COMPREHENSIVE ANNUAL FINANCIAL REPORT

For the Fiscal Year Ended June 30, 2016

# NEW YORK CITY
# Water & Sewer System

A Component Unit of
The City of New York

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# Letter of Transmittal

## DECEMBER 07, 2016

- Members of the Board of the New York City Municipal Water Finance Authority
- Members of the New York City Water Board
- The Commissioner of the New York City Department of Environmental Protection

**1 BILLION GALLONS OF DRINKING WATER ARE DELIVERED TO NEW YORK CITY EVERY DAY**

We are pleased to submit to you this Comprehensive Annual Financial Report ("CAFR") of the New York City Water and Sewer System (the "System") for the year ended June 30, 2016. The financial section of this CAFR includes management's discussion and analysis, the general-purpose financial statements and 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. Management's discussion and analysis provides an overview of the System's financial results.

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 Water 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, notes, and the general obligation bonds of The City issued for water or sewer purposes. 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"), provides for a lease term until all the bonds of the Authority are paid in full, or provision for payment has been made. The Water Board is obligated to first allocate the revenues of the System to debt service on Authority 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 City rental payment, if requested, under the terms of the Lease. The Lease requires the Water Board to make the rental payment to The City, when requested, at no more than the greater of: i) principal and interest for the fiscal year on City general obligation bonds issued for water and sewer purposes, or ii) fifteen percent of principal and interest on Authority debt for the fiscal year. In fiscal year 2017, The City did not request a rental payment. The Water Board consists of seven members who are appointed by the Mayor. The Act requires at least one member having 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 over 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 over 8.6 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 one million people located in Westchester, Putnam, Orange, and Ulster Counties.

**14 TREATMENT PLANTS TREAT 1.2 BILLION GALLONS OF WASTEWATER PER DAY**

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 1.6 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 6,700 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 four major 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 1.3 billion gallons of wastewater per day. Sewer service is provided to virtually the entire City, except for parts of the Borough of Staten Island and the Borough of Queens communities of Breezy Point. Sewer service is also provided to certain upstate communities in the System's watershed areas.

## CREDIT RATINGS

The Authority's bonds continue to be highly rated by three rating agencies. The Authority's ratings reflect the credit strengths resulting from the strong legal protections provided to bondholders, and structural features, which provide a gross pledge of System revenue to bondholders for debt payments. In November 2015, Moody's Investors Service upgraded the Authority's second general resolution to Aa1 from Aa2. Moody's also rates the Authority's first (general) resolution debt Aa1. Standard and Poor's Ratings Services rates the Authority's first resolution debt AAA, their highest rating. The Authority's second general resolution debt is rated AA+ by Standard and Poor's. Fitch Ratings rates both the Authority's first and second general resolution debt AA+.

New York State Environmental Facilities Corporation ("EFC") Clean Water and Drinking Water Revolving Funds Revenue Bonds, issued for eligible city projects, are rated AAA from three rating agencies. EFC's subordinated state revolving fund bonds are rated AAA by Standard & Poor's, AAA by Moody's, and AA+ by Fitch. 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.

## 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 conform with accounting principles generally accepted in the United States of America. Because the cost of internal control 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 control cannot provide absolute assurance of achieving financial reporting objectives due to its inherent limitations. Internal control involves human diligence and compliance; it is subject to human failures and may be circumvented. Because of such limitations, the Authority and the 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 Comptroller's Office. These directives establish internal controls and accountability, which safeguard City 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.

## CAPITAL IMPROVEMENTS ARE FINANCED BY THE AUTHORITY'S HIGHLY-RATED BONDS

## 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.

## CAPITAL IMPROVEMENT 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 its high quality and compliance with federal and state drinking water quality standards;
- To maintain and improve the transmission and distribution capacity and the condition of The City's water supply system;
- To improve the quality of the surrounding waters by upgrading The City's wastewater treatment facilities, by complying with federal and state standards for treatment and by reducing pollution caused by combined sewer overflows; and
- To maintain and improve the condition of the sewer system, prevent flooding by replacing failing sewers, and extend service to underserved areas of The City.

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 conterminously with The City's operating budget cycle.

## CAPITAL IMPROVEMENT PROGRAM

The City updates its Ten Year Capital Strategy (the "Strategy") every two years. The City released the Strategy in May 2015. The Strategy included the projected capital improvements to the System for fiscal years 2015 through 2025. The City's current capital plan, which covers fiscal years 2017 through 2020, was updated in October 2016. It is updated three times each fiscal year and the October 2016 release supersedes the Strategy for fiscal years 2017 through 2020. The Strategy, together with the current capital plan, comprises the capital improvement program (the "CIP"). In fiscal year 2017, The City will update the Strategy.

## CAPITAL IMPROVEMENT PROGRAM

($ in 000's)

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Water Supply And Transmission | 180,172 | 25,123 | 443,500 | 205,000 | 369,000 | 50,000 | 30,000 | 143,000 | 20,000 | **1,465,795** |
| Water Distribution | 1,026,934 | 881,940 | 388,224 | 370,615 | 204,850 | 199,582 | 126,758 | 238,432 | 119,507 | **3,556,842** |
| Water Pollution Control | 720,366 | 911,668 | 1,400,857 | 886,120 | 265,919 | 492,838 | 506,262 | 412,368 | 257,444 | **5,853,842** |
| Sewers | 810,084 | 859,174 | 535,998 | 413,375 | 232,482 | 335,528 | 245,126 | 237,052 | 497,034 | **4,165,853** |
| Equipment | 91,226 | 117,761 | 89,254 | 44,625 | 46,074 | 46,010 | 37,409 | 18,125 | 19,500 | **509,984** |
| Total City Funds | **2,828,782** | **2,795,666** | **2,857,833** | **1,919,735** | **1,118,325** | **1,123,958** | **945,555** | **1,048,977** | **913,485** | **15,552,316** |

### THE CAPITAL IMPROVEMENT PROGRAM INCLUDES PROJECTS TO ADDRESS THE EFFECTS OF CLIMATE CHANGE

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. In October 2013, DEP released its "NYC Wastewater Resiliency Plan", which sets forth specific strategies to protect and strengthen wastewater treatment plants and pumping stations from the effects of climate change. In April 2015, The City released "One New York: The Plan for a Strong and Just City" ("OneNYC"), a long term plan which updates the prior PlaNYC to address The City's goals of resiliency, sustainability, equity and growth, and incorporates proposals related to resiliency of the System in relation to climate change. OneNYC identifies $5 billion of improvements for the period from fiscal year 2013 through 2025 and funding is included in the CIP for such improvements identified in the plan. Allowances are also included in the CIP for emergency repair and replacement and for cost escalations due to inflation.

The total capital commitments projected to be provided from System funds is $15.6 billion for the nine-year period from fiscal year 2017 through 2025. The capital commitments shown in each year represent capital contracts authorized to be entered into each year that will be paid from City funds and reimbursed by the Authority, largely from bond proceeds. Actual expenditures from such capital contracts and the issuance of Authority bonds to fund such expenditures occur in the current and subsequent years. The table above reflects the CIP as of October 2016. 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 in the following sections.

## WATER SUPPLY & TRANSMISSION

This component of the CIP includes approximately $827.9 million for Stage II of The City's Water Tunnel No. 3 and upgrades at the Hillview Reservoir. Stage II extends from the end of Stage I to supply Queens, Brooklyn and the Richmond Tunnel servicing Staten Island, and from the valve chamber at Central Park into Lower Manhattan. 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. Stage I of Tunnel No. 3 commenced operation in July 1998. The Manhattan leg of Stage II was completed and activated in October 2013. The tunnel and most of the infrastructure work for the Brooklyn/Queens segment of Stage II are complete, with two final shafts to be designed and constructed. Construction of the shafts is expected to begin in 2020. 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.

**WATER TUNNEL NO. 3 WILL INCREASE CAPACITY AND PROVIDE CRITICAL REDUNDANCY**

Tunnel No. 3 will increase the capacity to meet growing demand in the eastern and southern areas of the City. It will also permit inspection and rehabilitation of Tunnels No. 1 and 2, and provide water delivery alternatives to the City in the event of disruption in Tunnel No. 1 or No. 2.

The CIP also includes $501 million for the Kensico-Eastview Connection. 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.

The CIP includes $135.9 million for water conveyance projects. Funds 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 expected to start in 2022. Water supply augmentation includes the rehabilitation of the Catskill Aqueduct and a water demand management program to reduce City water consumption. Shaft construction for the bypass tunnel is underway and funds for construction were committed in prior years.

## WATER DISTRIBUTION & TREATMENT

The System's drinking water is among the best in the country. The CIP includes approximately $3.6 billion for the protection, expansion, and distribution of The City's water supply, including nearly $1.6 billion for trunk and distribution water main replacements and extensions. Additionally, $148.9 million is included for the completion of construction of a full-scale filtration plant for the treatment of water from the Croton watershed, which commenced operation in May 2015, along with $425.6 million for the dam safety program, including the reconstruction of Gilboa Dam, improvements at the Ashokan Reservoir, and upgrades at thirteen dikes and dams to bring them up to modern standards. Additional capital funding is expected to be added to the CIP to complete all of the necessary improvements.

The program also calls for $1.1 billion to be committed to ongoing 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. The New York State Department of Health issued a midterm revision of the FAD in May 2014. The City has begun work with the New York State Department of Health and USEPA on developing the next FAD. 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, $5.9 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 $3.2 billion for the replacement or reconstruction of components at The City's wastewater treatment facilities to ensure their continuous and reliable operations, including nitrogen removal upgrades at eight wastewater treatment plants, four of which discharge into the Upper East River and four of which discharge into Jamaica Bay. DEP's CIP also includes $2.7 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 part of the agreement, DEP will submit a series of CSO long-term control plans to ensure the water bodies comply with Clean Water Act requirements.

**INVESTMENTS IN WATER POLLUTION CONTROL ARE IMPROVING THE WATER QUALITY IN NEW YORK HARBOR**

## SEWERS

Approximately $4.2 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.

## EQUIPMENT

Programs in this category of the CIP include water meter installation, automated meter reading systems, the procurement of vehicles and equipment, management information systems, and utility relocation for sewers and water mains. A total of $510.0 million is included in the CIP for these projects.

The automated meter reading system will transmit water usage information by radio signal to DEP. DEP has installed over 817,000 transmitters, covering 97% of all customers. Since 2010, DEP also has installed over 430,000 new water meters. All customers whose accounts have been upgraded for automated meter reading can now access details of their water usage through DEP's website.

## INDEPENDENT AUDIT

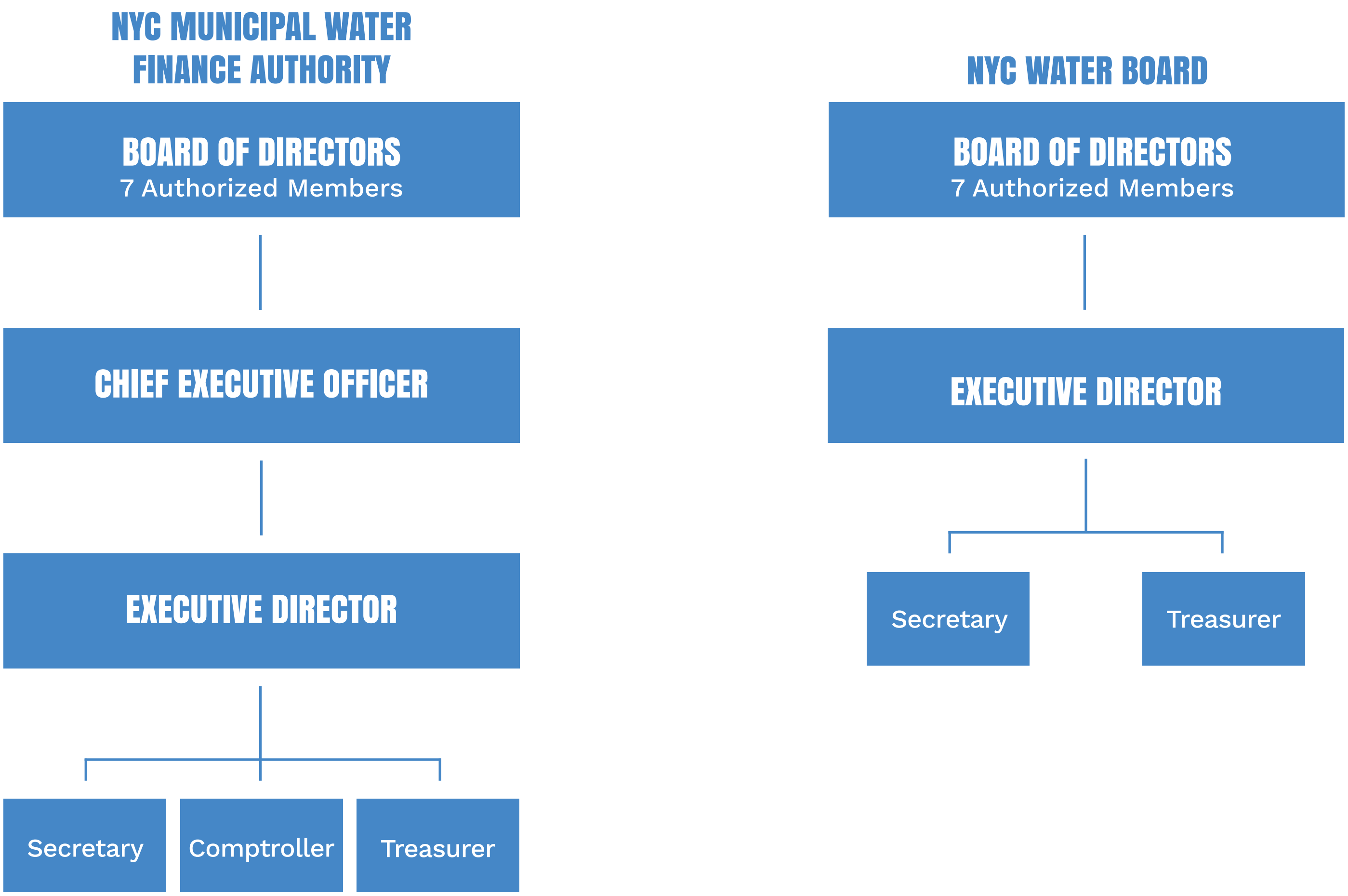
Section 6.11 (b) of the Financing Agreement by and among The City, the Authority, and the Water Board dated as of July 1, 1985, requires that the Authority shall submit to the Mayor, the Comptroller and the Director of Management and Budget of the City, audited annual financial statements of the Authority and the Water Board. The financial section of the 2016 Comprehensive Annual Financial Report begins with the report of our independent auditors, Marks Paneth LLP. This report expresses an unmodified opinion as to the fairness of the presentation of our financial statements.

Respectfully submitted,

**Thomas G. Paolicelli**
Executive Director

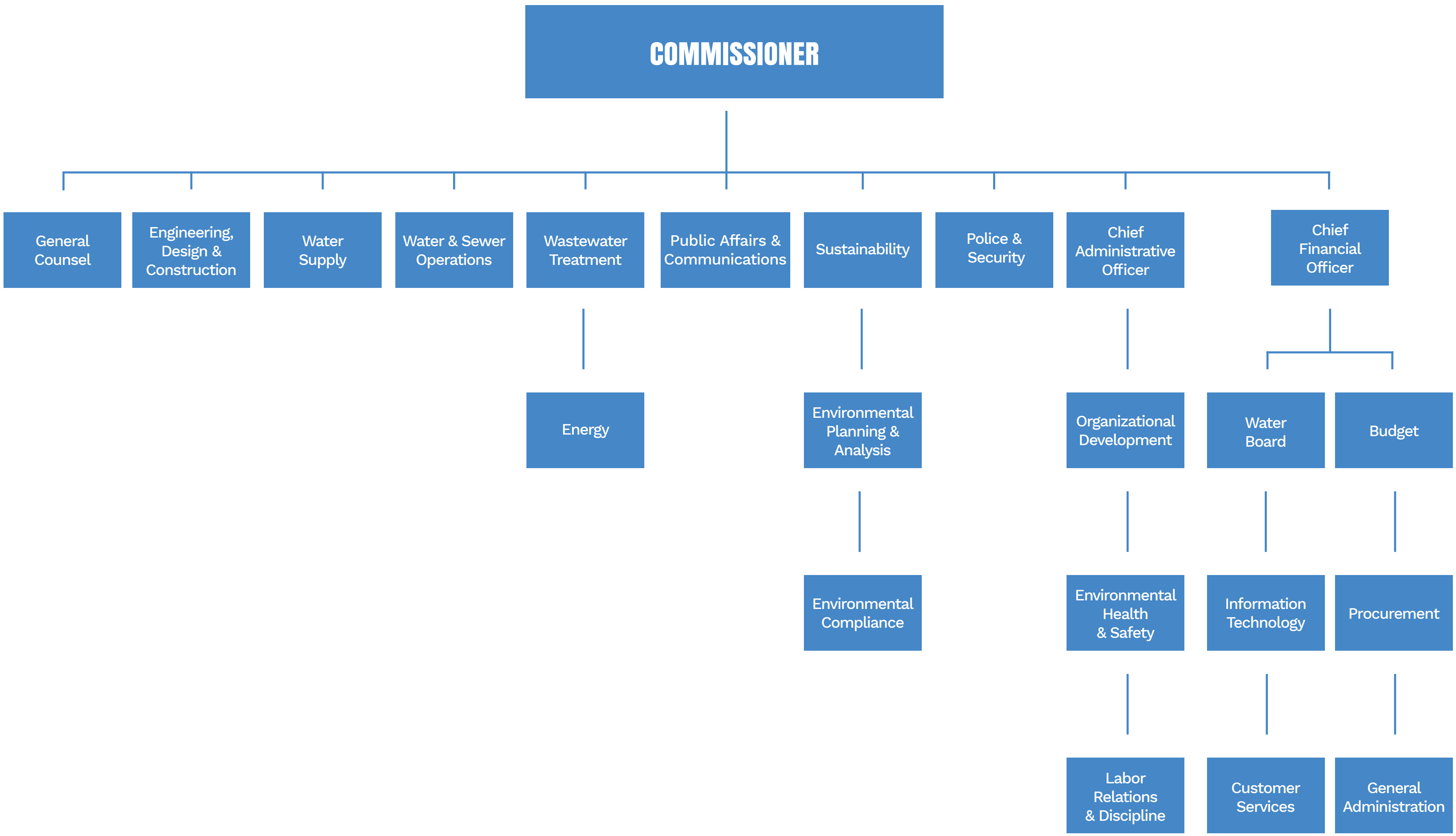
**Robert L. Balducci**
Comptroller

# Organizational Chart



# Organizational Chart

## NYC DEPARTMENT OF ENVIRONMENTAL PROTECTION



Government Finance Officers Association

# Certificate of Achievement for Excellence in Financial Reporting

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**New York City**
**Water and Sewer System**
**New York**

