss on retirement and impairment of capital assets	(3,080)	—	(3,080)
Subsidies/grants	—	156,389	156,389
Capital distributions	(37,967)	—	(37,967)
Investment income (loss)	910	(6,895)	(5,985)
NET INCOME (LOSS) BEFORE CAPITAL CONTRIBUTIONS	1,135,224	(935,857)	199,367
Capital contributions	18,544	—	18,544
CHANGE IN NET POSITION (DEFICIT)	1,153,768	(935,857)	217,911
NET POSITION (DEFICIT)—Beginning of year	22,705,016	(21,262,461)	1,442,555
NET POSITION (DEFICIT)—End of year	$ 23,858,784	$ (22,198,318)	$ 1,660,466

See notes to combining financial statements.

Combining Statement of Cash Flows

For the year ended June 30, 2023 (in thousands)

	New York City		
	Water Board	Municipal Water Finance Authority	Total
CASH FLOWS FROM OPERATING ACTIVITIES:			
Receipts from customers	$ 4,055,246	$ —	$ 4,055,246
Payments for operations and maintenance	(1,723,858)	—	(1,723,858)
Payments for administration	(1,953)	(42,742)	(44,695)
Net cash provided by (used in) operating activities	2,329,435	(42,742)	2,286,693
CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES:			
Proceeds from issuing bonds, notes and other borrowings—net of issuance costs	—	4,109,026	4,109,026
Receipts from capital grants awarded to the governmental enterprise	—	33,105	33,105
Receipts from contribution made by other organization	292	—	292
Acquisition and construction of capital assets	—	(1,696,198)	(1,696,198)
Payments by the Water Board to the Authority	(2,323,645)	2,323,645	—
Repayments of bonds, notes and other borrowings	—	(3,221,177)	(3,221,177)
Interest paid on bonds, notes and other borrowings	—	(1,207,510)	(1,207,510)
Net cash provided by (used in) capital and related financial activities	(2,323,353)	340,891	(1,982,462)
CASH FLOWS FROM INVESTING ACTIVITIES:			
Sales and maturities of investments	137,500	207,767	345,267
Purchases of investments	(20,913)	75,557	54,644
Interest on investments	27,900	62,801	90,701
Net cash provided by investing activities	144,487	346,125	490,612
NET INCREASE IN RESTRICTED CASH AND CASH EQUIVALENTS	150,569	644,274	794,843
RESTRICTED CASH AND CASH EQUIVALENTS— Beginning of year	161,004	2,033,116	2,194,120
RESTRICTED CASH AND CASH EQUIVALENTS— End of year	$ 311,573	$ 2,677,390	$ 2,988,963

See notes to combining financial statements.

(Continued)

Combining Statement of Cash Flows

For the year ended June 30, 2023 (in thousands)

	New York City		
	Water Board	Municipal Water Finance Authority	Total
RECONCILIATION OF OPERATING INCOME (LOSS) TO NET CASH PROVIDED BY (USED IN) OPERATING ACTIVITIES:			
Operating income (loss)	$ 1,302,109	$ (42,931)	$ 1,259,178
Adjustments to reconcile operating income (loss) to net cash provided by (used in) operating activities:			
Amortization	840	—	840
Depreciation	1,021,325	—	1,021,325
Other operating expenses paid for with bond proceeds	40,617	—	40,617
Pollution remediation expense	13,310	—	13,310
Changes in assets and liabilities:			
Pollution remediation liability	10,562	—	10,562
Receivables—net	(84,670)	—	(84,670)
Receivable from the City	23,473	—	23,473
Residual interest in sold liens	(114)	—	(114)
Accrued expenses payable	6	—	6
Accounts payable	7,925	189	8,114
Revenues received in advance	—	—	—
Refunds payable	(5,948)	—	(5,948)
NET CASH PROVIDED BY (USED IN) OPERATING ACTIVITIES	$ 2,329,435	$ (42,742)	$ 2,286,693

The following are the noncash capital and related financing activities (in thousands):

— Interest expense includes the amortization of net (premium) and discount in the amount of $197,890 at June 30, 2023.

— Capital expenditures in the amount of $542,710 had been incurred but not paid at June 30, 2023.

— The Water Board received federal, state, and other capital contributions of $19,765 in fiscal year 2023.

See notes to combining financial statements.

(Concluded)

Combining Statement of Cash Flows

For the year ended June 30, 2022 (in thousands)

	New York City		
	Water Board	Municipal Water Finance Authority	Total
CASH FLOWS FROM OPERATING ACTIVITIES:			
Receipts from customers	$ 3,771,301	$ —	$ 3,771,301
Payments for operations and maintenance	(1,668,958)	—	(1,668,958)
Payments for administration	(1,503)	(44,805)	(46,308)
Net cash provided by (used in) operating activities	2,100,840	(44,805)	2,056,035
CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES:			
Proceeds from issuing bonds, notes and other borrowings—net of issuance costs	—	4,058,457	4,058,457
Receipts from capital grants awarded to the governmental enterprise	—	8,660	8,660
Receipts from contribution made by other organization	292	—	292
Acquisition and construction of capital assets	—	(1,656,440)	(1,656,440)
Payments by the Water Board to the Authority	(2,090,510)	2,090,510	—
Repayments of bonds, notes and other borrowings	—	(3,116,592)	(3,116,592)
Interest paid on bonds, notes and other borrowings	—	(1,095,279)	(1,095,279)
Net cash (used in) provided by capital and related financing activities	(2,090,218)	289,316	(1,800,902)
CASH FLOWS FROM INVESTING ACTIVITIES:			
Sales and maturities of investments	273,620	171,195	444,815
Purchases of investments	(137,383)	(36,919)	(174,302)
Interest on investments	1,448	15,345	16,793
Net cash provided by investing activities	137,685	149,621	287,306
NET INCREASE IN RESTRICTED CASH AND CASH EQUIVALENTS	148,307	394,132	542,439
RESTRICTED CASH AND CASH EQUIVALENTS— Beginning of year	12,697	1,638,984	1,651,681
RESTRICTED CASH AND CASH EQUIVALENTS— End of year	$ 161,004	$ 2,033,116	$ 2,194,120

See notes to combining financial statements.

(*Continued*)

Combining Statement of Cash Flows

For the year ended June 30, 2022 (in thousands)

	New York City		
	Water Board	Municipal Water Finance Authority	Total
RECONCILIATION OF OPERATING INCOME (LOSS) TO NET CASH PROVIDED BY (USED IN) OPERATING ACTIVITIES:			
Operating income (loss)	$ 1,175,361	$ (44,953)	$ 1,130,408
Adjustments to reconcile operating income (loss) to net cash provided by (used in) operating activities:			
Amortization	952	—	952
Depreciation	1,036,973	—	1,036,973
Other operating expenses paid for with bond proceeds	16,530	—	16,530
Pollution remediation expense	5,095	—	5,095
Changes in assets and liabilities:			
Pollution remediation liability	6,246	—	6,246
Receivables—net	(101,993)	—	(101,993)
Receivable from the City	(59,349)	—	(59,349)
Residual interest in sold liens	(3,560)	—	(3,560)
Accounts payable	5,260	148	5,408
Revenues received in advance	(8,336)	—	(8,336)
Refunds payable	27,661	—	27,661
NET CASH PROVIDED BY (USED IN) OPERATING ACTIVITIES	$ 2,100,840	$ (44,805)	$ 2,056,035

The following are the noncash capital and related financing activities (in thousands):

— Interest expense includes the amortization of net (premium) and discount in the amount of $199,403 at June 30, 2022.

— Capital expenditures in the amount of $523,152 had been incurred but not paid at June 30, 2022.

— The Water Board received federal, state, and other capital contributions of $18,544 in fiscal year 2022.

See notes to combining financial statements.

(Concluded)

Notes To Combining Financial Statements

As of and for the years ended June 30, 2023 and 2022

1. Organization

The New York City Water and Sewer System (the "System") provides water supply, treatment and distribution, and sewage collection, treatment, and disposal for the citizenry of the City of New York (the "City"). The System, as presented in the accompanying combining financial statements, began operations on July 1, 1985, and is a joint operation consisting of two legally separate and independent entities: the New York City Municipal Water Finance Authority (the "Authority") and the New York City Water Board (the "Water Board"). The Authority is a public benefit corporation created in accordance with the New York City Municipal Water Finance Act (the "Act"), duly enacted into law as Chapter 513 of the laws of 1984 of the State of New York (the "State"), as amended by Chapter 514 of the laws of 1984 of the State of New York. The Water Board was created by Chapter 515 of the laws of 1984 of the State of New York. The Act also empowers the Authority to issue debt to finance the cost of capital improvements to the System and to refund any and all outstanding bonds and general obligation bonds that the City issued for water and sewer purposes. The Act empowers the Water Board to lease the System from the City and to set and collect water rates, fees, rents and other charges for use of, or for services furnished, rendered, or made available by, the System to generate enough revenue to pay debt service on the Authority's debt and to place the System on a self-sustaining basis.

The Financing Agreement by and among the City of New York, the New York City Municipal Water Finance Authority and the New York City Water Board dated as of July 1,1985 provides that the Authority will issue bonds to finance the cost of capital investment and related costs of the System. It also sets forth the funding priority for debt service costs of the Authority, operating costs of the System, and the rental payment to the City, if requested.

The physical operation and capital improvements of the System are performed by the City's Department of Environmental Protection ("DEP") subject to contractual agreements with the Authority and the Water Board.

In accordance with Governmental Accounting Standards Board ("GASB") standards, the Water Board and the Authority are considered to be part of the same reporting entity (the "System") since they are fiscally interdependent. Accordingly, the accompanying combining financial statements for the System present the individual financial statements of the Water Board and the Authority as major funds. In addition, the accompanying combining financial statements present a total column, which represents the entity-wide financial statements of the System. Transactions and balances between the Water Board and the Authority are eliminated in the entity-wide combining financial statements.

2. Summary of Significant Accounting Policies

The accompanying financial statements of the System have been prepared using the economic resources measurement focus and the accrual basis of accounting. Revenues are recognized when earned and expenses are recognized when incurred. Other significant accounting policies are:

COMPONENT UNIT

The System is a component unit of the City. The System leases the water and sewer-related capital assets from the City, which is responsible for the operations, maintenance and capital improvements of the System. The System reimburses the City for costs incurred for operations and maintenance and issues debt to pay for capital improvements.

INVESTMENTS AND CASH EQUIVALENTS

Investments and cash equivalents primarily consist of securities of the United States and its agencies, guaranteed investment contracts, forward purchase agreements, and the State of New York obligations. All investments are carried at fair value with the exception of money market funds that are carried at cost plus accrued interest. For purposes of the combining statement of cash flows and combining statement of net position (deficit), the System generally considers all highly liquid debt instruments purchased with an original maturity of three months or less to be cash equivalents.

2. Summary of Significant Accounting Policies (Continued)

RESTRICTED ASSETS

Proceeds from the issuance of debt and monies set aside for debt service and operation and maintenance of the System are classified as restricted cash and cash equivalents and restricted investments in the combining statements of net position (deficit). These restrictions are based on the requirements of the applicable bond resolutions.

LIEN SALES AND RESIDUAL INTEREST IN SOLD LIENS

The City periodically sells tax liens secured by water and sewer rents and surcharges, for which the Water Board receives the applicable sale proceeds. At the time of sale, the Water Board recognizes the proceeds as operating revenue and removes the related receivables. The Water Board maintains a residual interest in the liens, which represents the amount estimated to be received by the Water Board if and when liens held by the purchasing trusts generate cash flows above the amounts needed by the trusts to pay their operating costs, bondholders, and satisfy reserve requirements. As of June 30, 2023 and 2022, the Water Board had a receivable from the Tax Lien Trust of $63.5 million and $63.4 million, respectively.

BOND PREMIUM AND DISCOUNT AND BOND ISSUANCE COST

Bond premiums and discounts are capitalized and amortized over the life of the related bond issue, using the effective yield method. Bond premiums and discounts are presented as additions or reductions to the face amount of the long-term bonds payable on the combining statement of net position (deficit). The amortized bond premiums and discounts are an off set to interest expense on the combining statement of revenues, expenses and changes in net position (deficit). Bond issuance costs are recognized and expensed in the period incurred, except for bond insurance premiums that are amortized over the life of the related bonds.

UTILITY PLANT

Utility plant acquired through purchase or internal construction is recorded at cost, net of retirements. It is the Water Board's policy to capitalize assets with a cost of $50,000 or more and a useful life of three years or longer. Contributed utility plant is recorded at its estimated historical cost based on appraisals or other methods when historical cost information is not available, net of accumulated depreciation. Depreciation is computed using the straight-line method based upon estimated useful lives, as follows:

ASSETS:	YEARS
Buildings	40–50
Water supply and wastewater treatment systems	15–50
Water distribution and sewage collection systems	15–99
Machinery and equipment	3–35
Vehicles	10

Maintenance and repairs of property are recorded as maintenance expense. Replacements and betterments are recorded as additions to utility plant. The System pays for certain improvements of assets that are not owned by the City or the System, as well as certain pollution remediation activities, through bond proceeds. These costs are reported as other operating expenses in the System's combining statement of revenues, expenses and changes in net position (deficit).

2. Summary of Significant Accounting Policies (Continued)

CONTRIBUTED CAPITAL

The System received federal, state and other capital contributions of $19.8 million and $18.5 million in fiscal years 2023 and 2022, respectively. These amounts are reported in the System's combining statements of revenues, expenses and changes in net position (deficit) as "Capital contributions" below net income (loss) before capital contributions. In addition, the System received $292 thousand in both fiscal years 2023 and 2022, from Westchester County (the "County") to compensate the System for constructing a water conduit that provides treated water to the County. The County payments are reported as capital contributions in the System's combining statements of revenues, expenses and changes in net position (deficit) below net income (loss) before capital contributions and as receipts from contribution made by other organization in the System's combining statements of cash flows.

OPERATING REVENUES AND OPERATING EXPENSES

Operating revenues consist of services provided to customers of the System. Revenues are reported net of allowances, discounts and refunds and are based on billing rates imposed by the Water Board and upon customers' water and sewer usage or, in some cases, characteristics of customer properties. The System records unbilled revenue at year end based on meter readings collected as of June 30.

Operating expenses include, but are not limited to, costs incurred for maintenance, repair, and operations of the System; administration costs of the Water Board and the Authority; and rental payments to the City, if requested. In fiscal years 2023 and 2022, no rental payment was requested by the City.

REVENUES RECEIVED IN ADVANCE

Revenues received in advance of the period to which they relate are unearned and recorded as revenue when earned. Customer account credit balances are reported as a current liability "service credits on customer accounts" and are not included in accounts receivable.

UNAMORTIZED DEFERRED BOND REFUNDING COSTS

Deferred bond refunding costs represent the accounting gains or losses incurred in bond refundings. They are reported as "unamortized deferred bond refunding costs in "Deferred Inflows of Resources" and are amortized over the lesser of the remaining life of the old debt or the life of the new debt. The amortized deferred bond refunding cost is an off set to interest expense on the combining statement of revenues, expenses and changes in net position (deficit).

USE OF ESTIMATES

The preparation of the combining financial statements in accordance with accounting principles generally accepted in the United States of America, requires management to make estimates and assumptions in determining the amounts of assets, deferred outflows of resources, liabilities, deferred inflows of resources, and disclosure of contingent liabilities at the date of the combining financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

PENSIONS

Net pension liabilities are required to be recognized and disclosed using the accrual basis of accounting. The Authority recognizes a net pension liability for New York City Employee Retirement System ("NYCERS") Qualified Pension Plan (Pension Plan") in which it participates, which represents the Authority's proportional share of excess total pension liability over the Pension Plan assets, actuarially calculated, of a cost-sharing multiple-employer plan, measured as of the fiscal year end.