For its Comprehensive Annual
Financial Report
for the Fiscal Year Ended

**June 30, 2015**

Executive Director/CEO

# System Officials

## NEW YORK CITY MUNICIPAL WATER FINANCE AUTHORITY

### Board of Directors

**Dean A. Fuleihan**, Ex Officio Member
**Jacques Jiha**, Ex Officio Member
**Vincent Sapienza, P.E.**, Ex Officio Member
**Basil Seggos**, Ex Officio Member
**Max Von Hollweg**, Member
**Marc V. Shaw**, Member

### Staff

**Alan L. Anders**, Chief Executive Officer
**Thomas G. Paolicelli**, Executive Director
**Prescott D. Ulrey**, Secretary
**Robert L. Balducci**, Comptroller
**Nameca Sharma**, Assistant Comptroller
**Jeffrey M. Werner**, Assistant Secretary
**Albert M. Rodriguez**, Assistant Secretary

## NEW YORK CITY WATER BOARD

### Members

**Alfonso L. Carney Jr.**, Chairman
**Tawan Davis**, Member
**Adam Freed**, Member
**Jonathan E. Goldin**, Member
**Jukay Hsu**, Member
**Arlene M. Shaw**, Member

### Staff

**Omar A. Nazem**, Acting Executive Director and Treasurer
**Greg L. Ascierto**, Deputy Treasurer
**Albert M. Rodriguez**, Secretary

## NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION

**Vincent Sapienza, P.E.**, Acting Commissioner

**Joseph Murin**, Acting Chief Financial Officer

**David M. Cohen**, Acting Chief Administrative Officer

### Customer Services

**Nancy Cianflone**, Deputy Commissioner

### Engineering Design and Construction

**James Mueller, P.E.**, Acting Deputy Commissioner

### Legal Affairs

**Elissa Stein Cushman**, General Counsel

### Police and Security

**Kevin T. McBride**, Deputy Commissioner

### Public Affairs & Communications

**Eric Landau**, Deputy Commissioner

### Sustainability

**Angela Licata**, Deputy Commissioner

### Wastewater Treatment

**Pamela Elardo, P.E.**, Deputy Commissioner

### Water and Sewer Operations

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

### Water Supply

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

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Washington, DC

MARKS PANETH
ACCOUNTANTS & ADVISORS

# INDEPENDENT AUDITORS' REPORT

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

We have audited the accompanying combining financial statements of the New York City Municipal Water Finance 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 comprise the combining statement of net position as of June 30, 2016, and the related combining statements of revenues, expenses and changes in position and cash flows for the year then ended, and the related notes to the combining financial statements.

***Management's Responsibility for the Combining Financial Statements***

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

***Auditors' Responsibility***

Our responsibility is to express an opinion on these combining financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the combining financial statements are free of material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the combining financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the combining financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the combining financial statements 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 entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the combining financial statements.

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

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***Opinion***

In our opinion, the combining financial statements referred to above 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, 2016, and the changes in their financial position and their cash flows for the year then ended in accordance with accounting principles generally accepted in the United States of America.

***Prior Period Combining Financial Statements***

The combining financial statements of the System as of and for the year ended June 30, 2015, were audited by other auditors whose report dated October 22, 2015 expressed an unmodified opinion on those statements.

***Other Matters***

***Required Supplementary Information***

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis on pages 15 through 22, the schedule of funding progress for the other postemployment benefit plan on page 65, the schedule of the Authority's proportionate share of the net pension liability on page 65, and the schedule of the Authority's pension contributions on page 65 be presented to supplement the basic combining financial statements. Such information, although not a 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 auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic combining financial statements, and other knowledge we obtained during our audit 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.

Marks Paneth LLP

New York, NY
October 20, 2016

MARKS PANETH
ACCOUNTANTS & ADVISORS

# MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

## OVERVIEW OF THE FINANCIAL STATEMENTS

The following is an overview of the financial activities of the New York City Water and Sewer System (the "System") for the fiscal years ended June 30, 2016 and 2015. 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 financial statements consist of four parts (1) management's discussion and analysis (this section), (2) the financial statements, (3) the notes to the financial statements, and (4) required supplementary information.

The basic financial statements of the System, which include the combining statements of net position, the combining statements of revenues, expenses and changes in net position 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 financial statements are prepared using the economic resources measurement focus and the accrual basis of accounting. Accordingly, revenue is 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 2016, 2015, and 2014 (in thousands):

| | | | | Variance | |
|---|---|---|---|---|---|
| | **2016** | **2015** | **2014** | **2016 v 2015** | **2015 v 2014** |
| **REVENUES:** | | | | | |
| Operating: | | | | | |
| Water supply and distribution | $ 1,431,148 | $ 1,382,189 | $ 1,351,550 | $ 48,959 | $ 30,639 |
| Sewer collection and treatment | 2,275,524 | 2,197,679 | 2,148,964 | 77,845 | 48,715 |
| Bad debt expense | (4,467) | (23,301) | (26,979) | 18,834 | 3,678 |
| Other operating revenues | 185,793 | 211,267 | 183,760 | (25,474) | 27,507 |
| **Total operating revenues** | **3,887,998** | **3,767,834** | **3,657,295** | **120,164** | **110,539** |
| Non-Operating Revenue: | | | | | |
| Subsidy income | 164,502 | 163,655 | 174,606 | 847 | (10,951) |
| Investment income | 53,322 | 22,426 | 50,148 | 30,896 | (27,722) |
| Legal settlement | — | — | 83,236 | — | (83,236) |
| Total non-operating revenues | 217,824 | 186,081 | 307,990 | 31,743 | (121,909) |
| **TOTAL REVENUES** | **4,105,822** | **3,953,915** | **3,965,285** | **151,907** | **(11,370)** |
| **EXPENSES:** | | | | | |
| Operations and maintenance | 1,297,294 | 1,439,415 | 1,490,550 | (142,121) | (51,135) |
| Other operating expenses | 16,546 | 77,717 | 27,874 | (61,171) | 49,843 |
| Administration and general | 61,455 | 55,865 | 68,936 | 5,590 | (13,071) |
| Depreciation expense | 918,950 | 1,023,906 | 740,879 | (104,956) | 283,027 |
| Capital distribution | 11,082 | 25,337 | 39,627 | (14,255) | (14,290) |
| Net loss on retirement and impairment of capital assets | 4,488 | 2,334 | 18,815 | 2,154 | (16,481) |
| Interest expense/cost of issuance | 1,195,773 | 1,264,538 | 1,263,305 | (68,765) | 1,233 |
| **Total expenses** | **3,505,588** | **3,889,112** | **3,649,986** | **(383,524)** | **239,126** |
| Net gain before capital contributions | 600,234 | 64,803 | 315,299 | 535,431 | (250,496) |
| CAPITAL CONTRIBUTIONS | 4,060 | 223,791 | 9,799 | (219,731) | 213,992 |
| CHANGE IN NET POSITION | 604,294 | 288,594 | 325,098 | 315,700 | (36,504) |
| NET POSITION (DEFICIT) — Beginning | 129,793 | (158,801) | (483,899) | 288,594 | 325,098 |
| NET POSITION (DEFICIT) — Ending | **$ 734,087** | **$ 129,793** | **$ (158,801)** | **$ 604,294** | **$ 288,594** |

## OPERATING REVENUE

### 2016–2015

Operating revenues increased by $120.2 million or 3.2% largely due to a rate increase of 2.97%.

### 2015–2014

Operating revenues increased by $110.5 million or 3.0% predominantly due to a rate increase of 3.35%.

## OTHER OPERATING REVENUE

The following summarizes other operating revenues for fiscal years 2016, 2015, and 2014 (in thousands):

| | | | | Variance | |
|---|---|---|---|---|---|
| | **2016** | **2015** | **2014** | **2016 v 2015** | **2015 v 2014** |
| Upstate water fees | $ 85,221 | $ 78,427 | $ 86,676 | $ 6,794 | $ (8,249) |
| Late payment fees | 53,716 | 55,079 | 50,426 | (1,363) | 4,653 |
| Change in residual interest in sold liens | 1,737 | 5,479 | 6,585 | (3,742) | (1,106) |
| Release of escrow/legal settlement | — | 33 | — | (33) | 33 |
| Program revenue | — | 2,700 | — | (2,700) | 2,700 |
| Connection fees and permits | 17,204 | 17,551 | 13,449 | (347) | 4,102 |
| Rebate of base rental payment | — | 28,043 | 9,094 | (28,043) | 18,949 |
| Service line protection program | 27,915 | 23,955 | 17,530 | 3,960 | 6,425 |
| **TOTAL OTHER OPERATING REVENUES** | **$ 185,793** | **$ 211,267** | **$ 183,760** | **$ (25,474)** | **$ 27,507** |

### 2016–2015

Upstate water fees increased by $6.8 million or 8.7% compared to fiscal year 2015. This was due to an increase in the wholesale rates in fiscal year 2016 of 9.87% for the quantity of water the upstate customers are entitled to by law and an increase of 2.97% for consumption in excess of the entitlement quantity.

Late payment fees decreased by $1.4 million or 2.5%. This amount fluctuates depending on the timeliness of customer payments.

The change in residual interest in sold liens decreased by $3.7 million or 68.3% compared to fiscal year 2015. This was due to fewer residual liens from previous lien sales residing with the lien servicer.

Rental rebate decreased by $28 million compared to fiscal year 2015. In fiscal year 2016, the City eliminated the rental rebate and instead reduced the charge for the base rental payment owed by the System.

The amounts received for the service line protection program increased by $4.0 million. The number of effective policies steadily increased from approximately 179,000 on July 1, 2015, to approximately 220,000 by the end of fiscal year 2016.

### 2015–2014

Upstate water fees decreased by $8.2 million or 9.5% compared to fiscal year 2014. The decrease was due to the combination of: 1) a catch-up adjustment in fiscal year 2014 to recognize unbilled revenue of $13.7 million, 2) an offset of a 5.13% increase in the wholesale rate in fiscal year 2015 for the quantity of water the municipalities were entitled to by law, and 3) an offset of a 3.35% rate increase in fiscal year 2015 for consumption in excess of the entitlement quantity.

Late payment fees increased by $4.6 million or 9.2%. This amount fluctuates depending on the timeliness of customer payments.

The change in residual interest in sold liens decreased by $1.1 million or 16.8% compared to fiscal year 2014. This was due to fewer residual collections transferred to the System from the lien sale trusts.

Program revenue was $2.7 million. This revenue was from The City for water and sewer credits to be provided to certain low-income customers and customers participating in The City's Build-It-Back program.

Connection fees and permits increased by $4.1 million or 30.5%. This amount fluctuates each year based on new construction activities.

The rental rebate, a portion of the base rental payment by The City, increased by $18.9 million compared to fiscal year 2014. This was due to the calculation of the rental rebate based on a change to an intergovernmental agreement.

The amounts received for the service line protection program increased by $6.4 million. The number of effective policies steadily increased from approximately 142,000 on July 1, 2014, to approximately 179,000 by the end of fiscal year 2015.

## INVESTMENT INCOME (NON-OPERATING REVENUE)

### 2016–2015

Investment income increased by $30.9 million or 137.8% compared to fiscal year 2015. This is largely due to (a) Water Board investment income that increased by $4.9 million due to higher interest rates on higher investment balances held at the institutions and (b) the Authority's $22.0 million of unrealized gain on investments, of which $18.6 million was related to Forward Purchase Agreements ("FPA").

## INTEREST EXPENSE (NON-OPERATING EXPENSE)

Interest expense decreased by $68.8 million compared to fiscal year 2015. The greater part of the decrease relates to the cash defeasance of bonds that resulted in an accounting loss of approximately $60 million in fiscal year 2015; whereas, in fiscal year 2016, the accounting loss was only $22 million. The decrease was also due to the refunding of higher interest rate bonds with lower interest rate bonds.

### 2015–2014

Investment income decreased by $27.7 million or 55.3% compared to fiscal year 2014. This was due primarily to a termination of a variable interest rate exchange agreement (a "Swap") in June 2014, a reduction of interest income in the revenue and debt service reserve funds, a decline in unrealized gain on investments in FPA, and an increase in arbitrage rebate expense.

## OPERATING EXPENSES

### 2016–2015

Total operations and maintenance expenses decreased by $142.1 million or 9.9%. This decrease is due primarily to a write-down of $96.6 million of accrued personal service expenses and a decrease of $67.9 million in the base rental payment, which was offset by an increase in other expenses by $22.4 million.

Administrative and general expenses increased by $5.6 million or 10.0% compared to fiscal year 2015. Most of the increase is related to arbitrage rebate paid to the Internal Revenue Service for the investments of the Authority's bond proceeds.

### 2015–2014

Total operations and maintenance expenses decreased by $51.1 million or 3.4%. This decrease is due primarily to a decrease in the citywide fringe benefit rate from 51% in fiscal year 2014 to 48% in fiscal year 2015.

Administrative and general expenses decreased by $13.1 million or 19.0% compared to fiscal year 2014. The Water Board's expenses decreased by $15.8 million, and the Authority's expenses increased by approximately $2.7 million due to the increase in outstanding variable rate bonds and liquidity agreements. In fiscal year 2014, the Water Board included $16.4 million of service line protection program expense in administration and general. However, in fiscal year 2015, the service line protection program expense was included in other operating expenses; this resulted in a decrease in fiscal year 2015 administration and general expense.

## OTHER OPERATING EXPENSES

### 2016–2015

Other operating expenses decreased by $61.2 million or 78.7% compared to fiscal year 2015. In fiscal year 2016, there were gross other operating expenses of $63.1 million; however, there was a write-down of $46.5 million of pollution remediation obligations that were accrued in prior years, mainly for the Newtown Creek South Battery upgrade and Paerdegat Ecology Park. These remediations were completed in fiscal year 2016 and the initial cost estimates had been greater than actual expenses and were not revised until the close-out of the projects.

### 2015–2014

Other operating expenses increased by $49.8 million compared to fiscal year 2014. This was due primarily to a one-time payment of $25.6 million to The City for outstanding expenses, the inclusion of $22.9 million of service line protection program payments to American Water Resources, and other program expenses of $2.7 million to provide credits to certain low-income customers and customers participating in The City's Build-It-Back program.

## NON-OPERATING EXPENSES

### 2016–2015

Net loss on retirement and impairment of capital assets increased by $2.2 million due to the disposition of assets with carry values greater than those in fiscal year 2015.

### 2015–2014

Net loss on retirement and impairment of capital assets decreased by $16.5 million. In fiscal year 2015, fewer assets with carrying values were disposed.

## CHANGE IN NET POSITION

### 2016–2015

The change in net position represents the net total of operating revenue and expenses, non-operating revenues and expenses, and capital contributions. The variance in the change in net position increased by $315.7 million in fiscal year 2016.

### 2015–2014

The change in net position represents the net total of operating revenue and expenses, non-operating revenues and expenses, and capital contributions. The variance in the change in net position (deficit) decreased by $36.5 million in fiscal year 2015.

## ENDING NET POSITION

### 2016–2015

The ending net position represents the net total of operating revenue and expenses, non-operating revenues and expenses, capital contributions, and beginning balance of net position. Ending net position increased by $604.3 million in fiscal year 2016.

### 2015–2014

The ending net position represents the net total of operating revenue and expenses, non-operating revenues and expenses, capital contributions, and beginning balance of net position. Ending net position increased by $288.6 million in fiscal year 2015.

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

| | | | | Variance | |
|---|---|---|---|---|---|
| | **2016** | **2015** | **2014** | **2016 v 2015** | **2015 v 2014** |
| Current assets | $ 3,185,052 | $ 3,140,067 | $ 3,125,177 | $ 44,985 | $ 14,890 |
| Residual interest in sold liens | 73,333 | 71,596 | 66,116 | 1,737 | 5,480 |
| Capital assets | 29,065,790 | 28,664,121 | 28,392,330 | 401,669 | 271,791 |
| **Total assets** | **32,324,175** | **31,875,784** | **31,583,623** | **448,391** | **292,161** |
| **DEFERRED OUTFLOWS OF RESOURCES:** | | | | | |
| Deferred outflows from hedging | 142,802 | 103,182 | 86,502 | 39,620 | 16,680 |
| Deferred outflows from pension | 275 | 105 | 235 | 170 | (130) |
| Unamortized deferred bond refunding costs | — | — | 4,294 | — | (4,294) |
| **Total deferred outflows of resources** | 143,077 | 103,287 | 91,031 | 39,790 | 12,256 |
| **TOTAL ASSETS AND DEFERRED OUTFLOWS OF RESOURCES** | **$ 32,467,252** | **$ 31,979,071** | **$ 31,674,654** | **$ 488,181** | **$ 304,417** |
| Current liabilities | $ 1,285,910 | $ 1,702,560 | $ 1,504,946 | $ (416,650) | $ 197,614 |
| Long-term liabilities | 30,430,454 | 30,128,541 | 30,328,237 | 301,913 | (199,696) |
| **Total liabilities** | **31,716,364** | **31,831,101** | **31,833,183** | **(114,737)** | **(2,082)** |
| **DEFERRED INFLOWS OF RESOURCES:** | | | | | |
| Deferred inflows from pension | 154 | 199 | 272 | (45) | (73) |
| Unamortized deferred bond refunding costs | 16,647 | 17,978 | — | (1,331) | 17,978 |
| **Total deferred inflows of resources** | **16,801** | **18,177** | **272** | **(1,376)** | **17,905** |
| **NET POSITION (DEFICIT):** | | | | | |
| Net investment in capital assets | (430,201) | (598,349) | (771,165) | 168,148 | 172,816 |
| Restricted for debt service | 1,457,332 | 1,224,925 | 1,145,505 | 232,407 | 79,420 |
| Restricted for operations and maintenance | 250,447 | 226,383 | 221,440 | 24,064 | 4,943 |
| Unrestricted (deficit) | (543,491) | (723,166) | (754,581) | 179,675 | 31,415 |
| **Total net position (deficit)** | **734,087** | **129,793** | **(158,801)** | **604,294** | **288,594** |
| **TOTAL LIABILITIES, DEFERRED INFLOWS OF RESOURCES, AND NET POSITION (DEFICIT)** | **$ 32,467,252** | **$ 31,979,071** | **$ 31,674,654** | **$ 488,181** | **$ 304,418** |

### 2016–2015

Residual interest in sold liens receivable increased by $1.7 million or 2.4% compared to fiscal year 2015 due to a new tax lien issued in May 2016.

Deferred outflows of resources from hedging increased by $39.6 million or 38.4% compared to fiscal year 2015. This is due to lower interest rates on derivative instruments.

Current liabilities decreased by $416.7 million or 24.5% compared to fiscal year 2015. This is primarily due to a decrease of $400.0 million in commercial paper issued.

Long-term liabilities increased by $302.0 million or 1.0% primarily due to the issuance of new debt for capital projects.

### 2015–2014

Residual interest in sold liens receivable increased by $5.5 million or 8.3% compared to fiscal year 2014 due to a new tax lien issued in May 2015.

Deferred outflows of resources from hedging increased by $16.7 million or 19.3% due to an increase in the fair value of hedging derivative instruments.

Current liabilities increased by $197.6 million or 13.1% compared to fiscal year 2014. This is primarily due to an increase of $100 million in the issuance of commercial paper and an increase of $100 million in the change of debt from long term to current.

Long-term liabilities decreased by $199.7 million or 0.7% primarily due to the retirement of outstanding bonds and an increase in the current portion of debt as it was reclassified from long-term debt.

## CAPITAL ASSETS

The System's capital assets include buildings, 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):

| | | | | Variance | |
|---|---|---|---|---|---|
| | **2016** | **2015** | **2014** | **2016 v 2015** | **2015 v 2014** |
| **NONDEPRECIABLE ASSETS — UTILITY CONSTRUCTION IN PROGRESS** | $ 5,227,182 | $ 4,558,225 | $ 6,812,608 | $ 668,957 | $ (2,254,383) |
| **UTILITY PLANT IN SERVICE:** | | | | | |
| Buildings | 34,877 | 34,877 | 34,877 | — | — |
| Equipment | 3,826,694 | 3,774,428 | 3,434,110 | 52,266 | 340,318 |
| Vehicles | 292,404 | 291,345 | 164,553 | 1,059 | 126,792 |
| Water supply and distribution and wastewater treatment and sewage collection systems | 32,661,550 | 32,075,316 | 29,000,071 | 586,234 | 3,075,245 |
| **Total utility plant in service** | **36,815,525** | **36,175,966** | **32,633,611** | **639,559** | **3,542,355** |
| **LESS ACCUMULATED DEPRECIATION FOR:** | | | | | |
| Buildings | (25,140) | (23,822) | (22,506) | (1,318) | (1,316) |
| Equipment | (1,641,501) | (1,412,576) | (1,169,222) | (228,925) | (243,354) |
| Vehicles | (128,549) | (121,113) | (110,510) | (7,436) | (10,603) |
| Water supply and distribution and wastewater treatment and sewage collection systems | (11,181,727) | (10,512,559) | (9,751,651) | (669,168) | (760,908) |
| **Total accumulated depreciation** | **(12,976,917)** | **(12,070,070)** | **(11,053,889)** | **(906,847)** | **(1,016,181)** |
| **TOTAL UTILITY PLANT IN SERVICE — NET** | **23,838,608** | **24,105,896** | **21,579,722** | **(267,288)** | **2,526,173** |
| **TOTAL CAPITAL ASSETS — NET** | **$ 29,065,790** | **$ 28,664,121** | **$ 28,392,330** | **$ 401,669** | **$ 271,790** |

### 2016–2015

The increase in the System's capital assets, net of depreciation during fiscal year 2016 was $401.7 million or 1.4%. Additions to utility construction in progress for fiscal year 2016 were $669.0 million. Total gross additions to utility construction in progress were $1.3 billion, less deletions for fiscal year 2016 of $656.2 million. The System completed and placed in service over $180 million of wastewater treatment and water distribution capital projects, installed and upgraded over $150 million sewer and water pipes throughout the five boroughs of New York City, and completed numerous other projects. See Note 3 (Utility Plant) for further details.

### 2015–2014

The increase in the System's capital assets, net of depreciation during fiscal year 2015 was $271.8 million or 1.0%. Additions to utility construction for fiscal year 2015 were $1.3 billion. Utility construction deletions for fiscal year 2015 were $3.6 billion (this amount equals to addition to depreciable assets of $3.6 billion less of $10.1 million assets retired in fiscal 2015), which consisted of $1.4 billion for the Catskill/Delaware Ultraviolet Disinfection Facility and Croton Filtration Plant and approximately ten other projects totaling $1.2 billion. See Note 3 (Utility Plant) for further details.

## DEBT ADMINISTRATION

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 and certain costs associated with pollution remediation, are financed with debt but are not recorded as System assets on the balance sheet. The cumulative amount of expenses not capitalized as assets as of June 30, 2016 was $1.4 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.

The debt program of the Authority includes commercial paper, long-term debt, Bond Anticipation Notes ("BANs"), and interest-subsidized bonds issued through the New York State Environmental Facilities Corporation ("EFC"). The commercial paper debt program and BANs are the main source of short-term financing to reimburse The City for payments made for water and sewer projects. The Authority then issues long-term debt to retire outstanding commercial paper and subsidized debt through EFC to retire BANs. The Authority also periodically issues refunding bonds to refinance higher coupon debt. See Note 9 (Short-Term Debt) and Note 10 (Long-Term Debt) for further details.

As of June 30, 2016, the total outstanding debt of the System was $30.8 billion, of which $200.0 million was commercial paper, $318.8 million was outstanding against BANs issued to EFC, $29.2 billion consisted of adjustable and fixed-rate bonds maturing in varying installments through 2050, and the remaining $1.1 billion was the net premium on bonds.

The total outstanding long-term debt including current portion at June 30, 2016 was as follows (in thousands):

| ISSUE DATE | PRINCIPAL OUTSTANDING[1] |
|---|---|
| 2016 | $ 2,596,050 |
| 2015 | 3,016,467 |
| 2014 | 2,817,411 |
| 2013 | 2,277,060 |
| 2012 | 3,523,934 |
| 2011 and prior | 15,285,074 |
| **Total long-term debt** | **$ 29,515,996** |

*[1] Principal outstanding does not include premium or discount on bonds.*

In fiscal year 2016, the Authority issued $2.4 billion of water and sewer system revenue bonds, including $951.4 million of refunding bonds and $1.4 billion of new money bonds. The Authority used new money bond proceeds to finance capital improvements to the System, to provide long-term financing of commercial paper notes and BANs that previously financed capital improvements to the System, and to pay for bond issuance costs. The Authority issued the following debt in fiscal year 2016:

— On July 2, 2015, the Authority issued $380.8 million of new money and refunding Second Resolution bonds directly to EFC, Fiscal 2016 Series 1 and 2. These bonds have a final maturity of 2045.

— On October 29, 2015, the Authority issued $250.0 million of new money tax-exempt adjustable rate Second Resolution bonds, Fiscal 2016 Series AA. The bonds are backed by standby purchase agreements provided by three banks. These bonds have a final maturity of 2048.

— On November 24, 2015, the Authority issued $349.8 million of new money and refunding tax-exempt fixed-rate Second Resolution bonds, Fiscal 2016 Series BB. These bonds have a final maturity of 2046.

— On March 17, 2016, the Authority issued $196.6 million of refunding tax-exempt fixed-rate First Resolution bonds, Fiscal 2016 Series A. These bonds have a final maturity of 2036.

— On March 17, 2016, the Authority issued $438.8 million of refunding tax-exempt fixed-rate Second Resolution bonds, Fiscal 2016 Series CC. These bonds have a final maturity of 2038.

— On June 29, 2016, the Authority issued $778.6 million of new money and refunding Second Resolution bonds directly to EFC, Fiscal 2016 Series 5 and 6. These bonds will mature in 2046.

— During Fiscal Year 2016, the Authority issued $200.0 million of commercial paper notes and drew $877.9 million against BANs to pay for costs of improvements to the System. As of June 30, 2016, $200 million of commercial paper notes and $318.8 million of BANs were outstanding.

— During fiscal year 2016, the Authority legally defeased $721.5 million of outstanding bonds using current revenue. This resulted in an accounting loss of $23.0 million that is included in interest expense and gross debt service savings of $1.4 billion.

## 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.

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## COMBINING STATEMENTS OF NET POSITION

June 30, 2016 (in thousands):

| ASSETS AND DEFERRED OUTFLOWS OF RESOURCES | WATER BOARD | New York City MUNICIPAL WATER FINANCE AUTHORITY | ELIMINATIONS | TOTAL |
|---|---|---|---|---|
| **CURRENT ASSETS:** | | | | |
| Unrestricted cash and cash equivalents | $ 356 | $ — | $ — | $ 356 |
| Restricted cash and cash equivalents | 132,658 | 1,481,701 | — | 1,614,359 |
| Restricted investments | 130,298 | 454,989 | — | 585,287 |
| Accrued interest and subsidy receivable | — | 6,096 | — | 6,096 |
| Accounts receivable: | | | | — |
| Billed — less allowance for uncollectable water and sewer receivables of $381,318 | 444,613 | — | — | 444,613 |
| Unbilled— less allowance for uncollectable water and sewer receivables of $29,728 | 339,756 | — | — | 339,756 |
| Receivable from The City of New York | 194,362 | — | — | 194,362 |
| Prepaid expense | — | 223 | — | 223 |
| **Total current assets** | **1,242,043** | **1,943,009** | **—** | **3,185,052** |
| **NON—CURRENT ASSETS:** | | | | |
| Utility plant in service less accumulated depreciation of $12,976,917 | 23,838,608 | — | — | 23,838,608 |
| Utility plant construction | 5,227,182 | — | — | 5,227,182 |
| **Total capital assets** | **29,065,790** | **—** | **—** | **29,065,790** |
| Residual interest in sold liens | 73,333 | — | — | 73,333 |
| Revenue required to be billed by and received from the Board | — | 13,232,545 | (13,232,545) | — |
| **Total non—current assets** | **29,139,123** | **13,232,545** | **(13,232,545)** | **29,139,123** |
| **DEFERRED OUTFLOWS OF RESOURCES:** | | | | |
| Deferred outflows of resources from hedging | — | 142,802 | — | 142,802 |
| Deferred outflows of resources from pension | — | 275 | — | 275 |
| **Total deferred outflows of resources** | **—** | **143,077** | **—** | **143,077** |
| **Total assets and deferred outflows of resources** | **$ 30,381,166** | **$ 15,318,631** | **$ (13,232,545)** | **$ 32,467,252** |

*See notes to combining financial statements.*

*(Continued)*

## COMBINING STATEMENTS OF NET POSITION

June 30, 2016 (in thousands):

| LIABILITIES, DEFERRED INFLOWS OF RESOURCES AND NET POSITION | WATER BOARD | New York City MUNICIPAL WATER FINANCE AUTHORITY | ELIMINATIONS | TOTAL |
|---|---|---|---|---|
| **CURRENT LIABILITIES:** | | | | |
| Accounts payable | $ 6,987 | $ 11,079 | $ — | $ 18,066 |
| Interest payable | — | 49,745 | — | 49,745 |
| Revenue received in advance | 68,752 | — | — | 68,752 |
| Commercial paper payable | — | 200,000 | — | 200,000 |
| Current portion of bonds and notes payable | — | 378,028 | — | 378,028 |
| Payable to The City of New York | — | 498,330 | — | 498,330 |
| Service credits on customer accounts | 72,989 | — | — | 72,989 |
| **Total current liabilities** | **148,728** | **1,137,182** | **—** | **1,285,910** |
| **LONG—TERM LIABILITIES:** | | | | |
| Bonds and notes payable | — | 30,251,327 | — | 30,251,327 |
| Pollution remediation obligation | 32,382 | — | — | 32,382 |
| Interest rate swap agreement — net | — | 142,802 | — | 142,802 |
| Revenue requirements payable to the Authority | 13,232,545 | — | (13,232,545) | — |
| Net pension liability | — | 1,215 | — | 1,215 |
| Other long—term liability | — | 2,728 | — | 2,728 |
| **Total long—term liabilities** | **13,264,927** | **30,398,072** | **(13,232,545)** | **30,430,454** |
| **Total liabilities** | **13,413,655** | **31,535,254** | **(13,232,545)** | **31,716,364** |
| **DEFERRED INFLOWS OF RESOURCES:** | | | | |
| Unamortized deferred bond refunding costs | — | 16,647 | — | 16,647 |
| Deferred inflows from pension | — | 154 | — | 154 |
| **Total deferred inflows of resources** | **—** | **16,801** | **—** | **16,801** |
| **NET POSITION:** | | | | |
| Net investment in capital assets | 29,065,790 | (29,495,991) | — | (430,201) |
| Restricted for debt service | — | 1,457,332 | — | 1,457,332 |
| Restricted for operations and maintenance | 250,447 | — | — | 250,447 |
| Unrestricted (deficit) | (12,348,726) | 11,805,235 | — | (543,491) |
| **Total net position** | **16,967,511** | **(16,233,424)** | **—** | **734,087** |
| **Total liabilities, deferred inflows of resources and net position** | **$ 30,381,166** | **$ 15,318,631** | **$ (13,232,545)** | **$ 32,467,252** |

*See notes to combining financial statements.*

*(Concluded)*

## COMBINING STATEMENTS OF NET POSITION

June 30, 2015 (in thousands):

| ASSETS AND DEFERRED OUTFLOWS OF RESOURCES | WATER BOARD | New York City MUNICIPAL WATER FINANCE AUTHORITY | ELIMINATIONS | TOTAL |
|---|---|---|---|---|
| **CURRENT ASSETS:** | | | | |
| Unrestricted cash and cash equivalents | $ 48 | $ 5 | $ — | $ 53 |
| Restricted cash and cash equivalents | 22,058 | 1,789,134 | — | 1,811,192 |
| Restricted investments | 226,317 | 242,892 | — | 469,209 |
| Accrued interest and subsidy receivable | — | 6,212 | — | 6,212 |
| Accounts receivable: | | | | |
| Billed—less allowance for uncollectable water and sewer receivables of $406,579 | 370,317 | — | — | 370,317 |
| Unbilled | 363,152 | — | — | 363,152 |
| Receivable from The City of New York | 119,756 | — | — | 119,756 |
| Prepaid expense | — | 176 | — | 176 |
| **Total current assets** | **1,101,648** | **2,038,419** | **—** | **3,140,067** |
| **NON-CURRENT ASSETS:** | | | | |
| Utility plant in service less accumulated depreciation of $12,070,070 | 24,105,896 | — | — | 24,105,896 |
| Utility plant construction | 4,558,225 | — | — | 4,558,225 |
| **Total capital assets** | **28,664,121** | **—** | **—** | **28,664,121** |
| Residual interest in sold liens | 71,596 | — | — | 71,596 |
| Revenue required to be billed by and received from the Board | — | 14,276,832 | (14,276,832) | — |
| **Total non-current assets** | **28,735,717** | **14,276,832** | **(14,276,832)** | **28,735,717** |
| **DEFERRED OUTFLOWS OF RESOURCES** | | | | |
| Deferred outflows from hedging | — | 103,182 | — | 103,182 |
| Deferred outflows from pension | — | 105 | — | 105 |
| **Total deferred outflows of resources** | **—** | **103,287** | **—** | **103,287** |
| **Total assets and deferred outflows** | **$ 29,837,365** | **$ 16,418,538** | **$ (14,276,832)** | **$ 31,979,071** |