2. Summary of Significant Accounting Policies (Continued)

Changes in the net pension liability during the period are recorded as pension expense, or as deferred inflows of resources or deferred outflows of resources depending on the nature of the change, in the period incurred. Those changes in net pension liability that are recorded as deferred inflows of resources or deferred outflows of resources are amortized over the weighted-average remaining service life of all participants in the qualified Pension Plan and recorded as a component of pension expense beginning with the period in which they are incurred. The change in the Authority's proportion of the collective net pension liability and collective deferred outflows of resources and deferred inflows of resources related to the pension since the prior measurement date is recognized in the current reporting period over a closed period that is equal to the average of the expected remaining service lives of all employees provided with a pension through the Pension Plan.

For the contribution to the Pension Plan, the difference during the measurement period between the total amount of the Authority's contribution and the amount of the Authority's proportionate share of the total of such contributions from all employers and all nonemployee contributing entities is recognized in the Authority's pension expense, beginning in the current reporting period, over a closed period that is equal to the average of the expected remaining service lives of all employees provided with pension through the Pension Plan. The amount not recognized in pension expense is reported as deferred outflow of resources or deferred inflow of resources related to the pension.

Projected earnings on qualified Pension Plan investments are recognized as a component (reduction) of pension expense. Differences between projected and actual investment earnings are reported as deferred inflows of resources or deferred outflows of resources and amortized as a component of pension expense on a closed basis over a five-year period beginning with the period in which the difference occurred.

Changes in total pension liability arising from changes of benefit terms are required to be included in pension expense in the period the change is first reported in the net pension liability. The changes in the total pension liability resulting from (1) differences between expected and actual experience with regard to economic and demographic factors and (2) changes of assumptions regarding the expected future behavior of economic and demographic factors or other inputs are recognized as deferred outflows of resources or deferred inflows of resources related to the pension and included in the pension expense over a period equal to the average of the expected remaining service lives of all employees that are provided with benefits through the Pension Plan.

RECENT ACCOUNTING PRONOUNCEMENTS

As a component unit of the City, the System implements new GASB standards in the same fiscal year as they are implemented by the City. The following are discussions of the standards requiring implementation in the current year and standards that may impact the System in future years.

- In March 2020, GASB issued Statement No. 93, *Replacement of Interbank Offered Rates*, ("GASB 93"). GASB 93 addresses those and other accounting and financial reporting implications that result from the replacement of an interbank offered rate–most notably, the London Interbank Offered Rate ("LIBOR") resulting from global reference rate reform. LIBOR was expected to cease to exist in its current form at the end of 2021, prompting governments to amend or replace financial instruments for the purpose of replacing LIBOR with other reference rates, by either changing the reference rate or adding or changing fallback provisions related to the reference rate. Subsequently, LIBOR's administrator, the ICE Benchmark Administration, announced that the most widely used United States Dollar. LIBOR tenors would continue to be published until June 30, 2023. The removal of LIBOR as an appropriate benchmark interest rate is effective for reporting periods ending after December 31, 2021. All other requirements for GASB 93 are effective for reporting periods beginning after June 15, 2020. (Postponed paragraphs 13 and 14 to fiscal years beginning after June 15, 2021. See GASB 95 below). The adoption of GASB 93 did not have an impact on the System's combining financial statements, as during the fiscal year, the Authority opted into the Fallback Protocol published on October 23, 2020 by the International Swaps and Derivatives Association, which provides a mechanism to incorporate the fallback rate equivalent.

2. Summary of Significant Accounting Policies (Continued)

- In March 2020, GASB issued Statement No. 94, *Public-Private and Public-Public Partnerships and Availability Payment Arrangements* ("GASB 94"). GASB 94 improves financial reporting by addressing issues related to public-private and public-public partnership arrangements ("PPPs") and also provides guidance for accounting and financial reporting for availability payment arrangements ("APAs"). The requirements for GASB 94 are effective for fiscal years beginning after June 15, 2022, and all reporting periods thereafter. Adoption of GASB 94 did not have an impact on the System's combining financial statements as it does not enter into PPPs or APAs.
- In May 2020, GASB issued Statement No. 95, *Postponement of the Effective Dates of Certain Authoritative Guidance*, ("GASB 95"). GASB 95 provides temporary relief to governments and other stakeholders in light of the COVID-19 pandemic by postponing the effective dates of certain provisions in Statements and Implementation Guides that first became effective or are scheduled to become effective for periods beginning after June 15, 2018, and later. The incremental adoption of GASB 95 did not have an impact on the System's combining financial statements.
- In May 2020, GASB issued Statement No. 96, *Subscription-Based Information Technology Arrangements* ("GASB 96"). GASB 96 provides guidance on the accounting and financial reporting for subscription-based information technology arrangements ("SBITAs") for government end users (governments). The requirements GASB 96 are effective for fiscal years beginning after June 15, 2022, and all reporting periods thereafter. Adoption of GASB 96 did not have a material impact on the System's combining financial statements.
- In April 2022, GASB issued Statement No. 99, *Omnibus 2022*, ("GASB 99"). GASB 99 enhances the comparability in accounting and financial reporting as well as improves the consistency of authoritative literature by addressing 1) several practice issues that have been identified during implementation and application of certain GASB Statements and 2) accounting and financial reporting for financial guarantees. The requirements for GASB 99 are effective for reporting periods ranging from immediate to fiscal years beginning after June 15, 2023. As of fiscal year ending June 30, 2023, the System has adopted all requirements for GASB 99. Adoption of GASB 99 did not have an impact on the System's combining financial statements as the practice issues and the accounting and financial reporting for financial guarantees addressed in GASB 99 are not applicable to the System.
- In June 2022, GASB issued Statement No. 100, *Accounting Changes and Error Corrections An Amendment* to GASB Statement No. 62, ("GASB 100"). GASB 100 enhances accounting and financial reporting requirements for accounting changes and error corrections to provide more understandable, reliable, relevant, consistent, and comparable information for making decisions or assessing accountability. The requirements for GASB 100 are effective for accounting changes and error corrections made in fiscal years beginning after June 15, 2023, and all reporting periods thereafter. Early application is encouraged. The System has not completed the process of evaluating GASB 100 but does not expect it to have an impact on the System's combining financial statements.
- In June 2022, GASB issued Statement No. 101, *Compensated Absences*, ("GASB 101"). GASB 101 updates the recognition and measurement guidance for compensated absences and amends certain previously required disclosures. The requirements for GASB 101 are effective for fiscal years beginning after December 15, 2023, and all reporting periods thereafter. Early application is encouraged. The System has not completed the process of evaluating GASB 101 but does not expect it to have an impact on the System's combining financial statements.

3. Utility Plant

The following is a summary of utility plant activity for the fiscal years ended June 30, 2023 and 2022, respectively (in thousands):

	Balance at June 30, 2021	Additions	Deletions	Balance at June 30, 2022	Additions	Deletions	Balance at June 30, 2023
NONDEPRECIABLE ASSETS:							
Utility construction in progress	$ 5,769,893	$ 1,572,816	$ 1,071,632	$ 6,271,077	$ 1,519,724	$ 909,061	$ 6,881,740
DEPRECIABLE ASSETS:							
Utility plant in service:							
Buildings	35,821	—	—	35,821	—	—	35,821
Machinery and equipment	5,338,988	214,887	4,741	5,549,134	82,271	956	5,630,449
Vehicles	277,890	9,995	—	287,885	1,889	12,118	277,656
Water supply and distribution and wastewater treatment and sewage collection systems	38,752,739	846,750	4,234	39,595,255	824,901	3,409	40,416,747
Total utility plant in service	44,405,438	1,071,632	8,975	45,468,095	909,061	16,483	46,360,673
LESS ACCUMULATED DEPRECIATION FOR:							
Buildings	30,618	283	—	30,900	284	—	31,184
Machinery and equipment	2,890,886	267,753	2,479	3,156,160	249,354	888	3,404,626
Vehicles	135,200	11,285	—	146,485	11,434	11,293	146,626
Water supply and distribution and wastewater treatment and sewage collection systems	14,592,642	757,652	3,416	15,346,878	760,253	2,736	16,104,395
Total accumulated depreciation	17,649,346	1,036,973	5,895	18,680,423	1,021,325	14,917	19,686,831
Total utility plant in service—net	26,756,092	34,659	3,080	26,787,672	(112,264)	1,566	26,673,842
Total capital assets—net	$ 32,525,985	$ 1,607,475	$ 1,074,712	$ 33,058,749	$ 1,407,460	$ 910,627	$ 33,555,582

4. Deposits and Investments

CASH AND CASH EQUIVALENTS

The System maintains deposits only at the depositary banks designated by the New York City Banking Commission. Further, as required by the Water and Sewer System General Revenue Bond Resolution and the Water and Sewer System Second General Revenue Bond Resolution (the "resolutions"), every bank that holds the Authority's cash deposits is required to have its principal office in the State of New York and have capital stock, surplus, and undivided earnings aggregating at least $100 million. As of June 30, 2023 and 2022, cash was comprised of bank deposits and there was no difference between the carrying amounts and bank balances.

Restricted cash and cash equivalents were comprised of the following at June 30, 2023 and 2022, respectively (in thousands):

	2023	2022
RESTRICTED CASH AND CASH EQUIVALENTS:		
Cash	$ 12,492	$ 12,474
Cash equivalents	2,976,471	2,181,646
Total restricted cash and cash equivalents	$ 2,988,963	$ 2,194,120

4. Deposits and Investments (Continued)

CUSTODIAL CREDIT RISK

Custodial credit risk is the risk that, in the event of the failure of the custodian, the System may not be able to recover the value of its deposits or collateral securities that are in the possession of an outside party. Deposits are exposed to custodial credit risk if they are not covered by depository insurance and the deposits are uncollateralized, collateralized with securities held by the pledging financial institution, or collateralized with securities held by the pledging financial institution's trust department or agent but not in the System's name. As of both June 30, 2023 and 2022, the System had $12.5 million of deposits. $500,000 was covered by federal depository insurance and the remaining balances were collateralized with securities held by the trustee's trust department in the trustee's name.

INVESTMENTS

The System invests funds that are not immediately required for operations, debt service, or capital expenses. Funds held by the Authority are invested pursuant to the Authority's bond resolutions and in accordance with its investment guidelines, which restrict investments to obligations of, or guaranteed by, the United States of America, to certain highly rated obligations of the State of New York, to certain certificates of deposit and similar instruments issued by highly rated commercial banks, to certain highly rated corporate securities or commercial paper securities, to certain repurchase agreements with highly rated institutions, to certain investment agreements with highly rated institutions, to certain highly rated money market funds, and to certain highly rated municipal obligations. All accounts held by the Water Board are invested in accordance with the Water Board's investment guidelines, which restrict investments to obligations of, or guaranteed by, the United States of America and to certain repurchase agreements with highly rated institutions.

The System had the following restricted investments at June 30, 2023 and 2022 (in thousands):

	2023			2022		
RESTRICTED INVESTMENTS	Water Board	Municipal Water Finance Authority	Total	Water Board	Municipal Water Finance Authority	Total
U.S. Agencies securities	$ —	$ 167,474	$ 167,474	$ —	$ 253,465	$ 253,465
U.S. Treasury securities	168,375	781,357	949,732	136,920	1,626,498	1,763,418
New York State instrumentalities	—	20,441	20,441	—	23,520	23,520
Money market funds	153,861	1,705,804	1,859,665	148,735	319,412	468,147
Guaranteed investment contracts	—	—	—	—	88,127	88,127
Forward Purchase Agreements	—	6,747	6,747	—	10,678	10,678
Total investments including cash equivalents	322,236	2,681,823	3,004,059	285,655	2,321,700	2,607,355
Less amounts reported as cash equivalents	(299,245)	(2,677,225)	(2,976,470)	(148,735)	(2,032,910)	(2,181,645)
Total Restricted Investments	$ 22,991	$ 4,598	$ 27,589	$ 136,920	$ 288,790	$ 425,710

4. Deposits and Investments (Continued)

FAIR VALUE HIERARCHY

The System categorizes its fair value measurements within the fair value hierarchy established by generally accepted accounting principles. The hierarchy is based on the valuation inputs used to measure fair value of the assets. Level 1 inputs are quoted prices in an active market for identical assets; Level 2 inputs are significant other observable inputs; and Level 3 inputs are significant unobservable inputs.

The System has the following recurring fair value measurements as of June 30, 2023 and 2022 (in thousands):

- U.S. Agencies securities of $167 million and $253 million, respectively, are valued using a matrix-pricing model (Level 2 inputs).
- U.S. Treasury securities of $950 million and $1.76 billion, respectively, are valued using a matrix-pricing model (Level 2 inputs).
- New York State instrumentalities of $20.4 million and $23.5 million, respectively, are valued using a matrix-pricing model (Level 2 inputs).
- Money Market Funds of $1.86 billion and $468 million, respectively, are valued using a matrix-pricing model (Level 2 inputs).
- Guaranteed Investment Contracts ("GIC") of $0 and $88.1 million, respectively, are valued using the market approach, with observable inputs and using a matrix-pricing technique (Level 2 inputs).
- Forward Purchase Agreements of $6.7 million and $10.7 million, respectively, are valued using the market approach, with observable inputs and using a matrix-pricing technique (Level 2 inputs).
- Interest Rate Derivatives of ($36.7) million and ($61.0) million, respectively, are valued using the income approach (Level 2 inputs).

CREDIT RISK

Both the Water Board and the Authority have Board of Directors approved investment guidelines and policies in place designed to protect principal by limiting credit risk. This is accomplished through ratings, collateral, and diversification requirements that vary according to the type of investment. Investments held by the System at June 30, 2023 and 2022 may include obligations of, or guaranteed by, the United States of America, the Federal Home Loan Mortgage Corporation, the Federal Home Loan Bank, the Federal National Mortgage Association, the Federal Agriculture Mortgage Corporation, and the Federal Farm Credit Bank. Also, held by the Authority, are direct obligations of agencies or public authorities of the State of New York, which at the time of purchase were rated in one of the two highest rating categories. In addition, the Authority has entered into investment agreements and a guaranteed investment contract with financial institutions whose long-term debt obligations, or whose obligations under such an investment agreement or guaranteed investment contract, are guaranteed by a financial institution whose senior long-term debt obligations were rated in one of the two highest rating categories for comparable types of obligations by each rating agency at the time such agreement or contract was entered into.

INTEREST RATE RISK

Changes in interest rates impact fair value of investments. Investments by the System are not expected to be liquidated prior to maturity and investment agreements are not expected to be terminated prior to their expiration dates, thereby limiting cash flow exposure from rising interest rates.

Segmented time distribution on investments and cash equivalents as of June 30, 2023 (in thousands):

Maturity Date	Fair value amount
Under 6 months	$ 2,932,270
Over 6 months to 1 year	47,024
Over 1 year to 3 years	9,114
Over 3 years and beyond	8,904
Over 3 years and beyond (Forward Purchase Agreement adj.)[1]	6,747
Total	**$ 3,004,059**

[1]*Includes the fair value of $6.7 million related to Forward Purchase Agreements.*

4. Deposits and Investments (Continued)

Segmented time distribution on investments and cash equivalents as of June 30, 2022 (in thousands):

Maturity Date	Fair value amount
Under 6 months	$ 2,358,143
Over 6 months to 1 year	170,845
Over 6 months to 1 year (GIC Adj.)[1]	2,089
Over 1 year to 3 years	53,827
Over 3 years and beyond	11,774
Over 3 years and beyond (Forward Purchase Agreement adj.)[1]	10,678
Total	**$ 2,607,355**

[1]*Includes the fair value of $10.7 million related to Forward Purchase Agreements and $2.1 million related to a GIC agreement.*

CONCENTRATION OF CREDIT RISK

Concentration of credit risk is the risk of loss attributed to the magnitude of the System's investment in a single issuer. The System's investment policy limits the amount the System may invest in any particular issuer. As of June 30, 2023, the System had 31.6% of its restricted investments invested in Federally Guaranteed Securities, 5.6% in U.S. Agency Securities, 0.7% in Municipal Bonds, and 61.9% in First American Government Obligation Money Market Fund.

CUSTODIAL CREDIT RISK

With respect to investments, custodial credit risk is the risk that, in the event of the failure of the custodian, the System may not be able to recover the value of its investment or collateral securities that are in the possession of an outside party. Investment securities are exposed to custodial credit risk if the securities are uninsured, are not registered in the name of their government, and are held by either the counterparty or the counterparty's trust department or agent but not in the name of the government. All of the investments, except for the GIC, which had a fair value of $0 and $88.1 million at June 30, 2023 and 2022, respectively, were not registered in the System's name. The types and amounts of investments are listed in the table on page 50.

5. Derivative Instruments

As of June 30, 2023, the Authority had the following (in thousands):

Type	Notional Amount	Effective Date	Maturity Date	Terms	Fair Value	Counterparty Credit Rating (Moody's/S&P/Fitch)
HEDGING DERIVATIVES						
Synthetic fixed rate	$ 240,600	10/24/07	6/15/36	Pay 3.439% receive 67% of 1-month LIBOR	$ (22,025)	Aa2/AA-/NR
Synthetic fixed rate	160,400	10/24/07	6/15/36	Pay 3.439% receive 67% of 1-month LIBOR	(14,680)	Aa1/A+/AA
Totals	$ 401,000				$ (36,705)	

As of June 30, 2022, the Authority had the following (in thousands):

Type	Notional Amount	Effective Date	Maturity Date	Terms	Fair Value	Counterparty Credit Rating (Moody's/S&P/Fitch)
HEDGING DERIVATIVES						
Synthetic fixed rate	$ 240,600	10/24/07	6/15/36	Pay 3.439% receive 67% of 1-month LIBOR	$ (36,595)	Aa2/AA-/NR
Synthetic fixed rate	160,400	10/24/07	6/15/36	Pay 3.439% receive 67% of 1-month LIBOR	(24,396)	Aa2/A+/AA
Totals	$ 401,000				$ (60,991)	

LIBOR: London Interbank offered Rate Index

5. Derivative Instruments (Continued)

HEDGING DERIVATIVE INSTRUMENTS

Effective October 24, 2007, the Authority executed two interest rate exchange agreements, in conjunction with its sale of $401 million of Adjustable Rate Fiscal 2008 Series BB Second Resolution Bonds. Under these agreements, the Authority pays a fixed interest rate of 3.439% in exchange for a floating rate based on 67% of one-month LIBOR on the combined notional amount of $401 million. The agreements are with two separate counterparties: one agreement with Goldman Sachs Mitsui Marine Derivative Products in the amount of $241 million and the second agreement with Bank of America in the amount of $160 million. These agreements allowed the Authority to achieve a fixed rate cost lower than the cost of conventional fixed rate debt at the time of issuance. The Authority's obligations under these interest rate exchange agreements are payable on a parity with the related Second Resolution revenue bonds.

CREDIT RISK

The risk that the counterparty (or its guarantor) will default under its agreement and the Authority would be left with unhedged variable rate debt. To continue to be hedged, the Authority may have to pay another entity to assume the position of the defaulting counterparty while not receiving an offsetting payment from the defaulting counterparty (full or in part). The Authority seeks to limit credit risk by contracting with highly rated counterparties or requiring highly rated guarantees of the counterparty's obligations. In the event that a counterparty loses its high rating, the Authority has built in two forms of protection into its swap agreements. First, the Authority has required the counterparty to post collateral if its ratings fall below "Aa3" by Moody's and "AA-" by Standard and Poor's and the mark-to-market in the Authority's favor exceeds specified threshold amounts. Second, the Authority has the right to terminate the Interest Rate Exchange Agreement if the counterparty is downgraded below "A3" and "A-" by Moody's and Standard and Poor's, respectively. In addition, the Authority monitors the credit ratings and overall financial condition of its counterparties and may exercise its right to assign the agreement to another counterparty if necessary, in its judgment, to mitigate credit risk, even in the absence of a significant credit rating downgrade.

TERMINATION RISK

The counterparties can terminate the agreements upon the occurrence of certain events, when the mark-to-market value is such that the Authority would owe a termination payment to the counterparty. The counterparties may terminate the agreement only upon the occurrence of certain events, such as payment defaults by the Authority, other defaults which remain uncured for 30 days after notice, bankruptcy or insolvency of the Authority (or similar events), or a downgrade of the Authority's credit rating below "Baa2" and "BBB" by Moody's and Standard & Poor's, respectively.

BASIS RISK

Basis risk is the risk of a mismatch between two floating rates. For example, the amount the Authority receives under an Interest Rate Exchange Agreement may be lower than the amount the Authority is required to pay on the bonds associated with the transaction, which would require the Authority to make up the shortfall.

INTEREST RATE RISK

Interest rate risk is the risk that changes in long-term interest rates will adversely affect the mark-to-market values of the Authority's swap instruments which may result in termination payments.

LIBOR DISCONTINUATION RISK

On March 5, 2021, IBA and the Financial Conduct Authorities announced a LIBOR cessation date for most USD LIBOR tenors, including 1-month LIBOR, as of June 30, 2023.

The Authority has amended its interest rate agreements by adhering to the Fallback Protocol published by the International Swaps and Derivatives Association on October 23, 2020, which provides a mechanism to incorporate the fallback rate equivalent to the sum of the Secured Overnight Financing Rate ("SOFR") and a spread adjustment of 11.448 basis points. As a result, the derivatives will now have a floating rate of 67% of SOFR plus 7.67 basis points (67% of the fallback rate of SOFR plus 67% of 11.448 basis points), effective July 1, 2023.

FINANCIAL STATEMENTS EFFECT

The fair value of hedging derivatives at June 30, 2023 and 2022 was ($36.7) million and ($61.0) million, respectively. The Authority does not currently own investment derivatives.

6. Agreement

The Water Board is a party to an Agreement of Lease (the "Agreement") with the City, which transfers the water and sewer related property to the Water Board for the term of the Agreement. The Agreement term commenced on July 1, 1985, and continues until the later of the fortieth anniversary of the commencement of the Agreement or the date on which all bonds, notes or other obligations of the Authority are paid in full or provision for such payment has been made pursuant to the applicable debt instrument. The Agreement provides for payments to the City to cover the following:

a. An amount sufficient to pay the cost of administration, maintenance, repair, and operation of the Agreement property, which includes overhead costs incurred by the City that are attributable to the Agreement property, net of the amount of any federal, the State, or other operating grants received by the City; and

b. An amount sufficient to reimburse the City for capital costs incurred by the City for the construction of capital improvements to the Agreement property that are not paid or reimbursed from any other source.

In addition to the payments described above, the Water Board pays rent to the City, if requested, each fiscal year in an amount not to exceed the greater of: (a) the principal and interest payable on general obligation bonds issued by the City for water and sewer purposes certified by the City to be paid within such fiscal year; or (b) 15% of principal and interest payable on the bonds of the Authority to be paid within such fiscal year. In fiscal years 2023 and 2022, no rental payment was requested by the City.

A summary of operations and maintenance and rental expenses for the years ended June 30 is as follows (in thousands):

		2023		2022
Water supply, treatment, transmission and distribution	$	589,560	$	565,587
Sewer collection and treatment systems		763,091		718,453
The City agency support cost		68,618		67,689
Fringe benefits		277,243		247,941
Judgments and claims		13,306		10,410
Reversal of prior year payables		(1,811)		(35,216)
Total operations and maintenance expenses	$	1,710,007	$	1,574,864

7. Payable To and Receivable From The City

As of June 30, 2023 and 2022, all utility construction and other projects financed by the Authority debt and recorded by the System, which have not been reimbursed to the City, are recorded as a payable to the City. The Authority had a payable to the City of $543 million and $523 million as of June 30, 2023 and 2022, respectively, net of the amount of state or federal and other capital grants recognized by the City.

As of June 30, 2023, and 2022, the Water Board had a receivable from the City of $74.8 million and $98.2 million, respectively. The receivable from the City is a result of the difference between budget estimates and actual expenses for operations and maintenance.

8. Other Operating Expenses

A summary of other operating expenses for the years ended June 30 is as follows (in thousands):

		2023		2022
Pollution remediation	$	23,872	$	11,341
Payments for watershed improvements		38,553		16,268
Program expense		102,039		61,786
Total other operating expenses	$	164,464	$	89,395

The City's DEP manages both the System's operations and its capital program, and it also manages other projects with long-term benefits to the System, which do not result in capital assets of the System and that are paid for using the Authority's bond proceeds. Such long-term benefit projects include payment for environmental protection, related improvement in the watershed areas, and pollution remediation projects throughout the System. The System has estimated these amounts based on the current value of outlays expected to be incurred for pollution remediation, which it is currently obligated to perform. Actual future outlays will differ from the estimated amounts if the prices or techniques for remediation measures change or differ from the estimates.

In fiscal years 2023 and 2022, the System incurred program expenses of $102 million and $61.8 million, respectively.

The System offers its residential customers the option to enroll into a protection program on their water and sewer lines against any breakage for a monthly fee. The fee is included in the participating customer utility bill. This protection program is offered by American Water Resources.

The System also operates two core assistance programs available to eligible customers, the Home Water Assistance Program and the Multi-Family Water Assistance Program. Both programs were offered to customers in fiscal year 2022 and fiscal year 2023. In addition, from time to time the Board also offers one-time customer programs. During fiscal year 2023, the Board made a Water Bill Amnesty Program available to eligible customers, as well as programs benefiting certain affordable multi-family residential properties and accounts participating in the New York State Low Income Household Water Assistance Program.

9. Long-Term Liabilities

DEBT PROGRAM DESCRIPTION

The Authority issues debt to finance the capital needs of the System. The Authority's debt is issued under two bond resolutions, the Water and Sewer System General Revenue Bond Resolution (the "First Resolution") and the Water and Sewer System Second General Revenue Bond Resolution ("the Second Resolution", each a "Resolution"). Bonds and notes issued by the Authority are special obligations of the Authority payable solely from and secured by a pledge of and lien on the gross revenues of the System, subject to the priorities set forth in each Resolution, and from money and securities in any of the funds and accounts defined and established under each Resolution, other than the arbitrage rebate fund, subject to the priorities set forth in each Resolution. The Water Board is obligated to set rates and collect revenues sufficient to fund principal and interest requirements, as well as to meet certain debt service coverage and operating cost funding requirements. Each Resolution specifies certain events of default, such as failure to pay debt service, the Authority's filing or otherwise seeking relief in bankruptcy court, failure to comply with the certain provisions of each respective Resolution and certain other governing documents, that under certain conditions could, upon the written request of the holders of not less than a majority in principal amount of the bonds outstanding under each Resolution, result in acceleration of debt service payments.

The debt program of the Authority includes commercial paper notes and long-term debt, as well as bond anticipation notes ("BANs") and interest-subsidized bonds issued to the New York State Environmental Facilities Corporation ("EFC"). While historically, proceeds of commercial paper notes were the main source of funds to reimburse the City for payments made for water and sewer capital projects, in fiscal years 2023 and 2022, the Authority exclusively relied on proceeds from BANs and long-term bond issuances to reimburse the City for the System's capital expenditures. The Authority issues long-term debt to retire commercial paper notes and BANs. The Authority also periodically issues refunding bonds to refinance higher-coupon debt and defeases bonds using current revenues.

9. Long-Term Liabilities (Continued)

The Authority is currently authorized to have outstanding up to $600 million of commercial paper notes. As of June 30, 2023 and 2022, none were outstanding. As of June 30, 2023 and 2022, there was $180 million and $101 million of BANs outstanding, respectively. As of June 30, 2023 and 2022, the BANs principal balance of $354 million and $826 million, respectively, was available for future draw down.

CHANGES IN LONG-TERM LIABILITIES

In fiscal years 2023 and 2022, the long-term debt was as follows (in thousands):

BONDS/BANs PAYABLE	Balance at June 30, 2022	Additions	Deletions	Balance at June 30, 2023	Due Within One Year
First Resolution Bonds	$ 789,871	$ —	$ (334,130)	$ 455,741	$ —
Second Resolution Bonds Issued to the Public	24,285,718	2,443,395	(1,669,160)	25,059,953	250,515
Second Resolution Bonds Issued to EFC	5,865,444	874,516	(682,916)	6,057,044	295,030
Second Resolution Notes Issued to EFC	101,126	613,298	(534,567)	179,857	179,857
Second Resolution Bonds-Direct Placement	500,000	—	—	500,000	—
Total before premium and discounts	31,542,159	3,931,209	(3,220,773)	32,252,595	725,401
Premium (discounts)—net	2,716,719	196,609	(299,140)	2,614,187	—
Total debt	$ 34,258,878	$ 4,127,818	$ (3,519,913)	$ 34,866,782	$ 725,401

BONDS/BANs PAYABLE	Balance at June 30, 2021	Additions	Deletions	Balance at June 30, 2022	Due Within One Year
First Resolution Bonds	$ 889,871	$ —	$ (100,000)	$ 789,871	$ —
Second Resolution Bonds Issued to the Public	23,727,554	2,459,409	(1,901,245)	24,285,718	33,765
Second Resolution Bonds Issued to EFC	5,774,344	744,460	(653,360)	5,865,444	307,010
Second Resolution Notes Issued to EFC	155,029	375,835	(429,738)	101,126	95,194
Second Resolution Bonds-Direct Placement	500,000	—	—	500,000	—
Total before premium and discounts	31,046,798	3,579,704	(3,084,343)	31,542,159	435,969
Premium (discounts)—net	2,551,090	498,850	(333,221)	2,716,719	—
Total debt	$ 33,597,888	$ 4,078,554	$ (3,417,564)	$ 34,258,878	$ 435,969

DEBT PROGRAM ADMINISTRATION

In fiscal year 2023, the Authority issued $596 million of new money bonds to the public. The Authority used new money bond proceeds to finance capital improvements to the System and to pay for bond issuance costs. In addition, in fiscal year 2023, the Authority drew down $613 million of BANs proceeds and applied them to finance capital improvements to the System.

During fiscal year 2023, as further detailed in the bullets below, the Authority issued $2.2 billion of bonds to refund $2.3 billion of outstanding bonds. These refunding transactions resulted in a cumulative accounting gain of $106.4 million. The Authority reduced its aggregate debt service for principal and interest by $298 million and obtained an economic benefit (present value savings) of $200 million.

The following details the Authority’s refunding activity in fiscal year 2023:

On November 22, 2022, the Authority issued $750 million of tax-exempt fixed rate Second Resolution bonds, Fiscal 2023 Series AA. $424 million of proceeds from the sale funded capital projects of the System. The bonds also refunded the following Second Resolution fixed rate bonds: $288 million of Fiscal 2013 Series BB, $26.7 million of Fiscal 2018 Subseries CC-2, and $60 million of Fiscal 2019 Subseries DD-2. The bonds have a final maturity of 2052.

On December 6, 2022, the Authority issued $233.2 million of fixed rate Second Resolution bonds, Fiscal 2023 Series 1 to EFC. Proceeds of these new money bonds were used to pay off $229.9 million of Fiscal 2022 Series 8 BANs. The bonds have a final maturity of 2052.

9. Long-Term Liabilities (Continued)

On December 13, 2022, the Authority issued $106.5 million of fixed rate Second Resolution bonds, Fiscal 2023 Series 2 to EFC. Proceeds of these new money bonds were used to pay off $106.5 million of Fiscal 2017 Series 1 BANs. The Bonds have a final maturity of 2052.

On December 15, 2022, the Authority issued $200 million of tax-exempt variable rate Second Resolution bonds, Fiscal 2023 Series BB. The bonds refunded $200 million of First Resolution variable rate Fiscal 2012 Series A. The bonds have a final maturity of 2044.

On February 16, 2023, the Authority issued $200 million of tax-exempt variable rate Second Resolution bonds, Fiscal 2023 Series CC. The proceeds from the sale funded capital projects of the System. The bonds have a final maturity of 2053.

On March 21, 2023, the Authority issued $1.29 billion of tax-exempt fixed rate Second Resolution bonds, Fiscal 2023 Series DD. The bonds refunded the following First Resolution variable rate bonds: $84.1 million of Fiscal 2001 F-2 and $50 million of Fiscal 2003 Subseries F-1-A; the bonds also refunded the following Second Resolution fixed rate bonds: $195.4 million of Fiscal 2013 Series CC, $466.9 million of Fiscal 2013 Series DD, $244.3 million of Fiscal 2013 Series EE, and $353.8 million of Fiscal 2014 Series BB. The bonds have a final maturity of 2047.