*See notes to combining financial statements.*

*(Continued)*

## COMBINING STATEMENTS OF NET POSITION

June 30, 2015 (in thousands):

| LIABILITIES, DEFERRED INFLOWS OF RESOURCES AND NET POSITION | WATER BOARD | New York City MUNICIPAL WATER FINANCE AUTHORITY | ELIMINATIONS | TOTAL |
|---|---|---|---|---|
| **CURRENT LIABILITIES:** | | | | |
| Accounts payable | $ 3,662 | $ 88 | $ — | $ 3,750 |
| Interest payable | — | 57,535 | — | 57,535 |
| Revenue received in advance | 77,283 | — | — | 77,283 |
| Commercial paper payable | — | 600,000 | — | 600,000 |
| Current portion of bonds and notes payable | — | 391,462 | — | 391,462 |
| Payable to The City of New York | — | 500,587 | — | 500,587 |
| Service credits on customer accounts | 71,943 | — | — | 71,943 |
| **Total current liabilities** | **152,888** | **1,549,672** | **—** | **1,702,560** |
| **LONG-TERM LIABILITIES:** | | | | |
| Bonds and notes payable—net of current portion | — | 29,941,881 | — | 29,941,881 |
| Pollution remediation obligation | 78,956 | — | — | 78,956 |
| Interest rate swap agreement—net | — | 103,182 | — | 103,182 |
| Revenue requirements payable to the Authority | 14,276,832 | — | (14,276,832) | — |
| Net pension liability | — | 1,012 | — | 1,012 |
| Other long-term liability | — | 3,510 | — | 3,510 |
| **Total long-term liabilities** | **14,355,788** | **30,049,585** | **(14,276,832)** | **30,128,541** |
| **Total liabilities** | **14,508,676** | **31,599,257** | **(14,276,832)** | **31,831,101** |
| **DEFERRED INFLOWS OF RESOURCES** | | | | |
| Unamortized deferred bond refunding costs | — | 17,978 | — | 17,978 |
| Deferred inflows from pension | — | 199 | — | 199 |
| **Total deferred inflows of resources** | **—** | **18,177** | **—** | **18,177** |
| **NET POSITION** | | | | |
| Net investment in capital assets | 28,664,121 | (29,262,470) | — | (598,349) |
| Restricted for debt service | — | 1,224,925 | — | 1,224,925 |
| Restricted for operations and maintenance | 226,383 | — | — | 226,383 |
| Unrestricted (deficit) | (13,561,815) | 12,838,649 | — | (723,166) |
| **Total net position** | **15,328,689** | **(15,198,896)** | **—** | **129,793** |
| **Total liabilities, deferred inflows of resources and net position** | **$ 29,837,365** | **$ 16,418,538** | **$ (14,276,832)** | **$ 31,979,071** |

*See notes to combining financial statements.*

*(Concluded)*

## COMBINING STATEMENTS OF REVENUES, EXPENSES, AND CHANGES IN NET POSITION

For the year ended June 30, 2016 (in thousands):

| | New York City | | |
|---|---|---|---|
| | WATER BOARD | MUNICIPAL WATER FINANCE AUTHORITY | TOTAL |
| **OPERATING REVENUES:** | | | |
| Water supply and distribution | $ 1,431,148 | $ — | $ 1,431,148 |
| Sewer collection and treatment | 2,275,524 | — | 2,275,524 |
| Bad debt expense | (4,467) | — | (4,467) |
| Other operating revenues | 185,793 | — | 185,793 |
| **Total operating revenues** | **3,887,998** | **—** | **3,887,998** |
| **OPERATING EXPENSES:** | | | |
| Operations and maintenance | 1,297,294 | — | 1,297,294 |
| Administration and general | 11,855 | 49,600 | 61,455 |
| Other operating expenses | 16,546 | — | 16,546 |
| Depreciation expense | 918,950 | — | 918,950 |
| **Total operating expenses** | 2,244,645 | 49,600 | 2,294,245 |
| **OPERATING INCOME (LOSS)** | **1,643,353** | **(49,600)** | **1,593,753** |
| **NON-OPERATING REVENUE (EXPENSES):** | | | |
| Interest expense | — | (1,177,923) | (1,177,923) |
| Cost of issuance | — | (17,850) | (17,850) |
| Net loss on retirement and impairment of capital assets | (4,488) | — | (4,488) |
| Subsidy income | — | 164,502 | 164,502 |
| Capital distribution | (11,082) | — | (11,082) |
| Investment income | 6,979 | 46,343 | 53,322 |
| **NET INCOME (LOSS) BEFORE CAPITAL CONTRIBUTIONS** | **1,634,762** | **(1,034,528)** | **600,234** |
| **CAPITAL CONTRIBUTION** | **4,060** | **—** | **4,060** |
| **CHANGE IN NET POSITION** | **1,638,822** | **(1,034,528)** | **604,294** |
| **NET POSITION (DEFICIT)—BEGINNING OF YEAR** | **15,328,689** | **(15,198,896)** | **129,793** |
| **NET POSITION (DEFICIT)—END OF YEAR** | **$ 16,967,511** | **$ (16,233,424)** | **$ 734,087** |

*See notes to combining financial statements.*

## COMBINING STATEMENTS OF REVENUES, EXPENSES, AND CHANGES IN NET POSITION

For the year ended June 30, 2015 (in thousands):

| | | New York City | |
|---|---|---|---|
| | WATER BOARD | MUNICIPAL WATER FINANCE AUTHORITY | TOTAL |
| **OPERATING REVENUES:** | | | |
| Water supply and distribution | $ 1,382,189 | $ — | $ 1,382,189 |
| Sewer collection and treatment | 2,197,679 | — | 2,197,679 |
| Bad debt expense | (23,301) | — | (23,301) |
| Other operating revenues | 211,267 | — | 211,267 |
| **Total operating revenues** | **3,767,834** | **—** | **3,767,834** |
| **OPERATING EXPENSES:** | | | |
| Operation and maintenance | 1,439,415 | — | 1,439,415 |
| Administration and general | 9,945 | 45,920 | 55,865 |
| Other operating expenses | 77,717 | — | 77,717 |
| **Total operating expenses** | **1,527,077** | **45,920** | **1,572,997** |
| **DEPRECIATION EXPENSE** | **1,023,906** | **—** | **1,023,906** |
| **OPERATING INCOME (LOSS)** | **1,216,851** | **(45,920)** | **1,170,931** |
| **NON-OPERATING REVENUE (EXPENSES):** | | | |
| Interest expense | — | (1,247,529) | (1,247,529) |
| Cost of issuance | — | (17,009) | (17,009) |
| Net loss on retirement and impairment of capital assets | (2,334) | — | (2,334) |
| Subsidy income | — | 163,655 | 163,655 |
| Capital distribution | (25,337) | — | (25,337) |
| Investment income | 2,107 | 20,319 | 22,426 |
| **NET INCOME (LOSS) BEFORE CAPITAL CONTRIBUTIONS** | **1,191,287** | **(1,126,484)** | **64,803** |
| **CAPITAL CONTRIBUTION** | **223,791** | **—** | **223,791** |
| **CHANGE IN NET POSITION** | **1,415,078** | **(1,126,484)** | **288,594** |
| **NET POSITION (DEFICIT)—BEGINNING OF YEAR** | **13,913,611** | **(14,072,412)** | **(158,801)** |
| **NET POSITION (DEFICIT)—END OF YEAR** | **$ 15,328,689** | **$ (15,198,896)** | **$ 129,793** |

*See notes to combining financial statements.*

## COMBINING STATEMENTS OF CASH FLOWS

For the year ended June 30, 2016 (in thousands):

| | New York City | | |
|---|---|---|---|
| | WATER BOARD | MUNICIPAL WATER FINANCE AUTHORITY | TOTAL |
| **CASH FLOWS FROM OPERATING ACTIVITIES:** | | | |
| Receipts from customers | $ 3,852,598 | $ — | $ 3,852,598 |
| Payments for operations and maintenance | (1,423,479) | — | (1,423,479) |
| Payments for administration | (8,530) | (45,641) | (54,171) |
| **Net cash provided by (used in) operating activities** | **2,420,589** | **(45,641)** | **2,374,948** |
| **CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES:** | | | |
| Proceeds from issuing bonds, notes and other borrowings — net of issuance costs | — | 3,689,007 | 3,689,007 |
| Acquisition and construction of capital assets | 292 | (1,370,943) | (1,370,651) |
| Payments by the Water Board to the Authority | (2,412,972) | 2,412,972 | — |
| Repayments of bonds, notes and other borrowings | — | (3,759,363) | (3,759,363) |
| Interest paid on bonds, notes and other borrowings | — | (1,067,175) | (1,067,175) |
| **Net cash (used in) provided by capital and related financing activities** | **(2,412,680)** | **(95,502)** | **(2,508,182)** |
| **CASH FLOWS FROM INVESTING ACTIVITIES:** | | | |
| Sales and maturities of investments | 248,151 | 58,967 | 307,118 |
| Purchases of investments | (151,930) | (249,597) | (401,527) |
| Interest on investments | 6,778 | 24,335 | 31,113 |
| **NET CASH (USED BY)PROVIDED BY INVESTING ACTIVITIES** | **102,999** | **(166,295)** | **(63,296)** |
| **NET INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS** | **110,908** | **(307,438)** | **(196,530)** |
| **CASH AND CASH EQUIVALENTS — BEGINNING OF YEAR** | **22,106** | **1,789,139** | **1,811,245** |
| **CASH AND CASH EQUIVALENTS — END OF YEAR** | **$ 133,014** | **$ 1,481,701** | **$ 1,614,715** |

*See notes to combining financial statements.*

*(Continued)*

## COMBINING STATEMENTS OF CASH FLOWS

For the year ended June 30, 2016 (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) | $ 1,643,353 | $ (49,600) | $ 1,593,753 |
| Adjustments to reconcile operating income (loss) to net cash (used in) provided by operating activities: | | | |
| Depreciation | 918,950 | — | 918,950 |
| Other operating expenses paid for with bond proceeds | 25,968 | — | 25,968 |
| Pollution remediation expense | 10,297 | — | 10,297 |
| Changes in assets and liabilities: | | | |
| Pollution remediation liability | (46,574) | — | (46,574) |
| Receivables—net | (50,900) | — | (50,900) |
| Prepaid expense | — | (223) | (223) |
| Receivable from The City | (74,606) | — | (74,606) |
| Residual interest in sold liens | (1,737) | — | (1,737) |
| Accounts payable | 3,325 | 4,182 | 7,507 |
| Revenues received in advance | (8,531) | — | (8,531) |
| Refunds payable | 1,044 | — | 1,044 |
| **NET CASH PROVIDED BY (USED IN) OPERATING ACTIVITIES** | **$ 2,420,589** | **$ (45,641)** | **$ 2,374,948** |

The following are the non-cash capital and related financing activities (in thousands):

— Interest expense includes the amortization of net (premium) and discount in the amount of $66,474 in 2016.

— Capital expenditures in the amount of $498,330 had been incurred but not paid at June 30, 2016.

— The Water Board received federal, state, and other capital contributions of $3,768 in 2016.

— The Water Board received capital contributions of $292 in 2016 from Westchester County.

*See notes to combining financial statements.*

*(Concluded)*

## COMBINING STATEMENTS OF CASH FLOWS

For the year ended June 30, 2015 (in thousands):

| | New York City | | |
|---|---|---|---|
| | **WATER BOARD** | **MUNICIPAL WATER FINANCE AUTHORITY** | **TOTAL** |
| **CASH FLOWS FROM OPERATING ACTIVITIES:** | | | |
| Receipts from customers | $ 3,808,922 | $ — | $ 3,808,922 |
| Payments for operations and maintenance | (1,584,165) | — | (1,584,165) |
| Payments for administration | (10,504) | (44,740) | (55,244) |
| **Net cash provided by (used in) operating activities** | **2,214,253** | **(44,740)** | **2,169,513** |
| **CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES:** | | | |
| Proceeds from issuing bonds, notes and other borrowings—net of issuance costs | — | 4,271,154 | 4,271,154 |
| Acquisition and construction of capital assets | 292 | (1,385,419) | (1,385,127) |
| Payments by the Water Board to the Authority | (2,203,791) | 2,203,791 | — |
| Repayments of bonds, notes and other borrowings | — | (4,057,850) | (4,057,850) |
| Interest paid on bonds, notes and other borrowings | — | (1,078,573) | (1,078,573) |
| **Net cash (used in) provided by capital and related financing activities** | **(2,203,499)** | **(46,897)** | **(2,250,396)** |
| **CASH FLOWS FROM INVESTING ACTIVITIES:** | | | |
| Sales and maturities of investments | 167,401 | 264,650 | 432,051 |
| Purchase of investments | (252,584) | (179) | (252,763) |
| Interest on investments | 1,651 | 28,197 | 29,848 |
| **Net cash (used by) provided by investing activities** | (83,532) | 292,668 | 209,136 |
| **NET INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS** | (72,778) | 201,031 | 128,253 |
| **CASH AND CASH EQUIVALENTS—Beginning of year** | 94,884 | 1,588,108 | 1,682,992 |
| **CASH AND CASH EQUIVALENTS—End of year** | **$ 22,106** | **$ 1,789,139** | **$ 1,811,245** |

*See notes to combining financial statements.*

*(Continued)*

## COMBINING STATEMENTS OF CASH FLOWS

For the year ended June 30, 2015 (in thousands):

| | New York City | | |
|---|---|---|---|
| | WATER BOARD | MUNICIPAL WATER FINANCE AUTHORITY | TOTAL |
| **RECONCILIATION OF OPERATING INCOME / (LOSS) TO NET CASH PROVIDED BY OPERATING ACTIVITIES:** | | | |
| Operating income (loss) | $ 1,216,851 | $ (45,920) | $ 1,170,931 |
| Adjustments to reconcile operating income (loss) to net cash (used in) provided by operating activities: | | | |
| Depreciation | 1,023,906 | — | 1,023,906 |
| Other operating expense paid for with bond proceeds | 31,295 | — | 31,295 |
| Pollution remediation expense | 15,285 | — | 15,285 |
| Changes in assets and liabilities: | | | |
| Pollution remediation liability | (19,971) | — | (19,971) |
| Receivables — net | 30,443 | — | 30,443 |
| Prepaid expense | — | (175) | (175) |
| Receivable from The City | (96,342) | — | (96,342) |
| Residual interest in sold liens | (5,479) | — | (5,479) |
| Accounts payable | (560) | 1,355 | 795 |
| Revenues received in advance | 19,456 | — | 19,456 |
| Refunds payable | (631) | — | (631) |
| **NET CASH PROVIDED BY (USED IN) OPERATING ACTIVITIES** | **$ 2,214,253** | **$ (44,740)** | **$ 2,169,513** |

The following are the non-cash capital and related financing activities (in thousands):

— Interest expense includes the amortization of net (premium) and discount in the amount of $64,557 in 2015.

— Capital expenditures in the amount of $500,587 had been incurred but not paid at June 30, 2015.

— Principal forgiveness on 2010 ARRA BAN in the amount of $217, 521 was granted in 2015.

— The Water Board received federal, state, and other capital contributions of $5,978 in 2015 .

— The Water Board received capital contributions of $292 in 2015 from Westchester County.

*See notes to combining financial statements.*

*(Concluded)*

# NOTES TO FINANCIAL STATEMENTS

## AS OF AND FOR THE YEARS ENDED JUNE 30, 2016 AND 2015

### 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 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 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 of The City issued for water and sewer purposes. The Act empowers the Water Board to lease the System from The City and to fix and collect rates, fees, rents and other charges for the use of, or for services furnished, rendered, or made available by, the System to produce cash sufficient to pay debt service on the Authority's bonds and to place the System on a self-sustaining basis.

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

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 on 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 improvement 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 consist principally of securities of the United States and its agencies, certificates of deposit, guaranteed investment contracts, forward purchase agreements, and 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 statement of cash flows and statement of net position, the System generally considers all highly-liquid debt instruments purchased with an original maturity of three months or less to be cash equivalents.

**Restricted Assets**—Net Position Classification—Proceeds from the issuance of debt and monies set aside for debt service and operation and maintenance of the System are classified as restricted based on the requirements of the applicable bond indentures in the net position classification.

**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.

## 2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

**Bond Discount and Premium**—Bond discount and premium are amortized over the life of the related bond issue, using the effective yield method of amortization for bond discount and premium.

**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 $35,000 or more and a useful life of five 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 depreciation. Depreciation is computed using the straight-line method based upon estimated useful lives, as follows:

| ASSET | YEARS |
|---|---|
| Buildings | 40–50 |
| Water supply and wastewater treatment systems | 15–50 |
| Water distribution and sewage collection systems | 15–75 |
| Equipment | 5–35 |
| Vehicles | 10 |

Maintenance and repairs of property are charged to 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 shown as other operating expenses in the combining statements of revenues, expenses and changes in net position.

**Operating Revenues and Operating Expenses**—Operating revenues consist of customer payments for services of the System. Revenues 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 maintenance, repair, and operations of the System; administration costs of the Water Board and the Authority; and rental payments to 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 included in service credits on customer accounts, not in accounts receivable.

**Unamortized Deferred Bond Refunding Costs**—Deferred bond refunding costs represent the gains or losses incurred in advance and current refundings of refunded bonds. Gains or losses arising from debt refundings are deferred and amortized over the lesser of the remaining life of the old debt or the life of the new debt.

**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 assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

**Pensions**—Pensions are required to be recognized and disclosed using the accrual basis of accounting, regardless of the amount recognized as pension expense on the modified accrual basis of accounting. The Authority recognizes a net pension liability for the 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.

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 outflow of resources and deferred inflow 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 Plan. The amount not recognized in pension expense is reported as deferred outflow of resources or deferred inflow of resources related to the pension.

## 2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

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 a deferred outflow of resources or a deferred inflow 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 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 June 2015, GASB issued Statement No. 73, *Accounting and Financial Reporting for Pension and Related Assets That Are Not within the Scope of GASB 68*, and Amendments to Certain Provisions of GASB 67 and GASB 68 ("GASB 73"). GASB 73 provides guidance on assets accumulated for pension plans that are not administered through a trust and provides clarity on certain provision of GASB 67 and GASB 68. The requirements for GASB 73 are effective for fiscal years beginning after June 15, 2015. GASB 73 did not have an impact on the combining financial statements.

In June 2015, GASB issued Statement No. 74, *Financial Reporting for Postemployment Benefit Plans* Other Than Pension Plans ("GASB 74"). GASB 74 establishes financial reporting standards for state and local governmental other postemployment benefit ("OPEB") plans. The requirements of GASB 74 are effective for fiscal years beginning after June 15, 2016. The System has not completed the process of evaluating GASB 74. Upon adoption, the System does not expect GASB 74 to have an impact on its combining financial statements.