On June 29, 2023, the Authority issued the following fixed rate Second Resolution bonds to EFC: $194.3 million Fiscal 2023 Series 4, $187.6 million Fiscal 2023 Series 5, and $152.8 million Fiscal 2023 Series 6. Proceeds of the bonds were used to refund $214.2 million of Fiscal 2014 Series 1 and $152.8 million of Fiscal 2014 Series 2. The new money portion of the bonds were used to pay off $198.1 million of Fiscal 2022 Series 8 and Fiscal 2023 Series 3 Bond Anticipation Notes. The bonds have a final maturity of 2053.

From time to time the Authority defeases some of its bonds by placing proceeds of refunding bonds or current revenue in irrevocable escrow accounts to provide for all future debt service payments on the defeased bonds. The escrow account assets and the liability for the defeased bonds are not included in the System's combining financial statements. As of June 30, 2023 and 2022, $222 million and $564 million, of the Authority's defeased bonds, respectively, were still outstanding.

INDEX RATE BONDS

As of June 30, 2023 and 2022, the Authority had outstanding $500 million of index rate bonds, which were purchased by a bank through direct placement. The index rate bonds are adjustable rate bonds that pay interest based on a specified market index. The terms of the index rate bonds provide for a 9% rate of interest, commencing on an identified step-up date, if such bonds are not converted or refunded prior to such date. Interest rates on the Authority's index rate bonds cannot exceed 9%. In fiscal years 2023 and 2022, interest rates on the Authority's index rate bonds averaged 3.18% and 0.90%, respectively.

ADJUSTABLE RATE DEMAND BONDS

As of June 30, 2023 and 2022, the Authority had $4.2 billion and $4.1 billion of adjustable rate demand bonds ("VRDBs") outstanding, respectively. VRDBs may be tendered at the option of their holders prior to their maturity. VRDBs are remarketed by remarketing agents on a daily or weekly basis. Interest rates determined by such remarketing agents for such periods represent the lowest rate of interest that would cause the VRDBs to have a market value equal to par. VRDBs interest rates cannot exceed 9%. In fiscal years 2023 and 2022, interest rates on the Authority's variable rate demand bonds averaged 2.29% and 0.19%, respectively.

The VRDBs are backed by either a Standby Bond Purchase Agreement ("SBPA") or a Letter of Credit ("LOC"), providing for the purchase of the VRDBs by a bank in the event they cannot be remarketed. In such case, the interest rate on the VRDBs would typically increase and would be determined by reference to specified index rates plus a spread (in some cases, with a minimum rate), up to a maximum rate of 25%. No VRDBs were held by such banks during the fiscal years ended June 30, 2023 and 2022. SBPAs and LOCs may be terminated by the respective banks upon the occurrence of specified events of default. None of the SBPAs or LOCs supporting adjustable rate demand bonds provides for acceleration. However, in connection with such LOCs, the Authority has agreed that, following a specified period of time in which the LOC bank holds unremarketed VRDBs, the Authority will exchange such VRDBs for refunding bonds maturing within five years and providing for amortization during such period.

9. Long-Term Liabilities (Continued)

The Authority had the following adjustable variable rate demand bonds outstanding as of June 30, 2023:

Series		Outstanding Principal Amount	SBPA or LOC Provider	Expiration or Optional Termination by Provider
2000-C	$	107,500,000	Sumitomo Mitsui Banking Corporation	5/2/25
2003 F-1-B		50,000,000	US Bank, N.A.	2/27/24
2003 F-2		101,655,000	Citibank, N.A.	10/25/24
2007 CC-1		160,500,000	Sumitomo Mitsui Banking Corporation	9/14/26
2007 CC-2		50,000,000	State Street Bank and Trust Company	1/20/27
2008 BB-1		100,000,000	TD Bank, N.A.	3/2/28
2008 BB-2		101,000,000	Bank of America, N.A.	10/20/23
2008 BB-5		50,000,000	Bank of America, N.A.	10/20/23
2009 BB-1		100,435,000	UBS AG	5/4/26
2009 BB-2		100,435,000	UBS AG	5/4/26
2010 CC		200,000,000	State Street Bank and Trust Company	1/19/28
2011 DD-1		100,000,000	TD Bank, N.A.	4/21/28
2011 DD-2		75,000,000	JPMorgan Chase Bank, N.A.	11/12/26
2011 DD-3A		50,000,000	US Bank, N.A.	9/30/27
2011 DD-3B		50,000,000	State Street Bank and Trust Company	9/30/27
2011 FF-1		100,000,000	Bank of America, N.A.	3/15/24
2011 FF-2		100,000,000	JPMorgan Chase Bank, N.A.	5/27/26
2013 AA-1		50,000,000	PNC Bank, NA	10/2/24
2013 AA-2		150,000,000	Barclays Bank PLC	3/2/28
2014 AA-1		125,000,000	JPMorgan Chase Bank, N.A.	9/17/26
2014 AA-2		125,000,000	JPMorgan Chase Bank, N.A.	9/17/26
2014 AA-3		100,000,000	TD Bank, N.A.	4/21/28
2014 AA-4		100,000,000	State Street Bank and Trust Company	1/20/27
2014 AA-5		100,435,000	Mizuho Bank, Ltd.	8/19/25
2014 AA-6		100,435,000	Mizuho Bank, Ltd.	8/19/25
2015 BB-1		100,000,000	Bank of America, N.A.	7/9/25
2015 BB-2		100,000,000	Mizuho Bank, Ltd.	6/13/25
2015 BB-3		100,000,000	Sumitomo Mitsui Banking Corporation	7/7/28
2015 BB-4		100,000,000	Barclays Bank PLC	6/17/26
2016 AA-1		100,000,000	Bank of America, N.A.	10/27/23
2016 AA-2		100,000,000	PNC Bank, NA	10/25/24
2017 BB-1A		100,000,000	State Street Bank and Trust Company	10/5/26
2017 BB-1B		100,000,000	State Street Bank and Trust Company	10/5/26
2017 BB-2		50,000,000	State Street Bank and Trust Company	1/20/27
2017 BB-3		39,500,000	Sumitomo Mitsui Banking Corporation	9/14/26
2019 BB		100,000,000	TD Bank, N.A.	4/27/27
2021 EE-1		100,000,000	US Bank, N.A.	3/6/24
2021 EE-2		225,500,000	State Street Bank and Trust Company	3/6/26
2023 BB-1		100,000,000	Mizuho Bank, Ltd.	12/15/25
2023 BB-2		100,000,000	Mizuho Bank, Ltd.	12/15/25
2023 CC		200,000,000	Barclays Bank PLC	2/16/28
	$	4,162,395,000		

9. Long-Term Liabilities (Continued)

The Authority had the following adjustable variable rate demand bonds outstanding as of June 30, 2022:

Series		Outstanding Principal Amount	SBPA or LOC Provider	Expiration or Optional Termination by Provider
2014 AA-5	$	100,435,000	Mizuho Bank, Ltd.	08/19/22
2014 AA-6		100,435,000	Mizuho Bank, Ltd.	08/19/22
2012 A-1		100,000,000	Mizuho Bank, Ltd.	09/27/22
2012 A-2		100,000,000	Mizuho Bank, Ltd.	09/27/22
2011 DD-3A		50,000,000	US Bank, N.A.	10/16/22
2011 DD-3B		50,000,000	State Street Bank and Trust Company	10/16/22
2010 CC		200,000,000	Barclays Bank PLC	12/13/22
2001-F2		84,130,000	JPMorgan Chase Bank, N.A.	04/11/23
2009 BB-1		100,435,000	UBS AG	05/26/23
2009 BB-2		100,435,000	UBS AG	05/26/23
2003 F-1-A		50,000,000	Barclays Bank PLC	06/17/23
2015 BB-3		100,000,000	Sumitomo Mitsui Banking Corporation	07/07/23
2014 AA-3		100,000,000	TD Bank, N.A.	09/17/23
2008 BB-2		101,000,000	Bank of America, N.A.	10/20/23
2008 BB-5		50,000,000	Bank of America, N.A.	10/20/23
2016 AA-1		100,000,000	Bank of America, N.A.	10/27/23
2011 DD-1		100,000,000	TD Bank, N.A.	11/16/23
2003 F-1-B		50,000,000	US Bank, N.A.	02/27/24
2021 EE-1		100,000,000	US Bank, N.A.	03/06/24
2011 FF-1		100,000,000	Bank of America, N.A.	03/15/24
2008 BB-1		100,000,000	Bank of Tokyo-Mitsubishi UFJ, Ltd.	09/13/24
2013 AA-2		150,000,000	Bank of Tokyo-Mitsubishi UFJ, Ltd.	09/13/24
2013 AA-1		50,000,000	PNC Bank, NA	10/02/24
2003 F-2		101,655,000	Citibank, N.A.	10/25/24
2016 AA-2		100,000,000	PNC Bank, NA	10/25/24
2000-C		107,500,000	Sumitomo Mitsui Banking Corporation	05/04/25
2015 BB-2		100,000,000	Mizuho Bank, Ltd.	06/13/25
2015 BB-1		100,000,000	Bank of America, N.A.	07/09/25
2021 EE-2		225,500,000	State Street Bank and Trust Company	03/06/26
2011 FF-2		100,000,000	JPMorgan Chase Bank, N.A.	05/27/26
2015 BB-4		100,000,000	Barclays Bank PLC	06/17/26
2007 CC-1		160,500,000	Sumitomo Mitsui Banking Corporation	09/14/26
2017 BB-3		39,500,000	Sumitomo Mitsui Banking Corporation	09/14/26
2014 AA-1		125,000,000	JPMorgan Chase Bank, N.A.	09/17/26
2014 AA-2		125,000,000	JPMorgan Chase Bank, N.A.	09/17/26
2017 BB-1A		100,000,000	State Street Bank and Trust Company	10/05/26
2017 BB-1B		100,000,000	State Street Bank and Trust Company	10/05/26
2011 DD-2		75,000,000	JPMorgan Chase Bank, N.A.	11/12/26
2014 AA-4		100,000,000	State Street Bank and Trust Company	01/20/27
2007 CC-2		50,000,000	State Street Bank and Trust Company	01/20/27
2017 BB-2		50,000,000	State Street Bank and Trust Company	01/20/27
2019 BB		100,000,000	TD Bank, N.A.	04/27/27
	$	4,096,525,000		

9. Long-Term Liabilities (Continued)

ADJUSTABLE RATE REMARKETED SECURITIES[SM]

As of both June 30, 2023 and 2022, the Authority had outstanding $100 million of Adjustable Rate Remarketed Securities[SM]. The Authority's Adjustable Rate Remarketed Securities[SM] are adjustable rate bonds not supported by a credit or liquidity facility. Upon any failure to remarket tendered Adjustable Rate Remarketed Securities[SM], such Adjustable Rate Remarketed Securities[SM], if not purchased by the Authority, will continue to be held by the tendering holders, and all of the Adjustable Rate Remarketed Securities[SM] of the applicable series will bear interest at an increased rate of interest of 12%. In fiscal years 2023 and 2022, interest rates on the Authority's Adjustable Rate Remarketed Securities[SM] averaged 2.77% and 0.75%, respectively.

Debt service requirements to maturity, including amounts relating to BANs with maturities greater than one year at June 30, 2023 are as follows (in thousands):

	Bonds		Bonds and Notes from Direct Borrowings and Direct Placements		
	Principal	Interest[1]	Principal	Interest[1]	Total
Year ending June 30,					
2024	$ 250,515	$ 1,162,276	$ 474,887	$ 288,645	$ 2,176,323
2025	409,205	1,150,677	299,673	277,394	2,136,949
2026	430,555	1,130,754	297,522	265,205	2,124,036
2027	489,545	1,109,754	307,500	252,997	2,159,796
2028	559,940	1,086,147	309,150	240,573	2,195,810
2029–2033	2,540,085	5,060,645	1,484,375	1,021,449	10,106,554
2034–2038	3,822,620	4,368,561	1,212,760	762,948	10,166,889
2039–2043	5,582,415	3,316,073	950,805	572,472	10,421,765
2044–2048	7,169,050	1,856,370	892,038	396,096	10,313,554
2049–2053	4,261,764	403,664	508,191	296,304	5,469,923
Total	$ 25,515,694	$ 20,644,921	$ 6,736,901	$ 4,374,083	$ 57,271,599

[1]Projected interest expense for adjustable rate demand bonds and adjustable rate remarketed securities for fiscal year 2024 and thereafter is calculated using weighted average interest rate as of June 30, 2023 of 0.73%. Projected interest expense for direct placement index rate bonds for fiscal year 2024 and thereafter is calculated using weighted average interest rate as of June 30, 2023 of 1.58%. Interest rates on adjustable rate bonds are determined on a daily or weekly basis in accordance with the terms of such bonds.

ASSET RETIREMENT OBLIGATIONS ("ARO")

Existing laws and regulations require the System to take specific action when retiring chemical and petroleum storage tanks. The System has 451 above and underground tanks with a capacity ranging from 10 to 100,000 gallons. The New York State Department of Conservation Under Title 6 of the New York Codes, Rules and Regulations requires that the System take specific steps to permanently take out the service including the removal, transportation and disposal of liquid, sludge, hazardous waste, piping and the tanks themselves; and to take remedial actions on the area surrounding the tanks. Based on contract estimates and invoice for similar projects, the System's ARO for storage tanks was $15.1 million and $14.9 million as of June 30, 2023 and 2022, respectively, with tanks having a remaining useful life ranging from 0 to 39 years.

DEP has entered into office space lease agreements requiring the removal of affixed furnishings including condensed filing systems, HVAC units, and distributions systems and the restoration of premises to original condition existing prior to installation of fixtures for which the System is responsible for paying. Based on engineer and architectural estimates, the ARO for leases was $2.9 million and $2.8 million as of June 30, 2023 and 2022, respectively. The remaining lease terms range from two to three years.

COMMITMENTS AND CONTINGENCIES

Construction—The System had contractual commitments of approximately $6.8 billion and $6.0 billion at June 30, 2023 and 2022, respectively, for water and sewer projects.

Risk Financing Activities—The System is self-insured and carries no commercial or insurance policies other than directors and officer's insurance for the Authority. Any claims made against the System are resolved through the City's legal support, and the amounts of the maximum liability for such judgments are described in the claims and litigation section below. The System is subject to claims for construction delays, property damage, personal injury, and judgments related to delays in construction deadlines under consent agreements.

9. Long-Term Liabilities (Continued)

Claims and Litigation—In accordance with the Agreement, the Water Board is required to reimburse the City for any judgment or settlement paid by the City arising out of a tort claim to the extent that the City's liability is related to capital improvements and the operation or maintenance of the System. However, in no event shall the payment made to the City, in any fiscal year, exceed an amount equal to 5% of the aggregate revenues shown on the prior year's audited combining financial statements of the System. In addition, the System is required to reimburse the City, to the extent requested by the City, for the payment of any judgment or settlement arising out of a contract claim with respect to the construction of capital improvements of the System. In addition, the City has agreed, subject to certain conditions, to indemnify the Authority, the Water Board, and their staffs against any and all liability in connection with any act done or omitted in the exercise of their powers, which is taken or omitted in good faith in pursuance of their purposes under the Act. Currently, the City is a defendant in a significant number of lawsuits pertaining to the System. The litigation includes, but is not limited to, actions commenced and claims asserted against the City arising out of alleged torts, alleged breaches of contract, condemnation proceedings, and other alleged violations of law. As of June 30, 2023, the potential future liability attributable to the System for claims outstanding against the City was estimated to be $421 million. This amount is included in the estimated liability for unsettled claims, which is reported in the City's statement of net position (deficit). The potential future liability is the City's best estimate based on available information. The estimate may be revised as further information is obtained and as pending cases are litigated.

Arbitrage Rebate—To maintain the exemption from federal income tax of interest on bonds issued subsequent to January 1, 1986, the System will fund amounts required to be rebated to the Federal Government pursuant to Section 148 of the IRC of 1986, as amended (the "Code"). The Code requires the payment to the United States Treasury of the excess amount earned on all non-purpose obligations over the amount that would have been earned if the gross proceeds of the issue were invested at a rate equal to the yield on the issue, together with any earnings attributable to such excess. Construction funds, debt service funds, or any other funds or accounts funded with proceeds of such bonds, including earnings, or pledged to or expected to be used to pay interest on such bonds are subject to this requirement. Payment is to be made after the end of the fifth bond year and after every fifth bond year thereafter and within 60 days after retirement of the bonds. During fiscal years 2023 and 2022, the System paid $1.2 million and $2.9 million, respectively, in arbitrage rebates. At June 30, 2023 and 2022, the Authority had a liability of $3.2 million and $1.8 million, respectively. These amounts are included in accounts payable in the combining statements of net position (deficit).

10. Restricted Assets

As of June 30, 2023 and 2022, certain cash, investments, and accrued interest of the System were restricted as follows (in thousands):

	2023	2022
THE WATER BOARD		
Operation and maintenance reserve fund	$ 322,236	$ 285,656
Local water fund	12,318	12,258
WB Expense Fund	10	10
Subtotal—The Water Board	334,564	297,924
THE AUTHORITY		
Revenue fund	1,721,502	1,274,282
Debt service reserve fund	241,185	309,211
Construction fund	674,204	608,635
Arbitrage rebate fund	37	73
Escrow accounts	45,060	129,705
Subtotal—The Authority	2,681,988	2,321,906
Total restricted assets	$ 3,016,552	$ 2,619,830

10. Restricted Assets (Continued)

The operation and maintenance reserve fund is established as a depository to hold a reserve as required by the First Resolution. As of June 30 of each year, the reserve fund is required to hold one-sixth of the operating expenses as set forth in the following year's annual budget. It is funded through the cash receipts of the Water Board.

The local water fund is established as the account to which all revenues are deposited. Its assets are subject to the payment priority set forth in the Resolutions.

The revenue fund is established as a depository to fund the debt service, the Authority's expenses, debt service reserve, and escrow accounts. It is funded through cash transfers from the Water Board.

The debt service reserve fund is established as a depository to hold the First Resolution bond maximum annual debt service requirement for the next or any future fiscal year. It is funded through revenue bond proceeds and the revenue fund.

The debt service fund is established as a depository to pay all principal and interest payments on the Authority's debt for the current fiscal year. It is funded through the revenue fund. On or prior to June 30, the balances in the debt service fund are transferred to the revenue fund.

The construction fund is established as a depository to pay all capital construction costs incurred by the City and reimbursed by the Authority. It is funded through the proceeds of commercial paper, bond, and note sales.

The escrow accounts are established as a depository to refund debt in future years. It is funded through bond proceeds or the revenue fund.

11. Pension Plans

GENERAL INFORMATION ABOUT THE PENSION PLAN

Plan Description—The Authority's eligible employees are provided with pension benefits through the New York City Employee Retirement System ("NYCERS") Qualified Pension Plan ("QPP" or "Pension Plan"). The Pension Plan is a cost-sharing, multiple-employer defined benefit pension plan administered by NYCERS.

The Pension Plan functions in accordance with existing State statutes and City laws that are the basis by which benefit terms and the Authority's and its members' contribution requirements are established and amended. NYCERS issues a publicly available financial report that can be obtained from NYCERS management at 335 Adams Street, Brooklyn, New York 11201 or at www.nycers.org.

Benefits Provided—The Pension Plan provides pension benefits to retired employees generally based on the salary, length of service, and membership tier ("Tier"). For certain members, voluntary member contributions also impact pension benefits provided. In addition, the Pension Plan provides automatic cost-of-living-adjustments and other supplemental pension benefits to certain retirees and beneficiaries. Subject to certain conditions, members become fully vested as to benefits upon the completion of five years of service. Upon termination of employment before retirement, certain members are entitled to refunds of their own contributions, including accumulated interest, less any outstanding loan balances. In the event of disability during employment, participants may receive retirement allowances based on satisfaction of certain service requirements and other provisions. The Pension Plan also provides death benefits.

The State Constitution provides that pension rights of public employees are contractual and shall not be diminished or impaired. In 1973, 1976, 1983, and 2012, significant amendments made to the State Retirement and Social Security Law modified certain benefits for employees joining the Pension Plan on or after the effective date of such amendments, creating membership tiers. Currently, there are several Tiers, referred to as Tier I, Tier II, Tier III, Tier IV, and Tier VI. Members are assigned a Tier based on membership date. Chapter 18 of the Laws of 2012 (Chapter 18/12) amended the retirement benefits of public employees who establish membership in the Pension Plan on or after April 1, 2012. Chapter 18/12 is commonly referred to as Tier VI. Tier VI is expected to reduce future employer pension contributions.

Certain members of Tier I and Tier II of the NYCERS QPP have the right to make voluntary excess contributions, which are supplemental voluntary contributions. Members can elect to direct these contributions to an investment program under which such accumulated contributions are credited with interest at rates set by statute. The Authority does not have any Tier I, Tier II, or Tier III members.

11. Pension Plans (Continued)

Contributions and Funding Policy—Contribution requirements of participating employers and active members are determined in accordance with State statutes and City laws and are generally funded within the appropriate fiscal year. Employer contributions are actuarially determined under the One-Year Lag Methodology ("OYLM"). Under the OYLM, the actuarial valuation date is used for calculating the employer contributions for the second following fiscal year. For example, the June 30, 2021 actuarial valuation was used for determining the fiscal year 2023 employer contributions.

Employer contributions are determined annually to be an amount that, together with member contributions and investment income, provides for the Pension Plan assets to be sufficient to pay benefits when due. The aggregate statutory contribution due to NYCERS QPP from all participating employers for fiscal years 2023 and 2022 was $3.5 billion and $3.8 billion, respectively, and the amount of the Authority's contribution to the Pension Plan for such fiscal years 2023 and 2022 was $160 thousand and $214 thousand, respectively.

In general, Tier III and Tier IV members make basic contributions of 3.0% of salary regardless of age at membership. Effective October 1, 2000, in accordance with Chapter 126 of the Laws of 2000, Tier III and Tier IV members are not required to make any contributions after the 10th anniversary of their membership date or completion of 10 years of credited service, whichever is earlier. Tier VI members who joined between April 1, 2012 and March 31, 2013 contribute 3% of salary. Beginning April 1, 2013, when Tier VI took effect, joining members contribute between 3.0% and 6.0% of salary, depending on their salary level.

INFORMATION ON THE EMPLOYER'S PROPORTIONATE SHARE OF THE COLLECTIVE NET PENSION LIABILITY

The Authority's net pension liabilities reported as of June 30, 2023 and 2022 were measured as of those fiscal year-end dates. The total pension liability used to calculate those net pension liabilities were determined by actuarial valuations as of June 30, 2022 and 2021 and rolled forward to the measurement dates of June 30, 2023 and 2022.

Information about the Authority net position and additions to and deductions from NYCERS QPP fiduciary net position has been determined on the same basis as that reported by NYCERS QPP. For this purpose, benefits and refunds are recognized when due and payable in accordance with the terms of the respective qualified pension plan, and investments are reported at fair value.

ACTUARIAL ASSUMPTIONS

Measurement of the total pension liability, on which the net pension liability is based, requires the use of assumptions about numerous future events that affect the benefit payments that will be made to employees in retirement.

The following table provides a brief description of the significant assumptions used in the June 30, 2022 actuarial valuation to determine the fiscal year 2023 total pension liability:

Item	Assumption
Valuation Date	June 30, 2022 (Lag).
Assumed Rate of Return on Investment	7.0% per annum, net of investment expense.
Post-Retirement Mortality	Tables adopted by the Boards of Trustees during fiscal year 2019. Applies mortality improvement scale MP-2020 published by the Society of Actuaries.
Active Service:	
Withdrawal, Death, Disability, and Retirement	Tables adopted by the Board of Trustees during fiscal year 2019. Applies mortality improvement scale MP-2020 published by the Society of Actuaries to active ordinary death mortality rates and pre-commencement mortality rates for deferred vesteds.
World Trade Center Benefit	Estimates of certain obligations.
Salary Increases	Tables adopted by the Boards of Trustees during fiscal year 2019. In general, Merit and Promotion Increases plus assumed General Wage Increase of 3.0% per year.
Inflation	Consumer Price Index (CPI) of 2.5% per year.
Assumed Cost-of-Living Adjustments	Auto COLA—1.5% per year; Escalation—2.5% per year.
Estimates of Certain Obligations	World Trade Center benefits and anticipated increases to pensioner benefits attributable to wage contract settlements.

11. Pension Plans (Continued)

In accordance with the Administrative Code of the City of New York and with appropriate practice, the NYCERS Board of Trustees of the actuarially-funded Pension Plan is to periodically review and adopt certain actuarial assumptions as proposed by the Chief Actuary of the New York City Retirement Systems (the "Actuary") for use in the determination of Employer Contributions, which are also generally used to determine the total pension liability, as applicable.

In June 2019, Bolton, Inc. issued their actuarial experience study report for the four-year and ten-year periods ended June 30, 2017. Based, in part, on this report, the Actuary proposed and the Boards of Trustees of NYCERS adopted changes in actuarial assumptions including a change to Mortality Improvement Scale MP-2018 beginning in fiscal year 2019. Milliman, Inc. is performing the current experience study that covers the period through June 30, 2021.

In July 2021, the Actuary proposed and the Board of Trustees of NYCERS adopted changes in actuarial assumptions including a change to Mortality Improvement Scale MP-2020 beginning in fiscal year 2021.

EXPECTED RATE OF RETURN

The long-term expected rate of return was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of the Pension 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 real rates of return by the target asset allocation percentage and by adding expected inflation.

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	Target Asset Allocation	Long-Term Expected Real Rates of Return
U.S. Public Market Equities	27.0%	6.9%
Developed Public Market Equities	12.0	7.2
Emerging Public Market Equities	5.0	9.1
Fixed Income	30.5	2.7
Private Equities	8.0	11.1
Private Real Estate	7.5	7.1
Infrastructure	4.0	6.4
Opportunistic Fixed Income	6.0	8.6
Total	100.0%	

DISCOUNT RATE

The discount rate used to measure the total pension liability of the Pension Plan as of June 30, 2023 and 2022, was 7% per annum. The projection of cash flows used to determine the discount rate assumed that employee contributions will be made at the rates applicable to the current Tier for each member and that employer contributions will be made based on rates determined by the Actuary. Based on those assumptions, the Pension Plan fiduciary net position is projected to be available to make all projected future benefit payments of current active and non-active members. Therefore, the long-term expected rate of return on the pension fund investments was applied to all periods of projected benefit payments to determine the total pension liability.

11. Pension Plans (Continued)

SENSITIVITY OF THE AUTHORITY'S PROPORTIONATE SHARE OF THE NET PENSION LIABILITY TO CHANGES IN THE DISCOUNT RATE

The following table presents the Authority's proportionate share of the net pension liability using the discount rate of 7.0% for fiscal years 2023 and 2022, as well as what the Authority's proportionate share of the net pension liability would be if it were calculated using a discount rate that is one-percentage point lower (6.0%) or one-percentage point higher (8.0%) than the current rate:

June 30, 2023			June 30, 2022		
1% Decrease (6.0%)	Current Discount Rate (7.0%)	1% Increase (8.0%)	1% Decrease (6.0%)	Current Discount Rate (7.0%)	1% Increase (8.0%)
$ 1,335,044	$ 824,000	$ 392,466	$ 1,612,897	$ 1,013,549	$ 507,309

PENSION LIABILITY

At June 30, 2023 and 2022, the Authority reported a liability of $0.8 million and $1.0 million, respectively, for its proportionate share of the net pension liability. The Authority's portion of the net pension liability was based on projection of the Authority's long-term share of contributions to the Pension Plan relative to the projected contributions of all participating City governments and their component units, actuarially determined. At June 30, 2023 and 2022, the Authority's proportion was 0.005%.

PENSION EXPENSE

For the years ended June 30, 2023 and 2022, the Authority recognized pension expense of $176 thousand and $155 thousand, respectively.

DEFERRED OUTFLOWS AND INFLOWS OF RESOURCES

At June 30, 2023 and 2022, the Authority reported total deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	Fiscal Year 2023		Fiscal Year 2022	
	Deferred Outflows of Resources	Deferred Inflows of Resources	Deferred Outflows of Resources	Deferred Inflows of Resources
Difference between expected and actual experience	$ 92,693	$ 3,670	$ 87,910	$ 22,277
Changes of assumptions	1	16,747	167	32,423
Net difference between projected and actual earnings on pension plan investments	102,709	—	185,238	—
Changes in proportion and difference between the Authority's contributions and proportionate share of contributions	216,416	15,140	433,650	70,063
Total	$ 411,819	$ 35,557	$ 706,965	$ 124,763

Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions at June 30, 2023 will be recognized in pension expense as follows:

FISCAL YEAR ENDED JUNE 30	2023	2022
2023	$ —	$ 72,931
2024	92,886	122,513
2025	89,913	113,561
2026	211,909	260,091
2027	(10,214)	13,105
2028	(8,232)	—

12. Other Post-Employment Benefits

PLAN DESCRIPTION

The Authority's Other Postemployment Benefits Plan ("OPEB Plan") is a single-employer defined benefit plan administered by the New York City Office of Labor Relations. The plan provides certain health and related benefits to eligible retirees and their beneficiaries/dependents of the New York City Municipal Water Finance Authority in accordance with GASB Statement No. 75 ("GASB 75") *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions*.

The OPEB Plan consists of three programs: (1) the New York City Health Benefits Program; (2) Welfare Fund Program; and (3) Medicare Part B Program. The Authority's policy is to follow the eligibility criteria applicable to retirees of the City and to provide benefits substantially the same as those provided to the City retirees and eligible beneficiaries/dependents.

The following presents a summary of the Authority's census data used in the June 30, 2023 and 2022 OPEB actuarial valuations:

GROUP	2023	2022
Active	10	10
Deferred Vested	2	2
Retired	5	5
Total	17	17

FUNDING POLICY

The Authority is not required to provide funding for the OPEB Plan, other than the pay-as-you-go amount necessary to provide current benefits to retirees and eligible beneficiaries/dependents. For the years ended June 30, 2023 and 2022, the Authority had five retirees and made contributions of $70.8 thousand and $18.8 thousand, respectively. Members are not required to contribute; although, retirees may elect basic health insurance programs and/or optional coverage that requires contributions. Plan retiree participants who opt for other basic or enhanced coverage must contribute 100% of the incremental costs above the premiums for the benchmark plan. The OPEB Plan also reimburses covered retirees and eligible spouse 100% of the Medicare Part B premium rate applicable to a given year, and there is no retiree contribution to the welfare fund (the "Welfare Fund") that covers retirees for various health care benefits not provided through the basic coverage.

ANNUAL OPEB COST AND NET OPEB LIABILITY

The Authority's annual OPEB cost is calculated based on the annual expense ("Expense"), an amount that was actuarially determined in accordance with GASB 75. Actuarial valuations involve estimates and assumptions about the probability of events far into the future. The entry age actuarial cost method was used in the actuarial valuation prepared as of June 30, 2022 for the fiscal year ended June 30, 2023, which was the basis for the fiscal year 2023 Expense calculation. Under this method, as used in this OPEB Plan valuation, the actuarial present value ("APV") of benefits ("APVB") of each individual included in the actuarial valuation is allocated on a level basis over the earnings of the individual between entry age and assumed exit age(s). The employer portion of this APVB allocated to the valuation year is the employer normal cost. The portion of this APVB that is not provided for on the valuation date by the APV of future employer normal cost or future member contributions is the total OPEB Plan liability. The excess of the total OPEB Plan liability over the plan fiduciary net position, which represents the assets of the plan, is the net OPEB Plan liability.

All changes in the net OPEB Plan liability as of June 30, 2023 and 2022 are being amortized over the future working lifetime of all plan participants for purposes of calculating the expense except for the amount of change in plan assets, which would be amortized over a five-year period using level-dollar amortization. This plan, however, is not assumed to have any assets.