In June 2015, GASB issued Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions* ("GASB 75"). GASB 75 establishes accounting and financial reporting standards for OPEB that are provided to employees of state and local governmental employers. The requirements of GASB 75 are effective for fiscal years beginning after June 15, 2017. The System has not completed the process of evaluating GASB 75. The System expects that GASB 75 will have an impact on its combining financial statements.

In June 2015, GASB issued Statement No. 76, *The Hierarchy of Generally Accepted Accounting Principles for State and Local Governments* ("GASB 76"). GASB 76 reduces the GAAP hierarchy to two categories of authoritative GAAP and addresses the use of authoritative and nonauthoritative literature in the event that the accounting treatment for a transaction or other event is not specified within the source of authoritative GAAP. The requirements of GASB 76 were effective for fiscal years beginning after June 15, 2015. The adoption of GASB 76 did not have an impact on the System's combining financial statements.

In August 2015, GASB issued Statement No. 77, *Tax Abatement Disclosures* ("GASB 77"). GASB 77 requires governments to disclose information about their own tax abatements separately from information about tax abatements that are entered into by other governments and reduce the reporting government's tax revenues. The requirements of GASB 77 are effective for fiscal years beginning after December 15, 2015. The adoption of GASB 77 did not have an impact on the System's combining financial statements as it does not enter into any such agreements.

In December 2015, GASB issued Statement No. 78, *Pensions Provided Through Certain Multiple-Employer Defined Benefit Pension Plans* ("GASB 78"). GASB 78 amends the scope and applicability of Statement 68 to exclude pension plans provided to employees of state or local governmental employers through a cost-sharing multiple-employer defined benefit pension plan that (1) is not a state or local government pension plan, (2) is used to provide defined benefits both to employees of state or local governmental employers and to employees of employers that are not state or local governments, and (3) is not used predominantly by a state or local governmental employer (either individually or collectively with other state or local governmental employers that provide pensions through the pension plan). The requirements of GASB 78 are effective for fiscal years beginning after December 15, 2015. The adoption of GASB 78 did not have an impact on the System's combining financial statements.

## 2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

In December 2015, GASB issued Statement No 79, *Certain External Investment Pools and Pool Participants* ("GASB 79"). GASB 79 will enhance comparability of financial statements among governments by establishing specific criteria used to determine whether a qualifying external investment pool may elect to use an amortized cost exception to fair value measurement. Those criteria will provide qualifying external investment pools and participants in those pools with consistent application of an amortized cost-based measurement for financial reporting purposes. That measurement approximates fair value and mirrors the operations of external investment pools that transact with participants at a stable net asset value per share. The requirements of GASB 79 are effective for fiscal years beginning after December 15, 2015. The adoption of GASB 79 did not have an impact on the System's combining financial statements as it has no such investments.

In January 2016, GASB issued Statement No. 80, *Blending Requirements for Certain Component Units* ("GASB 80"). GASB 80 provides clarity on how certain component units incorporated as not-for-profit corporations should be presented in the financial statements of the primary state or local government. The requirements of GASB 80 are effective for fiscal years beginning after June 15, 2016. The adoption of GASB 80 did not have an impact on the System's combining financial statements.

In March 2016, GASB issued Statement No 81, *Irrevocable Split Interest Agreements* ("GASB 81"). GASB 81 addresses the situations under which irrevocable split-interest agreements constitute an asset for accounting and financial reporting purposes when the resources are administered by a third party. GASB 81 also provides expanded guidance for circumstances in which the government holds the assets. The requirements of GASB 81 are effective for fiscal years beginning after December 15, 2016. The adoption of GASB 81 did not have an impact on the System's combining financial statements as it does not enter in such arrangements.

In March 2016, GASB issued Statement No 82, *Pension Issues* ("GASB 82"). GASB 82 addresses practice issues raised during implementation of the GASB's pension accounting and financial reporting standards for state and local governments. The requirements of GASB 82 are effective for fiscal years beginning after June 15, 2016. The adoption of GASB 82 did not 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, 2016 and 2015 (in thousands):

| | BALANCE AT JUNE 30, 2014 | ADDITIONS | DELETIONS | BALANCE AT JUNE 30, 2015 | ADDITIONS | DELETIONS | BALANCE AT JUNE 30, 2016 |
|---|---|---|---|---|---|---|---|
| **NONDEPRECIABLE ASSETS / UTILITY CONSTRUCTION IN PROGRESS** | **$ 6,812,608** | **$ 1,298,030** | **$ 3,552,413** | **$ 4,558,225** | **$ 1,325,107** | **$ 656,150** | **$ 5,227,182** |
| **DEPRECIABLE ASSETS / UTILITY PLANT IN SERVICE** | | | | | | | |
| Buildings | 34,877 | — | — | 34,877 | — | — | 34,877 |
| Equipment | 3,434,110 | 340,318 | — | 3,774,428 | 52,585 | 319 | 3,826,694 |
| Vehicles | 164,553 | 126,792 | — | 291,345 | 6,715 | 5,656 | 292,404 |
| Water supply and waste water treatment systems and water distribution and sewage collection systems | 29,000,071 | 3,085,303 | 10,058 | 32,075,316 | 596,850 | 10,616 | 32,661,550 |
| **TOTAL DEPRECIABLE ASSETS** | **32,633,611** | **3,552,413** | **10,058** | **36,175,966** | **656,150** | **16,591** | **36,815,525** |
| **LESS ACCUMULATED DEPRECIATION FOR:** | | | | | | | |
| Buildings | (22,506) | (1,316) | — | (23,822) | (1,318) | — | (25,140) |
| Equipment | (1,169,222) | (243,354) | — | (1,412,576) | (229,204) | (279) | (1,641,501) |
| Vehicles | (110,510) | (10,603) | — | (121,113) | (12,197) | (4,761) | (128,549) |
| Water supply and wastewater treatment systems and water distribution and sewage collection systems | (9,751,651) | (768,633) | (7,724) | (10,512,559) | (676,231) | (7,063) | (11,181,727) |
| **Total accumulated depreciation** | **(11,053,887)** | **(1,023,906)** | **(7,724)** | **(12,070,070)** | **(918,950)** | **(12,103)** | **(12,976,917)** |
| **Total utility plant in service—net** | **21,579,724** | **2,528,507** | **2,334** | **24,105,896** | **(262,800)** | **4,488** | **23,838,608** |
| **Total capital assets—net** | **$ 28,392,332** | **$ 3,826,537** | **$ 3,554,747** | **$ 28,664,121** | **$ 1,062,307** | **$ 660,638** | **$ 29,065,790** |

**Contributed Capital**—The System received federal, State and other capital contributions of $4.1 million and $223.8 million in fiscal year 2016 and fiscal year 2015, respectively.

Westchester County makes semi-annual capital contributions to compensate the System for constructing a water conduit that provides treated water to the Westchester County.

## 4. DEPOSITS AND INVESTMENTS

**Cash Deposits**—The System follows the New York City Banking Commission designations for the System's bank depositories. The Commission consists of the Comptroller, the Mayor, and the Finance Commissioner of The City and uses independent bank rating agencies in part to assess the financial creditworthiness of each bank. The banking relationships are under constant operational and credit reviews. Each bank in which the System's cash is deposited is required to have its principal office in New York State and have capital stock, surplus, and undivided earnings aggregating at least $100 million. Cash was comprised of bank deposits; there was no difference between the carrying amounts and bank balances as of June 30, 2016 and 2015.

At June 30, 2016 and 2015, the cash deposit balances were $544.3 million and $801.6 million, respectively. Of these cash deposits, only $750 thousand was covered by federal depository insurance, and the remaining balance was uncollateralized as of June 30, 2016 and 2015.

Cash and cash equivalents, including restricted and unrestricted balances were comprised of the following at June 30, 2016 and 2015 (in thousands):

| | 2016 | 2015 |
|---|---|---|
| **RESTRICTED:** | | |
| Cash | $ 543,959 | $ 801,593 |
| Cash equivalents | 1,070,400 | 1,009,599 |
| **Total restricted cash and cash equivalents** | **1,614,359** | **1,811,192** |
| **UNRESTRICTED:** | | |
| Cash | 356 | 53 |
| **Total cash and cash equivalents** | **$ 1,614,715** | **$ 1,811,245** |

**Custodial Credit Risk** —Custodial credit risk is the risk that in the event of the failure of a depository financial institution, the System may not be able to recover its deposits that are in the possession of an outside party. As of June 30, 2016 and 2015 the System had $544.1 million and $800.9 million of uninsured and uncollateralized deposits, respectively, that were exposed to custodial credit risk. The System's deposit policy, which is not otherwise subject to limitations under the Authority's Water and Sewer General Revenue Bond Resolution (the "Resolution"), is that deposits shall be held in a bank located in the State or national banking association having a capital surplus aggregating at least $100 million.

**Investments**—Pursuant to the Resolution and the Authority's investment guidelines, the Authority may generally invest in obligations of, or guaranteed by, the United States of America, certain highly rated obligations of the State of New York, certain certificates of deposit and similar instruments issued by highly rated commercial banks, certain highly rated corporate securities or commercial paper securities, certain repurchase agreements with highly rated institutions, certain investment agreements with highly rated institutions, certain highly rated money market funds, and other certain highly rated municipal obligations. All the accounts held by Water Board are invested as permitted by the Water Board's investment guidelines and may include investments in obligations of, or guaranteed by, the United States of America and certain repurchase agreements with highly rated institutions. The System invests funds that are not immediately required for operations, debt service, or capital project expenses and funds that are held for debt service and operations and maintenance reserves.

The System had the following investments at June 30, 2016 and 2015 (in thousands):

| | FAIR VALUE | |
|---|---|---|
| **INVESTMENTS** | **2016** | **2015** |
| U.S. Agencies securities | $ 1,070,400 | $ 1,044,691 |
| U.S. Treasury securities | 329,442 | 226,317 |
| New York State instrumentalities | 96,620 | 67,198 |
| Guaranteed Investment Contracts | 112,828 | 106,093 |
| Forward Purchase Agreements | 46,397 | 34,509 |
| **Total investments including cash equivalents** | 1,655,687 | 1,478,808 |
| Less amounts reported as cash equivalents | (1,070,400) | (1,009,599) |
| **Total Investments** | **$ 585,287** | **$ 469,209** |

## 4. DEPOSITS AND INVESTMENTS (CONTINUED)

**Fair Value Hierarchy**—The System categorizes its fair value measurements into the fair value hierarchy established by generally accepted accounting principles. The System had the following recurring fair value measurements as of June 30, 2016 and 2015 (in thousands):

| | | 2016 Fair Value Measurement | | |
|---|---|---|---|---|
| | JUNE 30, 2016 | QUOTED PRICES IN ACTIVE MARKETS FOR IDENTICAL ASSETS (LEVEL 1) | SIGNIFICANT OTHER OBSERVABLE INPUTS (LEVEL 2) | SIGNIFICANT UNOBSERVABLE INPUTS (LEVEL 3) |
| **INVESTMENT BY FAIR VALUE LEVEL** | | | | |
| Fixed income investments | | | | |
| U.S. Treasury securities | $ 329,442 | $ — | $ 329,442 | $ — |
| U.S. Agencies securities | 1,070,400 | — | 1,070,400 | — |
| New York State instrumentalities | 96,620 | — | 96,620 | — |
| Guaranteed Investment Contracts | 112,828 | — | 112,828 | — |
| Forward Purchase Agreements | 46,397 | — | 46,397 | — |
| **Total investments by fair value level** | **$ 1,655,687** | **$ —** | **$ 1,655,687** | **$ —** |
| **HEDGING DERIVATIVE INSTRUMENTS** | | | | |
| Interest rate swap (liability) | $ (142,802) | $ — | $ (142,802) | $ — |
| **Total hedging derivative instruments** | **$ (142,802)** | **$ —** | **$ (142,802)** | **$ —** |

| | | 2015 Fair Value Measurement | | |
|---|---|---|---|---|
| | JUNE 30, 2015 | QUOTED PRICES IN ACTIVE MARKETS FOR IDENTICAL ASSETS (LEVEL 1) | SIGNIFICANT OTHER OBSERVABLE INPUTS (LEVEL 2) | SIGNIFICANT UNOBSERVABLE INPUTS (LEVEL 3) |
| **INVESTMENT BY FAIR VALUE LEVEL** | | | | |
| Fixed income investments | | | | |
| U.S. Treasury securities | $ 226,317 | $ — | $ 226,317 | $ — |
| U.S. Agencies securities | 1,044,691 | — | 1,044,691 | — |
| New York State instrumentalities | 67,198 | — | 67,198 | — |
| Guaranteed Investment Contracts | 106,093 | — | 106,093 | — |
| Forward Purchase Agreements | 34,509 | — | 34,509 | — |
| **Total investments by fair value level** | **$ 1,478,808** | **$ —** | **$ 1,478,808** | **$ —** |
| **HEDGING DERIVATIVE INSTRUMENTS** | | | | |
| Interest rate swap (liability) | $ (103,182) | $ — | $ (103,182) | $ — |
| **Total hedging derivative instruments** | **$ (103,182)** | **$ —** | **$ (103,182)** | **$ —** |

Fixed income investments and derivative instruments classified in Level 2 of the fair value hierarchy are valued using matrix pricing technique.

## 4. DEPOSITS AND INVESTMENTS (CONTINUED)

**Credit Risk**—Both the Water Board and the Authority have Board-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, 2016 and 2015 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, and the Federal Farm Credit System. Also held by the Authority are direct obligations of the State of New York, or direct obligations of any agency or public authority thereof, which are rated at the time of purchase in one of the two highest rating categories. In addition, the Authority has entered into investment agreements and guaranteed investment contracts 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 have a rating 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**—The System has no formal policy relating to interest rate risk. Approximately 30.0% of the System's investments are agreements to purchase securities or Guaranteed Investment Contracts ("GICs") with guaranteed fixed rates of return. The par value of the agreements to purchase securities and interest earned are held as cash on June 30, 2016. The fair value of the agreements to purchase securities are themselves susceptible to changes in market rates because of the interest rates.

Segmented Time Distribution on Investments and Cash Equivalents as June 30, 2016 (in thousands):

| MATURITY DATE | FAIR VALUE AMOUNT |
|---|---|
| Under 6 months | $ 1,073,181 |
| Over 6 months to 1 year | 2,976 |
| Over 1 year to 3 years | 181,668 |
| Over 3 years and beyond | 324,674 |
| Over 3 years and beyond (GIC and Forward Purchase Agreement adjustments)[1] | 73,188 |
| **Total** | **$ 1,655,687** |

[1] *Includes the fair value of $46,397 related to Forward Purchase Agreements and $26,791 related to a GIC agreement.*

**Custodial Credit Risk**—For an investment, 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 the System, and are held by either the counterparty or the counterparty's trust department or agent but not in the name of the System. All investments held by the Water Board's custodian bank were registered in the Water Board's name and therefore were not subjected to custodial credit risk. All of the Authority's investments were held by the Trustee in the Trustee's name pursuant to our Trust Agreement, except for the GICs.

As of June 30, 2016 and 2015, the Authority had $1.4 billion and $1.1 billion of investments, respectively, that were registered in the name of the Trustee pursuant to our Trust Agreement. The types and amounts of investments are listed in the table on page 38, except for the Authority's GIC of $112.8 million and $106.1 million in 2016 and 2015, respectively, and the Water Board's U.S. Treasury securities of $130.3 million and $226.3 million in 2016 and 2015, respectively.

## 5. DERIVATIVE INSTRUMENTS

As of June 30, 2016, 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 | $ (85,681) | Aa2/AA-/NR |
| Synthetic fixed rate | 160,400 | 10/24/07 | 6/15/36 | pay 3.439% receive 67% of 1-month LIBOR | (57,121) | A1/A/A+ |

**Hedging Derivative Instruments**—The Authority executed two interest rate exchange agreements (the "synthetic fixed rate agreements"), effective October 24, 2007, in conjunction with its sale of $401.0 million of Adjustable Rate Fiscal 2008 Series BB Second Resolution Bonds on October 24, 2007. 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 $401.0 million. The agreements are with two separate counterparties: one agreement in the amount of $240.6 million and the second agreement in the amount of $160.4 million. These agreements allowed the Authority to achieve a fixed rate cost lower than 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 Authority is exposed to the risk that the counterparties (or their guarantors) will default under its agreement. The counterparties must post collateral if their ratings fall below A3 by Moody's or A- by Standard and Poor's or the mark-to-market value exceeds specified thresholds. Under the synthetic fixed rate agreements, the Authority has the right to terminate the swap, regardless of collateral posting, if a counterparty's ratings fall below both A3 by Moody's and A- by Standard & Poor's.

Even in the absence of a significant credit rating downgrade, the Authority may exercise its right to assign the agreements to another counterparty to mitigate counterparty risk.

**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 BBB-/Baa3.

**Basis Risk**—The Authority is exposed to basis risk on its synthetic fixed rate agreements. The amount the Authority receives under the synthetic fixed rate agreement may be lower than the average monthly variable interest paid on the bonds associated with the agreements, which would require the Authority to make up the shortfall.

**Interest Rate Risk**—The Authority is exposed to the risk that changes in interest rates will adversely affect the fair values of the Authority's financial instruments or cash flows. The fixed rate paid by the Authority on its synthetic fixed rate agreements may exceed the rate received (67% of LIBOR).

**Financial Statements Effect**—The market value of derivatives at June 30, 2016 and June 30, 2015 was negative $142.8 million and negative $103.2 million, respectively. The Authority does not currently own investment derivatives.

## 6. LEASE AGREEMENT

The Water Board is party to a long-term lease (the "Lease") with The City, which transfers the water and sewer related property to the Water Board for the term of the Lease. The Lease term commenced on July 1, 1985, and 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 Lease 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 leased property, which includes overhead costs incurred by The City that are attributable to the leased property, net of the amount of any federal, 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 leased 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.