12. Other Post-Employment Benefits (Continued)

TOTAL OPEB LIABILITY

The Authority's total OPEB Plan liabilities of $2.0 million and $1.8 million were measured as of June 30, 2023 and 2022, respectively, and were determined by actuarial valuations as of those dates.

The following table shows changes in the Authority's net OPEB Plan liability for fiscal years 2023 and 2022:

	2023	2022
Net OPEB Plan liability—beginning of the year	$ 1,770,915	$ 1,927,605
Service cost	70,742	111,586
Interest	73,891	44,251
Differences between expected and actual experience	112,539	334,386
Changes in assumptions or other inputs	66,800	(628,139)
Actual benefit payments	(70,785)	(18,774)
Net changes	253,187	(156,690)
Net OPEB Plan liability—end of the year	$ 2,024,102	$ 1,770,915

The Authority's annual OPEB Plan expense for fiscal years 2023 and 2022 was as follows:

	2023	2022
COMPONENTS		
Service costs	$ 70,742	$ 111,586
Interest on the total OPEB Plan liability	73,891	44,251
Changes of assumptions	(129,096)	(137,436)
Difference between expected and actual experience	82,098	68,048
Total OPEB Plan Expense	$ 97,635	$ 86,449

FUNDED STATUS AND FUNDING PROGRESS

As of June 30, 2023, the most recent actuarial measurement date, the cost was 0% funded. The total OPEB Plan liability for benefits was $2.0 million, and the plan fiduciary net position was $0, resulting in a net OPEB Plan liability of $2.0 million. The covered employee payroll (annual payroll of active employees covered by the OPEB Plan) was $1.3 million, and the ratio of the net OPEB Plan liability to the covered employee payroll was 156.3%.

ACTUARIAL METHODS ASSUMPTIONS AND OTHER INPUTS

Actuarial valuations of an ongoing plan involve estimates of the value of reported amounts and assumptions about the probability of occurrence of events far into the future, such as assumptions about future employment, demographic, salary increase, mortality, and the healthcare cost trend. The actuarial assumptions used in the fiscal year 2023 and the fiscal year 2022 OPEB Plan valuations are a combination of those used in the New York City Employee Retirement Systems ("NYCERS") pension actuarial valuations and those specific to the OPEB Plan valuations. These assumptions are generally unchanged from the previous valuation except as noted below.

12. Other Post-Employment Benefits (Continued)

Amounts determined regarding the funded status of the OPEB Plan and the annual Expense of the Authority are subject to continual revision as actual results are compared with past expectations and new estimates are made about the future. Projections of benefits for financial reporting purposes are based on the types of benefits provided at the time of each valuation and the historical pattern of the sharing of benefit costs between the employer and employees to that point. The actuarial methods and assumptions used include techniques that are designed to reduce short-term volatility in total OPEB Plan liability, consistent with the long-term perspective of the calculations.

For fiscal year 2019, the Office of the Actuary (the "OA") conducted a full review of the actuarial assumptions and methods used to fund the New York City Retirement Systems ("NYCRS"). These reviews led to formalized recommendations titled "Proposed Changes in Actuarial Assumptions and Methods Used in Determining Employer Contributions for Fiscal Years Beginning on and After July 1, 2018 for [NYCRS]," also referred to as the 2019 Assumptions and Methods ("2019 A&M") and were adopted by all five of the NYCRS Boards.

On July 27, 2021, the actuary issued a memorandum titled "Proposed Changes to Actuarial Assumptions and Methods." The actuarial assumptions and methods described in that memorandum amend certain assumptions and methods from the 2019 A&M. This revised set of actuarial assumptions and methods are referred to as the "Revised 2021 A&M."

The 2019 A&M and Revised 2021 A&M reports are available on the Reports page of the OA website (www.nyc.gov/actuary).

The OPEB Plan-specific actuarial assumptions used in the fiscal year 2023 OPEB Plan valuation are as follows:

Item	Assumption
Valuation Date	June 30, 2022.
Measurement Date	June 30, 2023.
Discount Rate[1]	4.13% per annum for the June 30, 2023 measurement date. 4.09% per annum for the June 30, 2022 measurement date
Actuarial Cost Method	Entry Age Normal cost method, level percent of pay calculated on an individual basis.
Salary Increase	3.00% per annum, which includes an inflation rate of 2.50% and a general wage increase rate of 0.50%.
Inflation	Consumer Price Index (CPI) of 2.50% per year.

[1]Rates are based solely on the S&P Municipal Bond 20-Year High Grade Rate Index, since the plan has no assets, as per guidance under GASB 75.

12. Other Post-Employment Benefits (Continued)

PER CAPITA CLAIMS COSTS

GHI/EBCBS plans are insured via a Minimum Premium arrangement, while the HIP and many of the Other HMOs are community-rated. Costs reflect age-adjusted premiums for all plans.

The initial monthly premium rates used in the valuations are shown in the following table:

	Monthly Rates at Average Age	
PLAN	2023	2022
HIP HMO		
Non-Medicare Single	$ 871.42	$ 819.68
Non-Medicare Family	2,134.99	2,008.22
Medicare	199.62	190.47
GHI/EBCBS		
Non-Medicare Single	917.92	854.44
Non-Medicare Family	2,409.11	2,242.05
Medicare	201.59	201.80
OTHER HMOs[1]		
Non-Medicare Single	1,302.87	1,242.93
Non-Medicare Family	3,567.29	3,440.67
Medicare Single	311.73	291.71
Medicare Family	620.28	580.41

[1]Other HMO premiums represent the weighted average of the total premium for medical (not prescription drug) coverage, including retiree contributions, of the HMO plans (other than HIP) based on actual enrollment.

WELFARE FUND

For the fiscal year 2022 valuation, the Welfare Fund contribution reported for fiscal year 2023, including any reported retroactive amounts, was used as the per capita cost for valuation purposes. Reported annual contribution amounts for the last two years for NYCERS are shown in Section V-b of the OPEB Plan valuation report dated September 8, 2023. Welfare Fund rates are based on actual reported union Welfare Fund code for current retirees.

The weighted-average annual contribution rates used for future retirees is shown below.

	Annual Rate	
	2023	2022
NYCERS	$ 1,867	$ 1,858

12. Other Post-Employment Benefits (Continued)

Medicare Part B Premiums are as follows:

CALENDAR YEAR		Monthly Premium
2018	$	125.85
2019		134.43
2020		143.21
2021		146.97
2022		167.82
2023		164.90

Medicare Part B premium reimbursement amounts have been updated to reflect the actual premium rates announced for calendar years through 2023. Due to limited cost-of-living increase in past Social Security benefits, some Medicare Part B participants were not charged the Medicare Part B premium originally projected or ultimately announced for those years. The prior valuation used a blended estimate as a better representation of future Part B premium costs, while the current valuation assumes the full Part B premium amount.

For the fiscal year 2023 OPEB Plan valuation, the annual premium used was $1,996.32, which is equal to 12 times an average of the calendar year 2022 and 2023 monthly premiums shown.

The calendar year 2022 monthly premium of $167.82 was determined using 3.5% of the $104.90 hold-harmless amount and 96.5% of the $170.10 rate that was in effect for calendar year 2022. For calendar year 2023, no participants were assumed to be protected by the hold-harmless provision and the monthly premium of $164.90 was set equal to the calendar year 2023 announced amount.

An additional 11.4% load is added to the base Medicare Part B premium amounts each year to account for the income-related Medicare Part B premiums for high-income individuals. This assumption was updated from the previous valuation to reflect more recent experience.

MEDICARE PART B PREMIUM REIMBURSEMENT ASSUMPTION

90% of Medicare participants are assumed to claim reimbursement; based on historical data.

HEALTH CARE COST TREND RATE ("HCCTR")

HCCTR Assumptions

FISCAL YEAR ENDING	Pre-Medicare Plans	Medicare Plans	Medicare Part B Premiums	Welfare Fund Contributions
2023	7.00%	4.80%	5.00%	3.50%
2024	7.00	4.80	5.00	3.50
2025	7.00	4.70	5.00	3.50
2026	6.75	4.70	5.00	3.50
2027	6.50	4.60	5.00	3.50
2028	6.25	4.60	5.00	3.50
2029	6.00	4.50	5.00	3.50
2030	5.75	4.50	5.00	3.50
2031	5.50	4.50	5.00	3.50
2032	5.25	4.50	5.00	3.50
2033	5.00	4.50	5.00	3.50
2034	4.75	4.50	5.00	3.50
2035 and Later	4.50	4.50	5.00	3.50

12. Other Post-Employment Benefits (Continued)

AGE AND GENDER-RELATED MORBIDITY

The premiums are age and gender adjusted for GHI/EBCBS, HIP and Other HMOs. The assumed relative costs of coverage are consistent with information presented in the 2013 study *Health Care Costs—From Birth to Death*, sponsored by the Society of Actuaries.

For non-Medicare costs, a sample of factors used are:

AGE	MALE	FEMALE	AGE	MALE	FEMALE
20	0.170	0.225	45	0.355	0.495
25	0.146	0.301	50	0.463	0.576
30	0.181	0.428	55	0.608	0.671
35	0.227	0.466	60	0.783	0.783
40	0.286	0.467	64	0.957	0.917

Children costs assumes a factor of 0.229.

Medicare costs prior to age 65 assume an additional disability-related morbidity factor. A sample of factors are:

AGE	MALE	FEMALE	AGE	MALE	FEMALE
20	0.323	0.422	65	0.919	0.867
25	0.278	0.565	70	0.946	0.885
30	0.346	0.804	75	1.032	0.953
35	0.432	0.876	80	1.122	1.029
40	0.545	0.878	85	1.217	1.116
45	0.676	0.929	90	1.287	1.169
50	0.883	1.082	95	1.304	1.113
55	1.159	1.260	99 and Older	1.281	0.978
60	1.493	1.470			

The age adjustment for the non-Medicare GHI/EBCBS premium reflects a reduction for the estimated margin anticipated to be returned of 4.0% and 2.0% in the GHI and EBCBS portion of the monthly premium, respectively. The GHI portion is $429.67 out of $917.92 for single coverage and $1,139.67 out of $2,409.11 for family coverage for fiscal year 2023 rates. The EBCBS portion is the remainder of the premium.

Similarly, the age adjustment for the Medicare GHI/EBCBS premium reflects a reduction for the Medicare GHI/EBCBS premium reflects a reduction for the estimated margin anticipated to be returned of 4.0% and 3.0% in the GHI and ECBS portion of the monthly premium, respectively. The GHI portion is $105.46 out of the $201.59 for the fiscal year 2023 rates. The EBCBS portion is the remainder of the premium.

PARTICIPATION RATES

Actual elections are used for current retirees. Portions of current retirees not eligible for Medicare are assumed to change elections upon attaining age 65 based on the patterns of elections of Medicare-eligible retirees.

For current retirees who appear to be eligible for health coverage but have not made an election (i.e., non-filers), the valuation reflects single GHI/EBCBS coverage and Part B premium and benefits only, to approximate the obligation if these individuals were to file for coverage. For future retirees, the portion assumed not to file for future benefits, and therefore valued similarly, is 13.0% for NYCERS in 2023. This non-filer group also includes some participants who do not qualify for coverage because they were working less than 20 hours a week at termination.

12. Other Post-Employment Benefits (Continued)

Detailed assumptions for future retirees are presented below.

Plan Participation Assumptions

BENEFITS	NYCERS
PRE-MEDICARE	
GHI/EBCBS	75%
HIP HMO	18
Other HMO	2
Waiver	5
MEDICARE	
GHI	75
HIP HMO	16
Other HMO	5
Waiver	4
POST-MEDICARE MIGRATION	
Other HMO to GHI	0
HIP HMO to GHI	0
HIP HMO to Other HMO	10
Pre-Med. Waiver	
** To GHI @ 65	0
** To HIP HMO @ 65	0
** To Other HMO @ 65	20

DEPENDENT COVERAGE

Dependent coverage is assumed to terminate when a retiree dies.

DEPENDENTS

Child dependents of current retirees are assumed to receive coverage until age 26. Children are assumed to be covered for eight years after retirement.

12. Other Post-Employment Benefits (Continued)

Male retirees were assumed to be four years older than their wives, and female retirees were assumed to be two years younger than their husbands. Dependent assumptions based on distribution of coverage of recent retirees are shown in the following table.

Dependent Coverage Assumptions

GROUP	NYCERS
MALE	
Single Coverage	35%
Spouse	35
Child/No Spouse	8
Spouse and Child	22
Total	100%
FEMALE	
Single Coverage	67%
Spouse	22
Child/No Spouse	7
Spouse and Child	4
Total	100%

COBRA BENEFITS

Employees and beneficiaries who enroll in COBRA coverage contribute 102% of the premium. There is no cost to the Authority for COBRA beneficiaries who enroll in community-rated HMOs, including HIP, since these individuals pay their full community rate. However, the City's costs under the experience-rated GHI/EBCBS coverage are affected by the claims for COBRA-covered individuals, who typically utilize services at a much higher rate than active participants

The valuation assumes 15% of employees not eligible for OPEB elect COBRA coverage for 15 months based on experience of other large employers. A lump-sum COBRA cost of $1,550 was assumed for terminations during fiscal year 2023. This lump-sum amount is increased by the Pre-Medicare HCCTR for future years, but is not adjusted for age-related morbidity.

ACTIVE OFF-PAYROLL ("AOP")

Active members off payroll on known short-term leave of absence are treated as actives, and the remaining members are included as inactive members entitles to but not yet receiving benefits if they have me the OPEB vesting requirements. Otherwise, they are not included in the valuation.

12. Other Post-Employment Benefits (Continued)

SENSITIVITY OF THE NET OPEB PLAN LIABILITY TO CHANGES IN THE DISCOUNT RATE

The following table presents the Authority's proportionate share of the net OPEB Plan liability using the discount rate of 4.13% for fiscal year 2023 and 4.09% for fiscal year 2022, as well as what the Authority's proportionate share of the net OPEB Plan liability would be if it were calculated using a discount rate that is 1% lower or 1% higher than the current rate:

June 30, 2023			June 30, 2022		
1% Decrease (3.13%)	Current Discount Rate (4.13%)	1% Increase (5.13%)	1% Decrease (3.09%)	Current Discount Rate (4.09%)	1% Increase (5.09%)
$ 2,307,404	$ 2,024,102	$ 1,792,463	$ 2,038,988	$ 1,770,915	$ 1,553,646

SENSITIVITY OF THE NET OPEB PLAN LIABILITY TO CHANGES IN THE HEALTHCARE COST TREND RATE

The following table presents the Authority's proportionate share of net OPEB Plan liability using the healthcare cost trend rate of 7.0% (Pre-Medicare Plans) and 4.8% (Medicare Plans) for fiscal year 2023 and 6.5% (Pre-Medicare Plans) and 4.9% (Medicare Plans) for fiscal year 2022, as well as what the Authority's proportionate share of the net OPEB Plan liability would be if it were calculated using healthcare cost trend rates that are 1% lower or 1% higher than the current healthcare cost trend rates:

June 30, 2023			June 30, 2022		
1% Decrease (6.0% / 3.8%)	Current Trend Rate (7.0% / 4.8%)	1% Increase (8.0% / 5.8%)	1% Decrease (5.5% / 3.9%)	Current Trend Rate (6.5% / 4.9%)	1% Increase (7.5% / 5.9%)
$ 1,714,277	$ 2,024,102	$ 2,420,800	$ 1,481,536	$ 1,770,915	$ 2,144,664

DEFERRED OUTFLOWS OF RESOURCES AND DEFERRED INFLOWS OF RESOURCES RELATED TO THE OPEB PLAN

At June 30, 2023 and 2022, the Authority reported deferred outflows of resources and deferred inflows of resources related to the OPEB Plan from the following sources:

	Fiscal Year 2023		Fiscal Year 2022	
	Deferred Outflows of Resources	Deferred Inflows of Resources	Deferred Outflows of Resources	Deferred Inflows of Resources
Difference between expected and actual experience	$ 585,472	$ 157,891	$ 595,827	$ 198,687
Changes of assumptions or other inputs	86,423	687,779	35,863	833,115
Total	$ 671,895	$ 845,670	$ 631,690	$ 1,031,802

Amounts reported as deferred outflows of resources and deferred inflows of resources related to the OPEB Plan at June 30, 2023 and 2022 will be recognized in OPEB expense as follows:

FISCAL YEAR ENDED JUNE 30	2023	2022
2023	$ —	$ (69,388)
2024	(46,998)	(69,388)
2025	(46,322)	(68,712)
2026	(18,248)	(40,638)
2027	(17,091)	(39,481)
2028	(30,474)	(52,864)
2029	(29,992)	(52,382)
2030	15,131	(7,259)
2031	219	—

13. Pollution Remediation Obligations

The System reports pollution remediation obligations ("PROs") as required by the GASB. The System's PROs may arise as a result of: (1) federal, state, and local laws and regulations; (2) violations of pollution-related permits or licenses; (3) a determination by the System that there is an imminent endangerment to public health and safety as a result of an existing pollution condition; (4) the System being named in a lawsuit to compel remediation or being identified by a regulator as a party responsible or potentially responsible for remediation; and/or (5) the System's voluntarily commencement of remediation. As of June 30, 2023 and 2022, the System reported $62.2 million and $51.7 million of liabilities for known PROs, respectively.

The System has estimated these amounts based on the current value of outlays expected to be incurred for pollution remediation, which it is currently obligated to perform. Actual future outlays will differ from the estimated amounts if the prices or techniques for remediation measures change or differ from estimates, if and when additional information about existing pollution conditions becomes known to the System in the future and/or if applicable laws or regulations change.

Remediation outlays for certain pollution conditions currently known to the System are not included in the reported liabilities because they are not yet reasonably estimable. These include certain locations that the System has been informed have been designated under federal law as Superfund sites to address alleged hazardous substances, pollutants, or contaminants at these sites and for which the System may be named as a potentially responsible party for the remediation because there are the System's facilities operated at these locations.

14. Subsequent Events

The System evaluated its June 30, 2023 combining financial statements for subsequent events through October 12, 2023, the date the combining financial statements were issued and noted the following:

On August 10, 2023, the Direct Purchase Agreement between the Authority and RBC Capital Markets, LLC, for the Authority's Water and Sewer System Second General Resolution Revenue Bonds, Adjustable Rate Fiscal 2008 Series BB Subseries BB-3 & BB-4 was extended to August 14, 2026. The extension and accompanying interest rate change was effective as of August 14, 2023.

On August 10, 2023, the Direct Purchase Agreement between the Authority and RBC Capital Markets, LLC, for the Authority's Water and Sewer System Second General Resolution Revenue Bonds, Adjustable Rate Fiscal 2016 Series AA Subseries AA-1 was extended to August 14, 2028. The extension and accompanying interest rate change was effective as of August 14, 2023.

On October 2, 2023, the Standby Bond Purchase Agreement between the Authority and Bank of America, N.A., under which liquidity support is provided for the Authority's Water and Sewer System Revenue Bonds, Adjustable Rate Fiscal 2008 Series BB, Subseries BB-2 & Subseries BB-5, which was scheduled to expire on October 20, 2023, was extended to October 20, 2026.

On October 2, 2023, the Standby Bond Purchase Agreement between the Authority and Bank of America, N.A., under which liquidity support is provided for the Authority's Water and Sewer System Revenue Bonds, Adjustable Rate Fiscal 2016 Series AA, Subseries AA-1, which was scheduled to expire on October 27, 2023, was extended to October 27, 2026.

On October 5, 2023 the Authority issued $693 million of fixed rate Second Resolution bonds, Fiscal 2024 Series AA. Proceeds of the bonds were used to fund capital projects and refinance $32.9 million Fiscal 2018 Series CC, Subseries CC-2 bonds, $70.0 million Fiscal 2019 Series DD, Subseries DD-2 bonds, $75.0 million Fiscal 2020 Series BB, Subseries BB-2 bonds, and $50.0 million Fiscal 2003 Series F, Subseries F-1-B bonds. The Bonds have a final maturity of 2053.

Required Supplementary Information (Unaudited)

Schedule of Changes For Total OPEB Plan Liability and Related Ratios

AS OF JUNE 30*, (IN THOUSANDS):

TOTAL OPEB PLAN LIABILITY	2023	2022	2021	2020	2019	2018	2017
Service cost	$ 71	$ 112	$ 112	$ 97	$ 111	$ 94	$ 101
Interest	74	44	54	53	47	42	43
Differences between expected and actual experience	112	334	(114)	(43)	572	(106)	(96)
Changes of assumptions	67	(628)	(34)	33	(336)	35	(222)
Benefits payments	(71)	(19)	(19)	(21)	(23)	(20)	(15)
Cadillac tax repeal	—	—	—	(18)	—	—	—
Net change in total OPEB Plan Liability	253	(157)	(1)	101	371	45	(189)
Total OPEB Plan liability—Beginning	1,771	1,928	1,929	1,828	1,457	1,412	1,601
Total OPEB Plan Liability—Ending	$ 2,024	$ 1,771	$ 1,928	$ 1,929	$ 1,828	$ 1,457	$ 1,412
Covered employee payroll	$ 1,295	$ 1,156	$ 1,209	$ 1,187	$ 942	$ 859	$ 1,038
Total OPEB Plan Liability as a percentage of covered employee payroll	156.3%	153.2%	159.4%	162.4%	193.9%	169.6%	135.9%

NOTES TO THE SCHEDULE:

Changes of assumption—Changes of assumption and other inputs reflect the effects of changes in the discount rate each period.

The following are the discount rates used in each period:

2023	4.13%
2022	4.09%
2021	2.18%
2020	2.66%
2019	2.79%
2018	2.98%
2017	3.13%

The Authority funds OPEB benefits on a pay-as-you-go basis and contributions are not actuarially determined. No assets are accumulated in a trust that meet the criteria of GASB codification P52.101 to pay related benefits for the OPEB Plan. Therefore, the required supplementary information related to actuarially determined contributions for the 10 most current fiscal years is not applicable.

**This data is presented for those years for which information is available.*

Schedule of The Authority's Proportionate Share of The Net Pension Liability

LAST TEN FISCAL YEARS* (IN THOUSANDS):

		2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Authority's proportion of the net pension liability	%	0.005	0.005	0.005	0.002	0.002	0.003	0.004	0.005	0.005	0.005
Authority's proportionate share of the net pension liability	$	824	1,014	343	422	393	516	828	1,215	1,012	901
Authority's covered payroll	$	1,295	1,156	1,209	1,187	942	859	1,038	1,148	1,289	1,181
Authority's proportionate share of the net pension liability as percentage of its covered payroll	%	63.6	87.7	28.4	35.6	41.7	60.1	79.8	105.8	78.5	76.3
Plan fiduciary net position as a percentage of the total pension liability	%	82.2	81.3	93.1	76.9	78.8	78.8	74.8	69.6	73.1	75.3

Schedule of The Authority's Pension Contributions

LAST TEN FISCAL YEARS (IN THOUSANDS):

		2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Actuarially determined contribution	$	160	214	201	75	78	111	136	170	161	141
Contribution in relation to the actuarially determined contribution	$	(160)	(214)	(201)	(75)	(78)	(111)	(136)	(170)	(161)	(141)
Contribution deficiency (excess)	$	—	—	—	—	—	—	—	—	—	—
Authority's covered payroll[1]	$	1,295	1,156	1,209	1,187	942	859	1,038	1,148	1,289	1,181
Contribution as a percentage of covered payroll	%	12.4	18.5	16.6	6.3	8.3	12.9	13.1	14.8	12.5	11.9

[1]*Covered payroll data from the actuarial valuation date with one-year lag.*

* * * * * *

Statistical Information

Gilboa Dam

Contents

This part of the New York City Water and Sewer System's Annual Comprehensive Financial Report presents detailed information to provide context to the information in the combining financial statements, note disclosures and required supplementary information.

FINANCIAL TRENDS

These schedules contain trend information to help the reader understand how the System's financial performance and well-being have changed over time.

REVENUE CAPACITY

These schedules contain information to help the reader assess the System's primary revenue source and customer's utility payments.

DEBT CAPACITY

These schedules present information to help the reader assess the affordability of the System's current level of outstanding debt and the System's ability to issue additional debt in the future.

DEMOGRAPHIC AND ECONOMIC INFORMATION

These schedules offer demographic and economic indicators to help the reader understand the environment within which the System's financial activities take place.

OPERATING INFORMATION

These schedules contain service and infrastructure data to help the reader understand how the information in the System's financial report relates to the services the System provides.

Schedules of Financial Trends Information

NET POSITION (DEFICIT) BY CATEGORY—TEN YEAR TREND

	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
							Restated	Restated		
Net investment in capital assets	$ 718,114	$ 685,990	$ 598,975	$ 481,129	$ 437,786	$ 116,124	$ (204,403)	$ (430,201)	$ (598,349)	$ (771,165)
Restricted for:										
Debt service	1,905,323	1,573,633	1,533,139	1,638,121	1,624,802	1,501,529	1,781,994	1,457,332	1,224,925	1,145,505
Operations and maintenance	322,235	285,656	278,207	264,178	260,102	247,304	237,746	250,447	226,383	221,440
Unrestricted (deficit)	(1,051,924)	(884,813)	(967,766)	(851,252)	(983,233)	(781,214)	(760,384)	(543,830)	(723,166)	(754,581)
Total net position (deficit)	$1,893,748	$ 1,660,466	$ 1,442,555	$ 1,532,176	$ 1,339,457	$ 1,083,743	$ 1,054,953	$ 733,748	$ 129,793	$ (158,801)

CHANGES IN NET POSITION (DEFICIT)—TEN YEAR TREND

	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
							Restated	Restated		
OPERATING REVENUES										
Water supply and distribution	$ 1,582,456	$ 1,441,310	$ 1,375,769	$ 1,421,636	$ 1,416,713	$ 1,346,045	$ 1,407,328	$ 1,431,148	$ 1,382,189	$ 1,351,550
Sewer collection and treatment	2,516,104	2,291,683	2,187,473	2,260,401	2,252,574	2,140,214	2,237,652	2,275,524	2,197,679	2,148,964
Bad debt expense	(98,632)	(10,013)	(81,390)	(31,481)	852	(18,259)	(2,620)	(4,467)	(23,301)	(26,979)
Other operating revenues	203,039	156,062	174,139	180,336	149,660	187,308	186,355	185,793	211,267	266,996
Total operating revenues	4,202,967	3,879,042	3,655,991	3,830,892	3,819,799	3,655,308	3,828,715	3,887,998	3,767,834	3,740,531
OPERATING EXPENSES										
Operation and maintenance	1,874,471	1,664,259	1,815,337	1,685,822	1,545,652	1,474,937	1,441,562	1,313,840	1,517,132	1,518,424
Administration and general	47,153	46,450	46,600	48,550	52,504	55,493	50,749	61,335	55,865	68,936
Depreciation and amortization	1,022,165	1,037,925	973,433	1,023,186	908,355	1,042,968	930,482	918,950	1,023,906	740,879
Total operating expenses	2,943,789	2,748,634	2,835,370	2,757,558	2,506,511	2,573,398	2,422,793	2,294,125	2,596,903	2,328,239
OPERATING INCOME	1,259,178	1,130,408	820,621	1,073,334	1,313,288	1,081,910	1,405,922	1,593,873	1,170,931	1,412,292
NONOPERATING REVENUES (EXPENSES)										
Interest expense	(1,161,526)	(1,040,398)	(1,064,129)	(1,143,998)	(1,224,907)	(1,205,793)	(1,171,594)	(1,195,773)	(1,264,538)	(1,263,305)
Loss on retirement/ impairment of fixed assets	(1,566)	(3,080)	(3,540)	(3,676)	(2,423)	(48,609)	(44,452)	(4,488)	(2,334)	(18,815)
Subsidy income	183,001	156,389	154,105	165,570	176,346	175,620	166,715	164,502	163,655	174,606
Capital distribution	(161,577)	(37,967)	(23,090)	(26,566)	(110,750)	(22,789)	(45,789)	(11,082)	(25,337)	(39,627)
Investment income	96,007	(5,985)	1,949	79,993	91,712	28,809	4,178	53,322	22,426	50,148
Net income (loss) before capital contributions	213,517	199,367	(114,084)	144,657	243,266	9,148	314,980	600,354	64,803	315,299
Capital contributions	19,765	18,544	24,463	48,062	12,448	19,642	6,225	4,060	223,791	9,799
Change in net position (deficit)	233,282	217,911	(89,621)	192,719	255,714	28,790	321,205	604,414	288,594	325,098
Net position (deficit)—beginning of year	1,660,466	1,442,555	1,532,176	1,339,457	1,083,743	1,054,953	733,748	129,793	(158,801)	(483,899)
Restatement of beginning net position (deficit)	—	—	—	—	—	—	—	(459)	—	—
Net position (deficit)— end of year	$ 1,893,748	$ 1,660,466	$ 1,442,555	$ 1,532,176	$ 1,339,457	$ 1,083,743	$ 1,054,953	$ 733,748	$ 129,793	$ (158,801)

Revenue Capacity Information

WATER AND SEWER RATE INCREASE—TEN YEAR TREND

EFFECTIVE DATE	Increase in Flat-Rate Water/Metered Water	Metered Water Rate (per ccf)[1]	Sewer Rate
July 1, 2014	Increased 3.4%	3.70	159% of water charge
July 1, 2015	Increased 3.0%	3.81	159% of water charge
July 1, 2016	No rate increase	3.81	159% of water charge
July 1, 2017	No rate increase	3.81	159% of water charge
July 1, 2018	Increased 2.36%	3.90	159% of water charge
July 1, 2019	Increased 2.31%	3.99	159% of water charge
July 1, 2020	No rate increase	3.99	159% of water charge
July 1, 2021	Increased 2.76%	4.10	159% of water charge
July 1, 2022	Increased 4.90%	4.30	159% of water charge
July 1, 2023	Increased 4.42%	4.49	159% of water charge

[1]ccf equals 100 cubic feet or approximately 748 gallons

AVERAGE DAILY WATER CONSUMPTION—TEN YEAR TREND

Fiscal Year	Total (mgd)[1]	Wholesale Customers (mgd)[1]	City (mgd)[1]	Per Capita (gals/day)[2]
2014	1,116	111	1,005	123
2015	1,115	112	1,003	123
2016	1,109	112	997	122
2017	1,112	113	999	122
2018	1,114	110	1,004	123
2019	1,090	100	991	120
2020	1,081	103	978	117
2021	1,091	105	986	112
2022	1,081	100	981	115
2023	1,111	107	1,004	121

[1]mgd = millions of gallons used per day
[2]Population source: U.S. Department of Commerce, Bureau of the Census.