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

| | 2016 | 2015 |
|---|---|---|
| Water supply, treatment, transmission and distribution | $ 490,124 | $ 475,664 |
| Sewer collection and treatment systems | 412,117 | 487,268 |
| City agency support cost | 58,232 | 64,073 |
| Fringe benefits | 193,361 | 186,664 |
| Judgments and claims | 5,784 | 20,167 |
| **Operation and maintenance** | **1,159,618** | **1,233,836** |
| Rental payments to The City | 137,676 | 205,579 |
| **Total operations maintenance and rental payments** | **$ 1,297,294** | **$ 1,439,415** |

## 7. PAYABLE TO AND RECEIVABLE FROM THE CITY

As of June 30, 2016 and 2015, all utility construction and other projects financed by 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 $498.3 million and $500.6 million, respectively, net of the amount of State or federal and other capital grants recognized by The City.

As of June 30, 2016 and 2015, the Water Board had receivables due from The City of $194.4 million and $119.8 million, respectively. The 2016 receivable from The City is a result of an over payment of $194.4 million for operations and maintenance expense. The 2015 receivable from The City is a result of an over payment of $25.4 million for rental and $94.4 million for operations and maintenance expense.

## 8. OTHER OPERATING EXPENSES

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

| | 2016 | 2015 |
|---|---|---|
| Pollution remediation | $ (36,277) | $ (4,686) |
| Payments for watershed improvements | 25,968 | 24,419 |
| Other expense | — | 25,553 |
| Program expense | 26,855 | 32,431 |
| **Total other operating expenses** | **$ 16,546** | **$ 77,717** |

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 Authority bond proceeds. Such long-term benefit projects include payment for environmental protection related improvements 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 year 2016, two major remediation projects were completed. The estimated amount was higher than the actual expense, resulting in a negative pollution remediation expense.

In fiscal year 2015, The System made a payment of $25.5 million to The City for outstanding balances and incurred program expenses of $32.4 million.

## 9. SHORT-TERM DEBT

In fiscal year 2016 and 2015, the changes in short-term debt were as follows (in thousands):

| | BALANCE AT JUNE 30, 2014 | ADDITIONS | DELETIONS | BALANCE AT JUNE 30, 2015 | ADDITIONS | DELETIONS | BALANCE AT JUNE 30, 2016 |
|---|---|---|---|---|---|---|---|
| Commercial paper[1] | $ 500,000 | $ 800,000 | $ 700,000 | $ 600,000 | $ 200,000 | $ 600,000 | $ 200,000 |
| **Total short-term payable** | **$ 500,000** | **$ 800,000** | **$ 700,000** | **$ 600,000** | **$ 200,000** | **$ 600,000** | **$ 200,000** |

[1] *Commercial paper and Bond Anticipation Notes are used to pay construction costs in advance of long-term bond financing.*

Commercial paper activity is comprised of the following for the year ended June 30, 2016, (in thousands):

| | BALANCE AT JUNE 30, 2015 | ISSUED | RETIRED | BALANCE AT JUNE 30, 2016 |
|---|---|---|---|---|
| Commercial Paper Series 1 — Variable Rate, Short-term Rolling Maturity Backed by Line of Credit | $ 200,000 | $ 200,000 | $ 200,000 | $ 200,000 |
| Commercial Paper Series 7 — Variable Rate, Short-term Rolling Maturity | 200,000 | — | 200,000 | — |
| Commercial Paper Series 8 — Variable Rate, Short-term Rolling Maturity | 200,000 | — | 200,000 | — |
| **Total commercial paper payable** | **$ 600,000** | **$ 200,000** | **$ 600,000** | **$ 200,000** |

## 10. LONG-TERM DEBT

In fiscal years 2016 and 2015, the long-term debt was as follows (in thousands):

| BONDS PAYABLE | BALANCE AT JUNE 30, 2015 | ADDITIONS | DELETIONS | BALANCE AT JUNE 30, 2016 |
|---|---|---|---|---|
| First resolution | $ 4,034,651 | $ 196,585 | $ 969,820 | $ 3,261,416 |
| Second resolution | 25,337,971 | 3,075,945 | 2,159,336 | 26,254,580 |
| **Total before premium and discounts** | **29,372,622** | **3,272,530** | **3,129,156** | **29,515,996** |
| Premium/(discounts)—net | 960,721 | 234,261 | 81,623 | 1,113,359 |
| **Total debt** | **30,333,343** | **3,506,791** | **3,210,779** | **30,629,355** |
| Due within one year | 391,462 | | | 378,028 |
| **Total long-term debt** | **$ 29,941,881** | | | **$ 30,251,327** |

| BONDS PAYABLE | BALANCE AT JUNE 30, 2014 | ADDITIONS | DELETIONS | BALANCE AT JUNE 30, 2015 |
|---|---|---|---|---|
| First resolution | $ 6,609,271 | $ — | $ 2,574,620 | $ 4,034,651 |
| Second resolution | 23,064,612 | 3,181,149 | 907,790 | 25,337,971 |
| **Total before premium and discounts** | **29,673,883** | **3,181,149** | **3,482,410** | **29,372,622** |
| Premium/(discounts)—net | 762,827 | 307,003 | 109,109 | 960,721 |
| **Total debt** | **30,436,710** | **3,488,152** | **3,591,519** | **30,333,343** |
| Due within one year | 291,955 | | | 391,462 |
| **Total long-term debt** | **$ 30,144,755** | | | **$ 29,941,881** |

As of June 30, 2016, the interest rates on the Authority's outstanding First and Second Resolution bonds ranged from 0.37% to 6.50%.

The debt program of the Authority includes commercial paper, long-term debt, BANs, and interest-subsidized bonds issued through EFC. The commercial paper program and BANs are the main source of short-term financing to reimburse The City for payments made for water and sewer projects. The Authority then issues long-term debt in the public market to retire outstanding commercial paper or through EFC to retire the BANs. The Authority also periodically issues refunding bonds to refinance higher-coupon debt and defeases bonds from revenues. With respect to all Authority debt, the Water Board has agreed to maintain rates and charges to provide revenues at levels sufficient to pay principal and interest requirements as well as to meet certain debt service coverage and operating cost funding requirements. All series of debt are specific obligations of the Authority payable solely from and secured by a pledge of and lien on the gross revenue of the System.

In addition, the System received funding through draws on BANs issued to EFC. Each project was tracked for spending, and funding was received from EFC after submission of required documentation.

The total BANs outstanding, with maturities greater than one year, as of June 30, 2016 were $304.6 million.

During fiscal year 2016, the Authority issued $951.4 million of bonds to refund $1.07 billion of outstanding bonds. These refundings resulted in an accounting gain of $77 thousand. The Authority reduced its aggregate debt service for principal and interest by $274.4 million and obtained an economic benefit (present value savings) of $199.4 million.

— On July 2, 2015, the Authority issued $380.8 million of new money and refunding Second Resolution bonds directly to EFC, Fiscal 2016 Series 1 and 2. Fiscal 2016 Series 1 refunded portions of the Authority's Second Resolution bonds, Fiscal 2006 Series 1. The Authority reduced its annual debt service by $14.4 million. As a result, the Authority obtained an economic gain of $11.2 million.

— On November 24, 2015, the Authority issued $349.8 million of new money and refunding tax exempt fixed rate Second Resolution bonds, Fiscal 2016 Series BB. The bonds refunded portions of the Authority's Second Resolution bonds,

## 10. LONG-TERM DEBT (CONTINUED)

Fiscal 2012 Series GG. The Authority increased its annual debt service by $377.8 thousand, but it obtained an economic gain of $3.1 million.

— On March 17, 2016, the Authority issued $196.6 million of refunding tax exempt fixed rate First Resolution bonds, Fiscal 2016 Series A. The bonds refunded portions of the Authority's First Resolution bonds, Fiscal 2006 Series C and Fiscal 2006 Series D. The Authority reduced its annual debt service by $57.5 million. As a result, the Authority obtained an economic gain of $40.5 million.

— On March 17, 2016, the Authority issued $438.8 million of refunding tax exempt fixed rate Second Resolution bonds, Fiscal 2016 Series CC. The bonds refunded portions of the Authority's First and Second Resolution bonds, Fiscal 2006 Series B, Fiscal 2006 Series C, Fiscal 2006 Series D, Fiscal 2007 Series AA, and Fiscal 2007 Series BB. The Authority reduced its annual debt service by $134.7 million. As a result, the Authority obtained an economic gain of $88.7 million.

— On June 29, 2016, the Authority issued $778.6 million of new money and refunding Second Resolution bonds directly to EFC, Fiscal 2016 Series 5 and 6. Fiscal 2016 Series 5 refunded portions of the Authority's Second Resolution bonds, Fiscal 2006 Series 2 and Fiscal 2006 Series 3. The Authority reduced its annual debt service by $67.6 million. As a result, the Authority obtained an economic gain of $55.9 million.

During fiscal year 2016, the Authority legally defeased $721.5 million of outstanding bonds using current revenue. This resulted in an accounting loss of $23.0 million that is included in interest expense and a gross debt service savings of $1.4 billion.

During fiscal year 2015, the Authority issued $2.0 billion of bonds to refund $2.2 billion of outstanding bonds. These refundings resulted in an accounting gain of $23.1 million. The Authority reduced its aggregate debt service by $512.6 million and obtained an economic benefit (present value savings) of $344.7 million.

During fiscal year 2015, the Authority legally defeased $739.1 million of outstanding bonds using current revenue. This resulted in an accounting loss $59.0 million that is included in interest expense.

The Authority has legally defeased cumulatively $22.6 billion and $20.8 billion of outstanding bonds as of June 30, 2016 and 2015, respectively, that had been issued in the public market and to EFC by placing proceeds of refunding bonds issued in an irrevocable escrow account to provide for all future debt service payments on defeased bonds. Proceeds were used to purchase securities that were placed in the irrevocable escrow account. Accordingly, the escrow account assets and liabilities for the defeased bonds are not included in the System's combining financial statements. As of June 30, 2016 and 2015, $18.5 billion and $17.3 billion of the Authority's defeased bonds, respectively, have been retired using the assets of the escrow accounts.

Debt service requirements to maturity, including amounts relating to BANs with maturities greater than one year at June 30, 2016 are as follows (in thousands):

| JUNE 30 | PRINCIPAL | INTEREST[1] | TOTAL |
|---|---|---|---|
| 2017 | $ 378,028 | $ 1,321,840 | $ 1,699,868 |
| 2018 | 571,734 | 1,369,281 | 1,941,015 |
| 2019 | 685,134 | 1,350,686 | 2,035,820 |
| 2020 | 458,931 | 1,332,129 | 1,791,060 |
| 2021 | 499,999 | 1,318,333 | 1,818,332 |
| 2022–2026 | 2,841,140 | 6,242,980 | 9,084,120 |
| 2027–2031 | 3,637,345 | 5,507,035 | 9,144,380 |
| 2032–2036 | 4,554,465 | 4,581,126 | 9,135,591 |
| 2037–2041 | 5,976,520 | 3,405,181 | 9,381,701 |
| 2042–2046 | 7,190,450 | 1,601,960 | 8,792,410 |
| 2047–2051 | 2,722,250 | 233,473 | 2,955,723 |
| | **$ 29,515,996** | **$ 28,264,024** | **$ 57,780,020** |

*[1] Includes projected interest expense for variable rate bonds at 3.0% for fiscal year 2017 and 4.25% for fiscal year 2018 and thereafter. Variable rate bonds are remarketed daily or weekly, and interest rates are determined by the market on the day of sale.*

## 11. RESTRICTED ASSETS

As of June 30, 2016 and 2015, certain cash, investments, and accrued interest of the System are restricted as follows (in thousands):

| | 2016 | 2015 |
|---|---|---|
| **WATER BOARD** | | |
| Operation and maintenance reserve fund | $ 250,447 | $ 226,383 |
| Local water fund | 12,509 | 21,992 |
| **Subtotal—The Water Board** | **262,956** | **248,375** |
| **AUTHORITY** | | |
| Revenue fund | 1,008,722 | 989,694 |
| Debt service reserve fund | 588,449 | 639,119 |
| Construction fund | 140,376 | 368,300 |
| Ecsrow account | 199,143 | 34,913 |
| **Subtotal—Authority** | **1,936,690** | **2,032,026** |
| **Total restricted assets** | **$ 2,199,646** | **$ 2,280,401** |

The operation and maintenance reserve fund is established as a depository to hold the operations and maintenance reserve as required by the Resolution. At June 30 of each year, it 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 Resolution.

The revenue fund is established as a depository to fund the debt service, Authority expenses, debt service reserve, and escrow funds. 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 account is established as a depository to refund debt in future years. It is funded through bond proceeds or the revenue fund.

## 12. COMMITMENTS AND CONTINGENCIES

**Construction**—The System has contractual commitments of approximately $5.3 billion and $5.1 billion at June 30, 2016 and 2015, 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 officers 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.

**Claims and Litigation**—In accordance with the Lease, 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 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, 2016, the potential future liability attributable to the System for claims outstanding against The City was estimated to be $659.5 million. This amount is included in the estimated liability for unsettled claims, which is reported in The City's statement of net position. 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 Internal Revenue Code 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 2016 and 2015, the System paid $1.3 million and $479.5 thousand, respectively, in arbitrage rebates. At June 30, 2016 and 2015, the Authority had a liability of $6.5 million and $2.5 million, respectively. These amounts are included in accrued payable expense in the combining statements of net position.

## 13. PENSION PLANS

### GENERAL INFORMATION ABOUT THE PENSION PLAN

**Plan Description**—The Authority's eligible employees are provided with pension benefits through New York City Employee Retirement System Qualified Pension Plan ("NYCERS 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 which 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 at www.nycers.org.

**Benefits Provided**—The Pension Plan provides pension benefits to retired employees generally based on the salary, length of service, member contributions, 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 ("COLA") 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 for Tier I to Tier IV and ten years of service for Tier VI. 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 ("RSSL") 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 ("Statutory Rates"). The Authority does not have any Tier I, Tier II, or Tier III members.

**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. Effective with fiscal year 2006, employer contributions are actuarially determined under the One-Year Lag Methodology ("OYLM"). Under OYLM, the actuarial valuation date is used for calculating the employer contributions for the second following fiscal year. For example, the June 30, 2014 actuarial valuation was used for determining the fiscal year 2016 statutory contributions. Member contributions vary by class. 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 ten 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.

Employer contributions are determined annually to be an amount that, together with member contributions and investment income, provides for Pension Plan assets to be sufficient to pay benefits when due. The aggregate statutory contribution due to NYCERS from all participating employers for fiscal years 2016 and 2015 was $3.4 billion and $3.2 billion, respectively, and the amount of the Authority's contribution to the Pension Plan for such fiscal years 2016 and 2015 was $170 thousand and $161 thousand, respectively.

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

The Authority's net pension liabilities reported at June 30, 2016 and 2015 were measured as of those fiscal year-end dates. The total pension liability used to calculate those net pension liabilities was determined by actuarial valuations as of June 30, 2014 and June 30, 2013, respectively, based on the OYLM described above, and rolled forward to the respective fiscal year-end measurement dates. Information about the Authority net position and additions to and deductions from NYCERS 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.

## 13. PENSION PLANS (CONTINUED)

**Actuarial Assumptions**—Measurement of the total net 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, 2014 actuarial valuation to determine the fiscal year 2016 Authority contributions:

**ACTUARIAL ASSUMPTIONS USED FOR DETERMINING FINAL FISCAL YEAR 2016 AUTHORITY'S CONTRIBUTIONS**

| ITEM | FINAL FISCAL YEAR 2016 AUTHORITY'S CONTRIBUTIONS[1] |
|---|---|
| Valuation Date | June 30, 2014 (Lag) |
| Assumed Rate of Return on Investment[2] | 7.0% per annum, net of investment expense. Actual return for variable funds. |
| Post-Retirement Mortality | Tables adopted by the Boards of Trustee during fiscal year 2016[3]. |
| Active Service: | |
| Withdrawal, Death, Disability | Tables adopted by the Boards of Trustees during fiscal year 2012[3]. |
| Retirement | Tables adopted by the Boards of Trustees during fiscal year 2012[3]. |
| World Trade Center Benefit | Estimates of certain obligations. |
| Salary Increases[2] | Tables adopted by the Boards of Trustees during fiscal year 2012[4] |
| | In general, Merit and Promotion Increases plus assumed General |
| | Wage Increase of 3.0% per year. |
| Assumed Cost-of-Living Adjustments[2] | 1.5% per year for Tier I, Tier II, Tier IV and certain Tier III and Tier VI retirees. 2.5% per year for certain Tier III and Tier VI retirees. |
| Liability Loads | Estimates of certain obligations. |

[1] *Based on actuarial assumptions and methods proposed by the Actuary during fiscal year 2012 adopted by the Boards of Trustee and enacted into law as Chapter 3/13 with revisions proposed by the Actuary and adopted by the Boards of Trustees in fiscal year 2016.*

[2] *Developed using a long-term Customer Price Inflation ("CPI") assumption of 2.5% per year.*

[3] *See December 2015 Memoranda to the Board of Trustees.*

[4] *See the Reports entitled "Proposed Changes in Actuarial Assumptions and Methods for Determining Employer Contributions for Fiscal Year Beginning on and After July 1, 2011" dated February 10, 2012 (the "Silver Books").*

## 13. 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 Actuary for use in the determination of Employer Contributions, which are also generally used to determine the total pension liability, as applicable. Based, in part, upon a review of the then two most recent experience studies, the Actuary issued reports for the Pension Plan proposing changes in actuarial assumptions and methods for fiscal years beginning on and after July 1, 2011 (February 2012 Reports). Where required, the Board of Trustees of NYCERS adopted those changes to actuarial assumptions that required NYCERS Board of Trustees approval. The State Legislature and the Governor enacted Chapter 3/13 to provide for those changes to the actuarial assumptions and methods that require legislation, including the actuarial interest rate ("AIR") assumption of 7.0% per annum, net of expenses.