Revenue Capacity Information (Continued)

TEN LARGEST CUSTOMERS (IN THOUSANDS)

	Fiscal 2014		Fiscal 2015		Fiscal 2016		Fiscal 2017		Fiscal 2018	
	Billed	Rank	Billed	Rank	Billed	Rank	Billed	Rank	Billed	Rank
New York City Housing Authority	$ 178,711	1	$ 182,254	1	$ 188,667	1	$ 189,229	1	$ 202,308	1
The City of New York	102,592	2	109,855	2	111,300	2	111,300	2	111,300	2
Consolidated Edison Inc.	11,976	6	15,584	4	21,887	3	18,855	3	20,512	4
The City University of New York	—	—	—	—	—	—	—	—	6,354	10
Peter Cooper Village/Stuyvesant Town	7,838	7	7,777	10	8,531	8	—	—	—	—
New York City Health and Hospitals Corp.	12,679	5	13,331	6	13,918	4	13,497	6	12,871	6
New York Presbyterian Hospital	7,226	8	8,018	9	7,437	9	—	—	10,215	7
Columbia University	—	—	—	—	6,618	10	6,797	9	8,083	8
Port Authority of NY and NJ	14,193	4	15,411	5	10,569	6	13,516	5	14,085	5
Metropolitan Transportation Authority	—	—	—	—	—	—	6,538	10	—	—
River Bay Corporation (Co-op City)	18,200	3	15,584	3	12,375	5	17,730	4	21,455	3
New York City Transit—Subway	6,262	10	12,647	7	—	—	—	—	6,646	9
Starrett City, Inc.	7,141	9	—	—	—	—	8,481	8	—	—
The Parkchester Condo (North & South)	—	—	8,656	8	8,752	7	9,487	7	—	—
BPP Street Owner, LLC	—	—	—	—	—	—	—	—	—	—

	Fiscal 2019		Fiscal 2020		Fiscal 2021		Fiscal 2022		Fiscal 2023	
	Billed	Rank	Billed	Rank	Billed	Rank	Billed	Rank	Billed	Rank
New York City Housing Authority	$ 190,967	1	$ 182,026	1	$ 179,216	1	$ 185,449	1	$ 184,998	1
The City of New York	115,699	2	116,559	2	101,011	2	103,799	2	108,885	2
Consolidated Edison Inc.	19,824	3	18,952	4	16,829	4	18,436	4	18,977	5
The City University of New York	—	—	—	—	—	—	—	—	—	—
Peter Cooper Village/Stuyvesant Town	—	—	—	—	—	—	—	—	—	—
New York City Health and Hospitals Corp.	13,135	6	13,829	6	13,662	7	14,080	6	14,309	7
New York Presbyterian Hospital	9,625	7	11,090	7	6,625	10	7,953	10	7,912	10
Columbia University	9,558	8	10,892	8	8,244	8	10,761	8	8,766	9
Port Authority of NY and NJ	14,730	5	14,811	5	10,042	5	16,741	5	19,100	4
Metropolitan Transportation Authority	—	—	—	—	—	—	—	—	—	—
River Bay Corporation (Co-op City)	19,782	4	19,823	3	18,713	3	18,643	3	20,079	3
New York City Transit—Subway	6,803	9	10,599	9	14,335	6	12,836	7	16,611	6
Starrett City, Inc.	—	—	—	—	—	—	—	—	—	—
The Parkchester Condo (North & South)	—	—	—	—	—	—	—	—	—	—
BPP Street Owner, LLC	5,816	10	5,862	10	8,233	9	8,665	9	9,517	8

Schedules of Debt Capacity Information

REVENUE BOND COVERAGE—LAST TEN FISCAL YEARS

Years Ended June 30, 2014–2023 (in thousands):

		Debt Service Requirements[1]				
Year	Cash Receipts $	Principal $	Interest $	Total $	First Resolution Debt Service Coverage	Second Resolution Debt Service Coverage[2]
2014	3,728,823	359,259	415,611	774,870	12.62	4.76
2015	3,911,463	291,955	163,574	455,529	19.72	8.49
2016	3,960,660	398,877	125,945	524,822	32.81	7.46
2017	3,981,404	365,383	131,018	496,401	36.97	7.92
2018	3,722,423	359,501	—	359,501	62.81	10.21
2019	3,959,550	424,794	230,497	655,291	51.41	5.97
2020	3,890,496	482,386	104,651	587,037	37.09	6.55
2021	3,681,981	214,664	60,934	275,598	429.20	13.19
2022	3,835,950	297,665	63,913	361,578	434.53	10.48
2023	4,179,734	318,204	—	318,204	240.90	13.00

[1]Debt service requirements include First Resolution debt service and Second Resolution debt service, net of subsidy from the NYS Environmental Facilities Corporation and surplus revenues carried forward from the prior fiscal year.
[2]Revenue for coverage purposes for Second Resolution is net of Authority expenses.

RATIO OF DEBT OUTSTANDING—TEN YEAR TREND

Years Ended June 30, 2014–2023 (in thousands):

Year	Total Debt Outstanding $	Debt per Capita
2014	30,144,755	3.57
2015	29,941,881	3.54
2016	30,629,355	3.63
2017	31,266,750	3.71
2018	31,474,932	3.75
2019	31,672,249	3.80
2020	33,090,405	3.79
2021	33,597,888	3.97
2022	34,258,878	4.11
2023	34,866,782	N/A

N/A = data not available

AVERAGE NUMBER OF CUSTOMERS BILLED BY THE SYSTEM

Years Ended June 30, 2014–2023:

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Residential	762,300	758,300	758,500	759,200	759,550	759,850	759,875	760,050	760,050	770,653
Commercial & Industrial	74,000	76,300	75,800	75,500	75,700	75,150	75,625	75,650	75,650	76,218
Total accounts	836,300	834,600	834,300	834,700	835,250	835,000	835,500	835,700	835,700	846,871
Metered accounts	792,000	793,000	797,500	799,500	801,600	802,000	803,300	804,000	804,000	836,123
Percent meter billed	95%	95%	96%	96%	96%	96%	96%	96%	96%	99%

Sources: [1]Historical NYCMWFA official statements and [2]DEP Bureau of Customer Service.

Demographic and Economic Information

POPULATION—TEN YEAR TREND

Year	United States	Percentage Change from Prior Period	City of New York	Percentage Change from Prior Period
2013	316,059,947	0.70	8,396,207	0.59
2014	318,386,329	0.74	8,433,867	0.45
2015	320,738,994	0.74	8,463,157	0.35
2016	323,071,755	0.73	8,468,954	0.07
2017	325,122,128	0.63	8,437,695	-0.37
2018	326,838,199	0.53	8,396,614	-0.49
2019	328,329,953	0.46	8,342,925	-0.64
2020	331,511,512	0.97	8,740,647	4.77
2021	332,031,554	0.16	8,459,001	-3.22
2022	333,287,557	0.38	8,335,897	-1.46

Source: U.S. Department of Commerce, Bureau of Economic Analysis. US Census Bureau.

PERSONAL INCOME—TEN YEAR TREND

	Personal Income			Per Capita[1]		
Year	United States ($ billions)	City of New York ($ billions)	New York City as a Percentage of the United States	United States ($)	City of New York ($)	New York City as a Percentage of the United States
2013	14,063	477.37	3.39	44,401	55,745	125.55
2014	14,778	499.19	3.38	46,287	57,683	124.62
2015	15,467	522.43	3.38	48,060	59,798	124.42
2016	15,885	547.28	3.45	48,971	62,223	127.06
2017	16,659	593.15	3.56	51,004	67,281	131.91
2018	17,514	614.29	3.51	53,309	69,598	130.56
2019	18,344	627.07	3.42	55,547	71,072	127.95
2020	19,610	635.64	3.24	59,153	72,722	122.94
2021	21,393	693.94	3.24	64,430	82,036	127.33
2022	21,820	664.53	3.05	65,470	79,719	121.76

[1]BEA produced intercensal annual county population statistics for 2010 to 2019 that are tied to the Census Bureau decennial counts for 2010 and 2020. BEA uses these intercensal population statistics to estimate per capita personal income.
Source: U.S. Department of Commerce, Bureau of Economic Analysis.
Amounts as of November 16, 2023

Demographic and Economic Information (Continued)

UNEMPLOYMENT RATE—TEN YEAR TREND

Year	City of New York	Change from Prior Period
2013	8.8	-0.62
2014	7.1	-1.74
2015	5.6	-1.48
2016	5.1	-0.44
2017	4.5	-0.63
2018	4.1	-0.41
2019	3.8	-0.26
2020	12.4	8.56
2021	9.9	-2.55
2022	6.1	-0.38

Source: NY State, Department of Labor.

EMPLOYMENT DISTRIBUTION—TEN YEAR TREND

Average annual employment (in thousands):

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
GOODS PRODUCING SECTORS										
Construction	122.3	129.3	139.4	147.3	152.5	158.9	161.3	138.9	141.0	143.4
Manufacturing	76.7	77.1	78.5	76.9	74.1	71.3	68.1	52.9	54.4	57.7
SERVICE PRODUCING SECTORS										
Trade Transportation and Utilities	604.5	620.0	629.7	629.7	633.3	635.4	636.4	536.8	550.9	582.9
Information	182.4	189.7	195.0	199.8	207.4	213.1	220.6	207.8	221.6	235.1
Financial Activities	437.0	448.9	459.2	466.2	469.4	477.0	485.1	471.1	465.2	486.9
Professional and Business Services	637.5	660.9	689.0	708.9	726.2	746.1	772.3	710.8	723.3	775.7
Education and Health Services	831.6	867.3	898.1	930.1	963.6	1,008.3	1,055.4	1,009.7	1,039.0	1,108.1
Leisure and Hospitality	386.7	409.9	429.4	441.9	458.8	464.4	468.2	275.6	301.5	402.9
Other Services	175.1	180.5	186.1	190.7	192.3	193.7	195.7	162.5	167.2	178.5
Total Private	3,453.8	3,583.6	3,704.4	3,791.5	3,877.6	3,968.2	4,063.1	3,566.1	3,664.1	3,971.2
Government	570.6	573.3	579.5	583.7	584.7	584.7	587.1	585.6	574.4	566.2
Total	4,024.4	4,156.9	4,283.9	4,375.2	4,462.3	4,552.9	4,650.2	4,151.7	4,238.5	4,537.4

Source: NY State, Department of Labor. Data are presented using the North American Industry Classification System ("NAICS").

Operating Information

WATER POLLUTION CONTROL PLANTS DAILY FLOW

		12 month avg. (mgd)[1]	
Plant	Design Flow (mgd)[1]	July 21–June 22	July 22–June 23
Wards Island	275	195	202
North River	170	107	107
Hunts Point	200	133	128
26th Ward	85	51	47
Coney Island	110	82	81
Owls Head	120	96	91
Newtown Creek	310	198	200
Red Hook	60	27	27
Jamaica	100	80	76
Tallmans Island	80	61	60
Bowery Bay	150	104	100
Rockaway	45	20	20
Oakwood Beach	40	30	28
Port Richmond	60	30	28
Total	1,805	1,214	1,195

[1]mgd =millions of gallons of water

WATER SYSTEM TUNNELS AND AQUEDUCTS LENGTH DIAMETER TRANSMISSION IN SERVICE

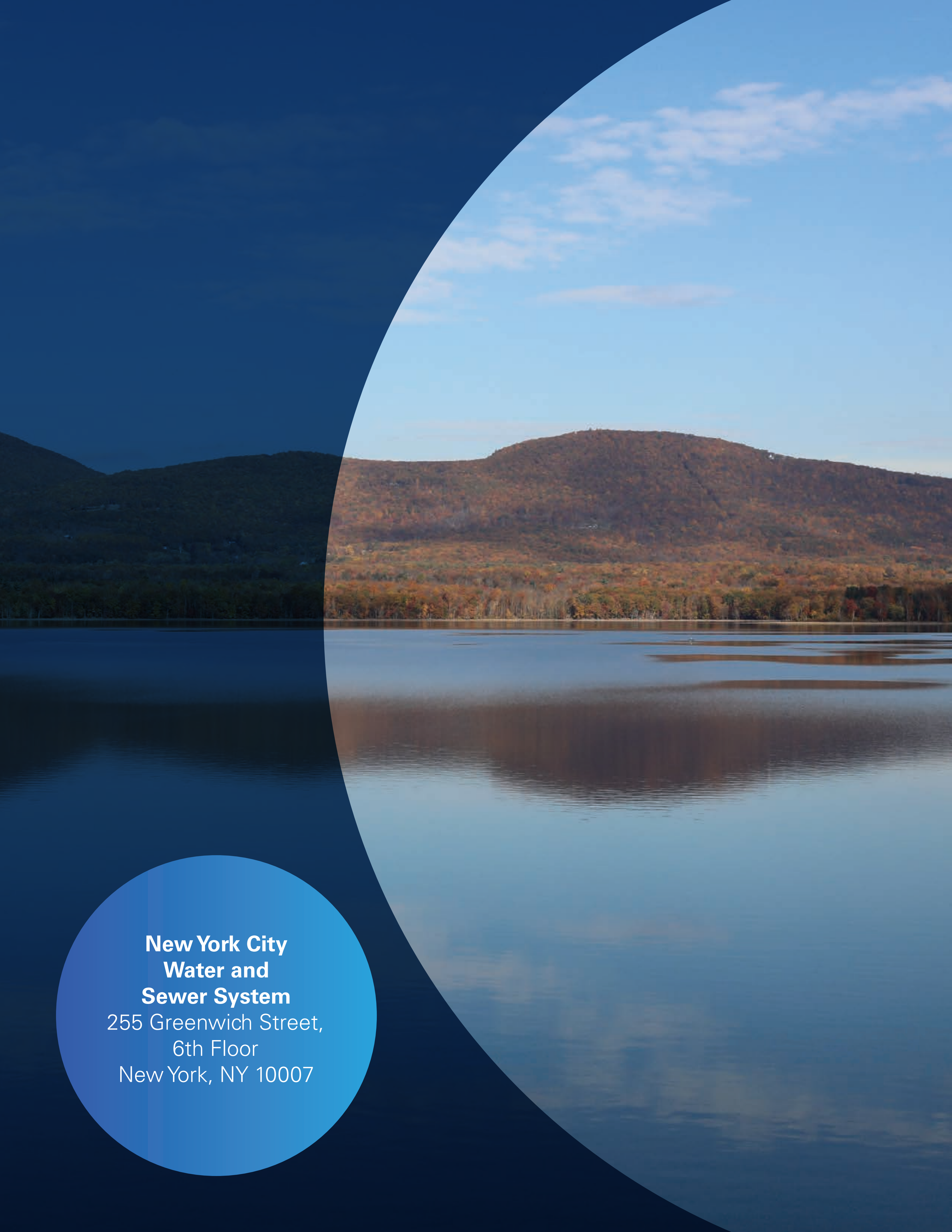
	Connections	Length (miles)	Diameter (feet)[1]	In Service Date
TUNNELS UPSTATE				
Shandanken		18.1	11.5 x 10.25[1]	1924
West Delaware		44.0	11.33	1964
East Delaware		25.0	11.33	1955
Neversink		6.0	10	1954
AQUEDUCTS				
New Croton	New Croton to Gatehouse 1	24.0	3.5 x 13.6[1]	1893
	Gatehouse 1 to Shaft 33, including Branch Aqueduct	8.3	12.25–10.5[2]	1893
	Croton Water Treatment Plant (CWTP) Raw Water	0.2	12	2015
	CWTP Low-Level Service Treated Water	0.8	9	2015
	CWTP High-Level Service Treated Water	0.7	9	2015
Catskill	Ashokan to Kensico	75.0	17 x 17.5[1]	1915
	Kensico to Hillview	17.0	17 x 18[1]	1915
Delaware	Rondout to West Branch	44.2	13.5	1944
	West Branch to Kensico	27.2	15	1943
	Kensico to Hillview	13.6	19.5	1942
TUNNELS DOWNSTATE				
Tunnel 1	Hillview to Shaft 24	18.3	15–11[2]	1917
Tunnel 2	Hillview to Shaft 17A	19.3	17–15[2]	1936
Tunnel 3, Stage 1	Hillview to Shaft 15B	12.0	24–20[2]	1998
Tunnel 3, Stage 2	Shaft 13B to Manhattan Distribution	8.5	10	2013
Tunnel 3, Stage 2	Brooklyn-Queens Tunnel	11.3	12–20	N/A[3]
Richmond Tunnel	Tunnel 2 to Staten Island Uptake Shaft	5.0	10	1970
Staten Island Siphon	Richmond Tunnel and Brooklyn Trunk Water Mains	1.8	6	2016

[1]Tunnels may not be perfectly round. [2]Tunnel is variable diameter. [3]Tunnel is constructed but not yet in service.

Operating Information (Continued)

NUMBER OF EMPLOYEES—DEPARTMENT OF ENVIRONMENTAL PROTECTION—TEN YEAR TREND

Year	Number of Employees	Percentage Change from Prior Period
2014	5,547	-0.36%
2015	5,558	0.20%
2016	5,720	2.91%
2017	5,748	0.49%
2018	5,849	1.76%
2019	5,923	1.27%
2020	5,910	-0.22%
2021	5,656	-4.30%
2022	5,357	-5.30%
2023	5,533	3.29%



New York City Water and Sewer System
255 Greenwich Street, 6th Floor
New York, NY 10007