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 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 | 32.60% | 6.60% |
| International Public Market Equities | 10.00% | 7.00% |
| Emerging Public Market Equities | 6.90% | 7.90% |
| Private Market Equities | 7.00% | 9.90% |
| Fixed Income (Core, TIPS, HY, Opportunistic, Convertibles) | 33.50% | 2.70% |
| Alternatives (Real Assets, Hedge Funds) | 10.00% | 4.00% |
| **Total** | **100.00%** | |

**Discount Rate**—The discount rate used to measure the total pension liability of the Pension Plan as of June 30, 2016 and 2015 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 was projected to be available to make all projected future benefit payments of current active and non-active Pension Plan members. Therefore, the long-term expected rate of return on Pension Plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

## 13. 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%, 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 (in thousands):

| | Sensitivity Analysis Net Pension Liability as of June 30, 2016 | | |
|---|---|---|---|
| | **1% DECREASE (6.0%)** | **CURRENT DISCOUNT RATE (7.0%)** | **1% INCREASE (8.0%)** |
| Net Pension Liability | $1,666 | $1,215 | $837 |

## PENSION LIABILITIES, PENSION EXPENSE, AND DEFERRED OUTFLOWS OF RESOURCES AND DEFERRED INFLOWS OF RESOURCES RELATED TO PENSIONS.

**Pension Liability**—At June 30, 2016 and 2015, the Authority reported a liability of $1.2 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, 2016 and 2015, the Authority's proportion was 0.005% for both years.

**Pension Expense**—For the years ended June 30, 2016 and 2015, the Authority recognized pension expense of $170.6 thousand and $78.5 thousand, respectively.

**Deferred Outflows and Inflows of Resources**—At June 30, 2016, the Authority reported total deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

| | DEFERRED OUTFLOWS OF RESOURCES | DEFERRED INFLOWS OF RESOURCES |
|---|---|---|
| Difference between expected and actual experience | $ — | $ 34,483 |
| Changes of assumptions | 89,670 | — |
| Net Difference between projected and actual earnings on pension plan investments | 185,105 | 119,388 |
| Changes in proportion and difference between Authority contributions and proportionate share of contributions | — | — |
| Authority contributions subsequent to the measurement date | — | — |
| **Total** | **$ 274,775** | **$ 153,871** |

Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions at June 30, 2016 will be recognized in pension expense as follows:

| **YEAR ENDED JUNE 30:** | |
|---|---|
| 2016 | $ 5,101 |
| 2017 | 5,101 |
| 2018 | 27,728 |
| 2019 | 61,485 |
| 2020 | 26,590 |

## 14. OTHER POST-EMPLOYMENT BENEFITS

**Plan Description**—The Authority's policy is to provide certain health and related benefits to eligible retirees of the Authority, which constitutes an OPEB plan (the "OPEB Plan") in accordance with GASB Statement No. 45, ("GASB 45") *Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions*. OPEB is provided under the New York City Health Benefit Program ("NYCHBP"), which is a cost-sharing multiple-employer defined benefit healthcare plan to eligible retirees and beneficiaries. 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 City retirees and eligible beneficiaries/dependents. OPEB benefits include health insurance, Medicare Part B premium reimbursements, and employee welfare fund contributions.

There are three classes of employees: active, inactive and retirees. The following presents a summary of the Authority census data used in the June 30, 2015 and June 30, 2014 OPEB actuarial valuations:

| GROUP | JUNE 30, 2015 | JUNE 30, 2014 |
|---|---|---|
| Active | 12 | 14 |
| Inactive | 2 | 1 |
| Deferred vested | — | — |
| Retired | 4 | 3 |
| **Total** | **18** | **18** |

**Funding Policy**—The Authority is not required to provide funding for OPEB, 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, 2016 and 2015, the Authority had four retirees and made contributions of $17.0 thousand and $13.8 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 Plan also reimburses covered employees for 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 Obligation**—The Authority's annual OPEB cost is calculated based on the actuarial annual required contribution of the employer ("ARC"), an amount that was actuarially determined in accordance with the parameters of GASB 45. 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, 2015, which was the basis for the fiscal year 2016 ARC calculation. Under this method, as used in this OPEB actuarial valuation, the actuarial present value ("APV") of benefits ("APVB") of each individual included in 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 actuarial accrued liability ("AAL"). The excess of the AAL over the actuarial asset value ("AAV"), if any, is the unfunded actuarial accrued liability ("UAAL").

All changes in the UAAL as of June 30, 2015 are being amortized over a one-year period for purposes of calculating the ARC except for the amount of change in UAAL attributable to the change in the actuarial cost method, which is being amortized over a closed 10-year period using level-dollar amortization. This is the minimum period permitted in cases where there is a significant reduction in the UAAL in accordance with GASB 45.

## 14. OTHER POST-EMPLOYMENT BENEFITS (CONTINUED)

The following table shows the elements of the Authority's annual OPEB cost, the amounts actually contributed, and changes in the Authority's net OPEB obligation for the fiscal years ended June 30, 2016 and 2015 (in thousands):

| | 2016 | 2015 |
|---|---|---|
| Annual required contribution | $ 1,287 | $ 1,002 |
| Interest on net OPEB obligations | 39 | 39 |
| Adjustment to annual required contribution | (1,028) | (989) |
| **Annual OPEB cost** | **$ 298** | **$ 52** |
| Payments | (17) | (14) |
| Net OPEB obligation—beginning of year | 989 | 951 |
| **Net OPEB obligation — end of year** | **$ 1,270** | **$ 989** |

The Authority's annual OPEB cost, the percentage of annual OPEB cost contributed, and the net OPEB obligation for the fiscal years ended June 30, 2014 through 2016 were as follows (in thousands):

| | ANNUAL OPEB COST | PERCENTAGE OF ANNUAL OPEB COST CONTRIBUTED | NET OPEB OBLIGATION |
|---|---|---|---|
| June 30, 2016 | $ 298 | 5.7% | $ 1,270 |
| June 30, 2015 | 52 | 26.8 | 989 |
| June 30, 2014 | 41 | 27.3 | 951 |

**Funded Status and Funding Progress**—As of June 30, 2015, the most recent actuarial valuation date, the cost was 0% funded. The AAL for benefits was $1.1 million, and the actuarial value of assets was $0, resulting in an UAAL of $1.1 million. The covered payroll (annual payroll of active employees covered by the OPEB Plan) was $1.1 million, and the ratio of the UAAL to the covered payroll was 98.8%. The schedule of funding progress, which is presented in the Required Supplementary Information tables following this Notes to Financial Statements section, presents the results of OPEB valuation as of June 30, 2016, 2015, and 2014. This schedule provides a three-year informational trend of increases or decreases of the actuarial value of assets over time relative to the actuarial accrued liabilities for benefits.

**Actuarial Methods and Assumptions**—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. Amounts determined regarding the funded status of the OPEB Plan and the annual required contributions 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 AAL, consistent with the long-term perspective of the calculations.

The actuarial assumptions used in the June 30, 2015 and 2014 OPEB actuarial valuations are classified as those used in the New York City Retirement Systems ("NYCRS") valuations and those specific to the OPEB valuations.

The OPEB actuarial valuations incorporate only the use of certain NYCRS demographic and salary increase assumptions. The NYCRS demographic and salary scale assumptions are unchanged from the prior OPEB actuarial valuation. For purposes of determining pension obligations, the demographic and salary scale assumptions requiring NYCRS Board approval (available on the website of the Office of the

## 14. OTHER POST-EMPLOYMENT BENEFITS (CONTINUED)

Actuary at www.nyc.gov/actuary) were adopted by each respective Board of Trustees during fiscal year 2012. Chapter 3 of the Laws of 2013 enacted those actuarial assumptions and methods that require New York State Legislation.

The OPEB-specific actuarial assumptions used in the June 30, 2015 OPEB actuarial valuation of the OPEB Plan are as follows:

- Valuation Date—June 30, 2015.
- Discount Rate—4.0% per annum.[1]
- Actuarial Cost Method—Entry age calculated on an individual basis with the actuarial value of projected benefits allocated on a level basis over earnings from hire through age of exit.
- Per-Capita Claims Costs—HIP HMO and GHI/EBCBS benefit costs reflect age adjusted premiums. GHI/EBCBS non-Medicare premiums are adjusted for Health Savings Agreement changes.
- Age adjustments based on assumed age distribution of covered population are used for non-Medicare retirees and HIP HMO Medicare retirees.
- Age adjustments based on actual age distribution are used for the GHI/EBCBS Medicare covered population.
- Insured premiums are without age adjustment for other coverage. Premiums are assumed to include administrative costs.

[1] *2.5% CPI, 1.5% real rate of return on short-term investments*

Employer premium contribution schedules for the month of July 2015 and January 2016 were reported by the New York City Office of Labor Relations ("OLR"). In most cases, the premium contributions remained the same throughout the year. HIP HMO Medicare rates varied by date and by specific Plan options. These variations are the result of differing Medicare reimbursements. The various monthly rates were blended by proportion of enrollment. For other rates, where the January 2016 premium rate was different than the July 2015 premium rate, the valuation assumed that the January 2016 premium rate was more representative of the long-term cost of the arrangement.

## 14. OTHER POST-EMPLOYMENT BENEFITS (CONTINUED)

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

| | Monthly Rates | |
|---|---|---|
| **PLAN** | **FY 2016[1]** | **FY 2015[2]** |
| **HIP HMO** | | |
| Non-Medicare Single | $ 603.02 | $ 586.10 |
| Non-Medicare Family | 1,477.41 | 1,435.95 |
| Medicare | 160.05 | 157.55 |
| **GHI/EBCBS** | | |
| Non-Medicare Single | 524.44[3] | 507.79[3] |
| Non-Medicare Family | 1,376.15[3] | 1,319.83[3] |
| Medicare | 160.75 | 160.86 |
| **OTHER HMOS** | | |
| Non-Medicare Single | 923.23[4] | 586.10[4] |
| Non-Medicare Family | 2,010.43[4] | 1,435.95[4] |
| Medicare Single | 245.19[4] | 160.86[4] |
| Medicare Family | 501.71[4] | 321.72[4] |

[1] *Used in June 30, 2015 OPEB actuarial valuation.*

[2] *Used in June 30, 2014 OPEB actuarial valuation*

[3] *For June 30, 2015 valuation, GHI/EBCBS Pre-Medicare premiums decreased 2.48% to reflect 2016 Health Savings Agreement change. For June 30, 2014 valuation, GHI/EBCBS Pre-Medicare premiums decreased by 2.05%.*

[4] *For June 30, 2015 valuation, Other HMO premiums are total premium for medical (not prescription) coverage including retiree contributions. For June 30, 2014, Other HMO premiums are net of employer contribution.*

Welfare Funds—For the June 30, 2015 valuation, the Welfare Fund contribution reported for fiscal year 2016, including any reported retroactive amounts, was used as the per capita cost for valuation purposes. The amount used included the $25 increase effective July 1, 2015 under the 2014 MLC-NYC Health Savings Agreement, $100 for fiscal year 2016 under further negotiations, as well as further $25 annual increases effective July 1, 2016 and July 1, 2017. It is assumed that all Welfare Funds will ultimately be subject to that agreement, whether or not the labor union running the particular Welfare Fund has currently signed it.

Reported annual contribution amounts for the last three years are shown in Appendix B, Tables 2a to 2e of the eleventh annual actuarial valuation of OPEB provided under the NYCHBP (the "Eleventh Annual OPEB Report") dated September 23, 2016. The amounts shown for fiscal year 2016 as of June 30, 2015, which increased by $25 as of July 1, 2015, plus an additional $100, are used for current retirees. For current retirees in the June 30, 2014 valuation, the valuation reflected the fiscal year 2015 values shown as of June 30, 2014 increased by $25 as of July 1, 2014.

Welfare Fund rates are based on actual reported union Welfare Fund code for current retirees. Where a union Welfare Fund code was missing, the most recently reported union code was reflected.

## 14. OTHER POST-EMPLOYMENT BENEFITS (CONTINUED)

The weighted average annual contribution rates used for future retirees are shown in the following table. These averages were developed based on the Welfare Fund enrollment of recent retirees (during the five years prior to the valuation).

| | Annual Rate | |
|---|---|---|
| | FY 2016 | FY 2015 |
| NYCERS | $ 1,692 | $ 1,693 |

Contributions were assumed to increase by Medicare Plan trend rates. For the June 30, 2014 OPEB actuarial valuation, the assumed increases were replaced by the negotiated $25 increase for the next three fiscal years. For the June 30, 2015 valuation, the assumed increase is replaced by the negotiated $25 increase for the next 2 fiscal years. In addition to current increasing payments, an expected one-time $100 increase was also reflected for fiscal year 2016.

For Welfare Fund contribution amounts reflected in the June 30, 2014 OPEB actuarial valuation for current retirees, see the tenth annual OPEB report.

**Medicare Part B Premiums**

| CALENDAR YEAR | MONTHLY PREMIUM |
|---|---|
| 2012 | $ 99.90 |
| 2013 | 104.90 |
| 2014 | 104.90 |
| 2015 | 104.90 |
| 2016 | 109.97* |

** Reflected only in June 30, 2015 OPEB actuarial valuation*

2016 Medicare Part B premiums are assumed to increase by Medicare Part B trend rates.

Medicare Part B premium reimbursement amounts have been updated to reflect the actual premium rates announced for calendar years through 2016, including changes adopted as part of the Bipartisan Budget Act of 2015. Due to there being no cost-of-living increase in Social Security benefits for calendar year 2016, most Medicare Part B participants will not be charged the Medicare Part B premium originally projected or ultimately announced for 2016. The initially-projected Medicare Part B premium was artificially increased so that the overall amount collected by the Center for Medicare and Medicaid Services (CMMS) would be sufficient for the needs of the Medicare Part B program. The Bipartisan Budget Act allowed for certain borrowing of funds, but it still resulted in a stated Part B premium amount in excess of the amount sufficient for the Part B Program if it were collected for all participants. These changes for calendar year 2016 are reflected in the valuation.

Thus, for the June 30, 2015 OPEB actuarial valuation (i.e., fiscal year 2016), the annual premium used of $1,289.22 equals six months of the calendar year 2015 premium (i.e., $104.90) plus six months of:

**a)** 70% of the calendar year 2015 monthly premium (i.e., $104.90), representing the approximate percentage of the overall U.S. Medicare population that will pay the frozen amount, and

**b)** 30% of the announced calendar year 2016 monthly premium (i.e., $121.80), representing the approximate percentage of the overall U.S. Medicare population that will pay the calendar year 2016 amount. Future calendar year Medicare Part B premium rates are projected from the calendar year 2016 rate of $121.80 using the assumed Medicare Part B premium trend.

## 14. OTHER POST-EMPLOYMENT BENEFITS (CONTINUED)

Overall Medicare Part B premium amounts are assumed to increase by the following percentages to reflect the income-related increases in Medicare Part B premiums for high-income individuals. The percentages assumed have been increased to reflect revisions to the income-related Part B premium provisions as adopted in the Medicare Access and CHIP Reauthorization Act of 2015 ("MACRA"). Percentages assumed are based on CMMS income distribution published statistics and provisions of the Social Security Act related to Medicare Part B premium amounts, both before and after MACRA changes.

| | Income-Related Medicare Part B Increase | |
|---|---|---|
| **FISCAL YEAR** | **JUNE 30, 2015 VALUATION** | **JUNE 30, 2014 VALUATION** |
| 2015 | N/A | 3.8% |
| 2016 | 3.9% | 3.9 |
| 2017 | 4.0 | 4.0 |
| 2018 | 4.5 | 4.5 |
| 2019 | 5.0 | 5.0 |
| 2020 | 5.2 | 5.2 |
| 2021 | 5.3 | 5.3 |
| 2022 | 5.4 | 5.4 |
| 2023 | 5.5 | 5.5 |
| 2024 | 5.6 | 5.6 |
| 2025 | 5.8 | 5.8 |
| 2026 | 5.9 | 5.9 |
| 2027 and later | 6.0 | 6.0 |

**Medicare Part B Premium Reimbursement Assumption**—For the June 30, 2015 OPEB actuarial valuation, 90% of Medicare participants are assumed to claim reimbursement (unchanged from last year). The percentage is based on claim counts reported by OLR for calendar years 2007 through 2013.

**Health Care Cost Trend Rate ("HCCTR")**—Covered medical expenses are assumed to increase by the following percentages (unchanged from the last valuation). For purposes of measuring entry age calculations, actual historic plan increases are reflected to the extent known, with further historic trend rates based on the trend assumed for fiscal year 2016 (initial trend).

| | HCCTR Assumptions | | |
|---|---|---|---|
| **YEAR ENDING [1]** | **PRE-MEDICARE PLANS** | **MEDICARE PLANS** | **MEDICARE PART B PREMIUMS** |
| 2016[2,3] | 8.5% | 5.0% | 5.5% |
| 2017[3] | 8.0 | 5.0 | 5.0 |
| 2018 | 7.5 | 5.0 | 5.0 |
| 2019 | 7.0 | 5.0 | 5.0 |
| 2020 | 6.5 | 5.0 | 5.0 |
| 2021 | 6.0 | 5.0 | 5.0 |
| 2022 | 5.5 | 5.0 | 5.0 |
| 2023 and later | 5.0 | 5.0 | 5.0 |

[1] *Refers to fiscal year for Pre-Medicare Plans and Medicare Plans and calendar year for Medicare Part B Premiums.*

[2] *For the June 30, 2015 OPEB actuarial valuation, rates shown for 2016 were not reflected since actual values for the fiscal year 2016 per capita costs, fiscal year 2016 Welfare Fund contributions, and calendar year 2016 Medicare Part B premium amounts were used.*

[3] *For the June 30, 2015 OPEB actuarial valuation, the HIP and Other HMO Pre-Medicare trend was assumed to be 4.88% based on 2014 Health Care Savings Agreement initiatives. For the June 30, 2014 OPEB actuarial valuation, the HIP and HMO Pre-Medicare trend was assumed to be 2.89% based on 2014 Health Care Savings Agreement initiatives.*

## 14. OTHER POST-EMPLOYMENT BENEFITS (CONTINUED)

The Welfare Fund contribution rate was assumed to increase based on current pattern bargaining until fiscal year 2018, and for the June 30, 2015 valuation, it was assumed to increase 3.5% each future fiscal year (5.0 % for the June 30, 2014 valuation).

**Age and Gender-Related Morbidity**—The premiums are age adjusted for HIP HMO and GHI/EBCBS participants. Beginning with the June 30, 2012 OPEB actuarial valuation, the premiums are also adjusted for gender. Beginning with the June 30, 2015 valuation, the premiums for the Other HMOs are age and gender adjusted.

Beginning with the June 30, 2012 OPEB actuarial valuation, the assumed relative costs of coverage are consistent with information presented in *Health Care Costs—From Birth to Death*, prepared by Dale H. Yamamoto[1] ("Yamamoto Study").

For non-Medicare costs, relative factors were based on graduated 2010 PPO/POS data as presented in Chart 28 of the Yamamoto Study. The resulting relative factors, which are normalized to the male age 65 rate and were used for non-Medicare costs (unchanged from the previous OPEB actuarial valuation) are as follows:

| AGE | MALE | FEMALE | AGE | MALE | FEMALE |
|---|---|---|---|---|---|
| 20 | 0.170 | 0.225 | 43 | 0.325 | 0.480 |
| 21 | 0.157 | 0.227 | 44 | 0.340 | 0.487 |
| 22 | 0.147 | 0.236 | 45 | 0.355 | 0.495 |
| 23 | 0.143 | 0.252 | 46 | 0.372 | 0.505 |
| 24 | 0.143 | 0.274 | 47 | 0.391 | 0.519 |
| 25 | 0.146 | 0.301 | 48 | 0.412 | 0.536 |
| 26 | 0.151 | 0.329 | 49 | 0.437 | 0.556 |
| 27 | 0.157 | 0.357 | 50 | 0.463 | 0.576 |
| 28 | 0.165 | 0.384 | 51 | 0.491 | 0.597 |
| 29 | 0.173 | 0.408 | 52 | 0.519 | 0.616 |
| 30 | 0.181 | 0.428 | 53 | 0.547 | 0.635 |
| 31 | 0.190 | 0.444 | 54 | 0.577 | 0.653 |
| 32 | 0.199 | 0.456 | 55 | 0.608 | 0.671 |
| 33 | 0.208 | 0.463 | 56 | 0.641 | 0.690 |
| 34 | 0.217 | 0.466 | 57 | 0.676 | 0.710 |
| 35 | 0.227 | 0.466 | 58 | 0.711 | 0.732 |
| 36 | 0.237 | 0.465 | 59 | 0.747 | 0.756 |
| 37 | 0.249 | 0.464 | 60 | 0.783 | 0.783 |
| 38 | 0.261 | 0.464 | 61 | 0.822 | 0.813 |
| 39 | 0.274 | 0.465 | 62 | 0.864 | 0.846 |
| 40 | 0.286 | 0.467 | 63 | 0.909 | 0.881 |
| 41 | 0.299 | 0.471 | 64 | 0.957 | 0.917 |
| 42 | 0.312 | 0.475 | | | |

Costs for children were assumed to represent a relative factor of 0.229.

[1] http://www.healthcostinstitute.org/files /Age-Curve-Study_0.pdf. *Retrieved July 15, 2013. The Study was sponsored by the Society of Actuaries and is part of the Health Care Cost Institute's Independent Report Series.*

## 14. OTHER POST-EMPLOYMENT BENEFITS (CONTINUED)

For Medicare costs, relative factors based on the Yamamoto Study for net Medicare costs for 2010 for inpatient, outpatient, and professional costs were blended. Prescription drug costs were not reflected as NYCHBP excludes most drugs from coverage. Professional costs were weighted at 64%, based on the GHI portion of the combined GHI/EBCBS premiums reported historically. Inpatient costs were weighted as twice as prevalent as outpatient costs based on the relative allocation suggested in the Yamamoto Study. Costs prior to age 65 were approximated using the non-Medicare data, but they assume that individuals under age 65 on Medicare had an additional disability-related morbidity factor. The resulting Medicare relative factors are as follows:

| AGE | MALE | FEMALE | AGE | MALE | FEMALE |
|---|---|---|---|---|---|
| 20 | 0.323 | 0.422 | 60 | 1.493 | 1.470 |
| 21 | 0.297 | 0.426 | 61 | 1.567 | 1.526 |
| 22 | 0.280 | 0.443 | 62 | 1.646 | 1.588 |
| 23 | 0.272 | 0.474 | 63 | 1.731 | 1.653 |
| 24 | 0.272 | 0.516 | 64 | 1.822 | 1.721 |
| 25 | 0.278 | 0.565 | 65 | 0.919 | 0.867 |
| 26 | 0.288 | 0.618 | 66 | 0.917 | 0.864 |
| 27 | 0.300 | 0.671 | 67 | 0.918 | 0.864 |
| 28 | 0.314 | 0.721 | 68 | 0.924 | 0.867 |
| 29 | 0.329 | 0.766 | 69 | 0.933 | 0.875 |
| 30 | 0.346 | 0.804 | 70 | 0.946 | 0.885 |
| 31 | 0.363 | 0.834 | 71 | 0.961 | 0.898 |
| 32 | 0.380 | 0.856 | 72 | 0.978 | 0.911 |
| 33 | 0.397 | 0.869 | 73 | 0.996 | 0.925 |
| 34 | 0.414 | 0.875 | 74 | 1.013 | 0.939 |
| 35 | 0.432 | 0.876 | 75 | 1.032 | 0.953 |
| 36 | 0.452 | 0.874 | 76 | 1.049 | 0.967 |
| 37 | 0.474 | 0.872 | 77 | 1.067 | 0.982 |
| 38 | 0.497 | 0.871 | 78 | 1.085 | 0.996 |
| 39 | 0.521 | 0.873 | 79 | 1.103 | 1.012 |
| 40 | 0.545 | 0.878 | 80 | 1.122 | 1.029 |
| 41 | 0.569 | 0.885 | 81 | 1.141 | 1.047 |
| 42 | 0.594 | 0.893 | 82 | 1.161 | 1.065 |
| 43 | 0.620 | 0.902 | 83 | 1.180 | 1.083 |
| 44 | 0.647 | 0.914 | 84 | 1.199 | 1.100 |
| 45 | 0.676 | 0.929 | 85 | 1.217 | 1.116 |
| 46 | 0.708 | 0.949 | 86 | 1.234 | 1.130 |
| 47 | 0.744 | 0.975 | 87 | 1.250 | 1.143 |
| 48 | 0.785 | 1.007 | 88 | 1.264 | 1.155 |
| 49 | 0.832 | 1.043 | 89 | 1.277 | 1.164 |
| 50 | 0.883 | 1.082 | 90 | 1.287 | 1.169 |
| 51 | 0.935 | 1.120 | 91 | 1.295 | 1.171 |
| 52 | 0.988 | 1.156 | 92 | 1.301 | 1.167 |
| 53 | 1.042 | 1.191 | 93 | 1.305 | 1.156 |
| 54 | 1.099 | 1.225 | 94 | 1.306 | 1.139 |
| 55 | 1.159 | 1.260 | 95 | 1.304 | 1.113 |
| 56 | 1.222 | 1.295 | 96 | 1.299 | 1.077 |
| 57 | 1.288 | 1.333 | 97 | 1.292 | 1.033 |
| 58 | 1.355 | 1.374 | 98 | 1.281 | 0.978 |
| 59 | 1.423 | 1.419 | 99 + | 1.281 | 0.978 |

## 14. OTHER POST-EMPLOYMENT BENEFITS (CONTINUED)

For the June 30, 2015 and June 30, 2014 OPEB actuarial valuations, an actual age and gender distribution based on reported census information was used for GHI/EBCBS Medicare-eligible participants. For the June 30, 2015 and June 30, 2014 OPEB actuarial valuations, the Medicare participants in the HIP Medicare Advantage arrangement were assumed to have the same age and gender distribution as the data underlying the Yamamoto Study. For the June 30, 2015 valuation, the Medicare participants in the Other HMO arrangements were assumed to have the same age and gender distribution as the data underlying the Yamamoto study.

For the June 30, 2015 and June 30, 2014 OPEB actuarial valuations, the age and gender of non-Medicare eligible participants were based on the following assumed distribution table, assuming a total of 2,354 single contracts and 2,492 family contracts.

| | Members Used | |
|---|---|---|
| **AGE RANGE** | **MALE** | **FEMALE** |
| 00–00 | 64 | 64 |
| 01-01 | 67 | 67 |
| 02–04 | 210 | 210 |
| 05–09 | 373 | 373 |
| 10–14 | 403 | 403 |
| 15–19 | 388 | 371 |
| 20–24 | 310 | 323 |
| 25–29 | 338 | 357 |
| 30–34 | 431 | 447 |
| 35–39 | 481 | 499 |
| 40–44 | 495 | 530 |
| 45–49 | 446 | 486 |
| 50–54 | 392 | 422 |
| 55–59 | 271 | 272 |
| 60–64 | 173 | 166 |
| 65+ | 89 | 76 |

For the June 30, 2015 OPEB actuarial valuation, the age adjustment for the non-Medicare GHI/EBCBS premium reflects a 5% reduction in the GHI portion of the monthly premium (with the GHI portion representing $266.88 out of the $572.19 single premium and $706.00 out of the $1,499.82 family premium for fiscal year 2016 rates) and a 3% reduction in the EBCBS portion of the premium (with the EBCBS portion representing the remainder of the premiums) to derive the estimated margin that is expected to be returned.

The morbidity factors are used to age-adjust the reported premiums for the HIP and GHI/EBCBS arrangements. The stated premiums provided to the Office of Actuary ("OA") by OLR reflect the average premium cost for retirees and actives of the NYCHBP, not all of whom are included in this valuation report. The assumed underlying cost of the benefit provided to retirees is developed by taking the stated premiums, removing any known margin to get to underlying expected cost of benefits provided (including administrative costs), adjusting for any plan changes, and then finally adjusting for the age and gender of the particular retiree. The age and gender is compared to a distribution for the age and gender of the overall population used in developing the stated premium.

The distribution can reflect the actual age and gender of the covered population, or it can be an estimate if the actual data is not available.

## 14. OTHER POST-EMPLOYMENT BENEFITS (CONTINUED)

**Medicare Advantage Adjustment Factors**—The age-adjusted premiums for HIP HMO Medicare-eligible retirees were multiplied by the following factors to reflect actual calendar year 2016 premiums and future anticipated changes in Medicare Advantage reimbursement rates. As of June 30, 2009, the factors had been updated to reflect that Medicare Advantage reimbursement rates are expected to be significantly reduced over the next several years. The reductions in the reimbursement rates were part of the National Health Care Reform ("NHCR") legislation and are likely to be most significant in areas where medical costs are greater, such as The City. In developing the adjustment factors for the June 30, 2015 and the June 30, 2014 OPEB actuarial valuations, it was assumed that the cost of HIP coverage would not be allowed to exceed the cost of GHI/EBCBS coverage for Medicare retirees. Since the reported calendar year 2016 and 2015 HIP Medicare Advantage premium rates are within 1/2% of the fiscal year 2016 and 2015 GHI/EBCBS Medicare rates, respectively, the assumption that HIP would not be allowed to exceed the GHI/EBCBS rate has resulted in a factor of 1.0 for all future years. The adjustment factors used as of June 30, 2015 and 2014 are shown for comparative purposes.

| | Factor * | |
|---|---|---|
| **FISCAL YEAR** | **JUNE 30, 2015 VALUATION** | **JUNE 30, 2014 VALUATION** |
| 2015 | 1.00 | 1.00 |
| 2016 | 1.00 | 1.00 |
| Thereafter | 1.00 | 1.00 |

** Includes anticipated impact of NHCR*

**Medicare**—Medicare is assumed to be the primary payer for all participants over age 65. For future disability retirements, Medicare is assumed to start 2.5 years after retirement for the following portion of retirees:

| | Valuation as of June 30, | |
|---|---|---|
| | **2015** | **2014** |
| NYCERS | 35% | 35% |

**Participation**—Active participation assumptions are based on actual elections 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. Detailed assumptions appear in the following table. (The participation assumptions were the same in both years 2015 and 2014.)

**PLAN PARTICIPATION ASSUMPTIONS — June 30, 2015 and June 30, 2014 Valuations**

| **BENEFITS** | **NYCERS** |
|---|---|
| **PRE-MEDICARE** | |
| GHI/EBCBS | 65% |
| HIP HMO | 22 |
| Other HMO | 8 |
| Waiver | 5 |
| **MEDICARE** | |
| GHI | 72 |
| HIP HMO | 21 |
| Other HMO | 4 |
| Waiver | 3 |
| **POST-MEDICARE MIGRATION** | |
| Other HMO to GHI | 50 |
| HIP HMO to GHI | 0 |
| Pre-Med. Waiver | |
| To GHI @ 65 | 13 |
| To HIP @ 65 | 13 |

## 14. OTHER POST-EMPLOYMENT BENEFITS (CONTINUED)

Waivers are assumed to include participants who do not qualify for coverage because they were working less than 20 hours a week at termination.

**Dependent Coverage**—Dependent coverage is assumed to terminate when a retiree dies.

**Dependents**—Dependent assumptions based on distribution of coverage of recent retirees are shown in the following table. Actual spouse data is shown for current retirees. Child dependents of current retirees are assumed to receive coverage until age 26.

Beginning with the June 30, 2012 valuation, based on experience under the OPEB Plan for NYCERS, male retirees were assumed to be four (4) years older than their wives, and female retirees were assumed to be two (2) years younger than their husbands. Children are assumed to be covered for eight (8) years after retirement. For employees eligible to retire based only on service, children are assumed to be covered for an additional five (5) years.

**DEPENDENT COVERAGE ASSUMPTIONS — June 30, 2015 and June 30, 2014 Valuations**

| GROUP | NYCERS |
|---|---|
| **MALE** | |
| Single Coverage | 30% |
| Spouse | 40 |
| Child/No Spouse | 5 |
| Spouse and Child | 25 |
| **Total** | 100% |
| **FEMALE** | |
| Single Coverage | 70% |
| Spouse | 20 |
| Child/No Spouse | 5 |
| Spouse and Child | 5 |
| **Total** | 100% |

**Demographic Assumptions**—The assumptions are the same as those that were used to value the pension benefits of the NYCRS for determining employer contributions for fiscal years beginning 2016.

**COBRA Benefits**—Although COBRA beneficiaries pay 102% of "premiums," typical claim costs for COBRA participants run about 50% greater than costs for other participants.

There is no cost to The City for COBRA beneficiaries who enroll in community-rated HMO's, 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.

In order to reflect the cost of COBRA coverage, the cost of excess claims for GHI-covered individuals and families is estimated assuming that 15% of employees not eligible for other benefits included in the valuation elect COBRA coverage for 15 months. These assumptions are based on experience of other large employers. This percentage is applied to the overall enrollment in the active plan and reflects a load for individuals who are not yet members of the retirement systems and are still eligible for COBRA benefits. This results in an assumption in the June 30, 2015 OPEB actuarial valuation of a lump-sum COBRA cost of $925 for terminations during fiscal year 2016. (An $875 lump-sum cost during fiscal year 2015 was assumed in the June 30, 2014 OPEB actuarial valuation.) The $925 ($875) lump-sum amount is increased by the Pre-Medicare HCCTR for future years but is not adjusted for age-related morbidity.

## 14. OTHER POST-EMPLOYMENT BENEFITS (CONTINUED)

**Cadillac Tax**—Effective June 30, 2012, the OPEB actuarial valuation includes an explicit calculation of the high-cost plan excise tax ("Cadillac Tax") that will be imposed beginning in 2020 under NHCR.

The tax is 40% of the excess of (a) over (b) where (a) is the cost of medical coverage and (b) is the statutory limits ($10,200 for single coverage and $27,500 for family coverage), adjusted for the following:

— The limit will first be increased by the excess of the accumulated trend for the period from 2010 through 2018 over 55% (reflecting the adjustment for excess trend on the standard Federal Blue Cross/Blue Shield option). The calculation reflects the actual trend on the standard Federal Blue Cross/Blue Shield option for 2010 through 2015. The trend was estimated using the Pre-Medicare trend for the period from 2015 through 2018 and the actual Federal Blue Cross/Blue Shield trend for the period 2010–2015.

— For Pre-Medicare retirees above the age of 55, the limit will be further increased by $1,650 for single coverage and $3,450 for family coverage.

— For 2019, the 2018 limit was increased by CPI + 1% (e.g., 3.5%). For each year after 2019, the limit is further increased by CPI (e.g., 2.5%). The indexing of limits starts in 2018; the tax is first applied in 2020. (This legislative change is reflected in the June 30, 2015 valuation.)

The impact of the Cadillac Tax for the NYCHBP benefits is calculated based on the following assumptions about the cost of medical coverage:

— Benefit costs were based on Pre-Medicare and Medicare plan premiums as stated, without adjustment for age.

— For Medicare participants, the cost of reimbursing the Medicare Part B premium was reflected based on the average cost assumed in the valuation, including the Income-Related Monthly Adjustment Amount (IRMAA).

— The cost for each benefit option (GHI, HIP, or Other HMO, combined with Medicare Part B premium reimbursement, if applicable) was separately compared to the applicable limit.

— The additional Cadillac Tax due to the riders or optional benefit arrangements is assumed to be reflected in the contribution required for the rider or optional benefit.

— The additional Cadillac Tax due to amounts provided by Welfare Fund benefits are assumed to be absorbed by the Welfare Fund or by lower net Welfare Fund contribution amounts.

— The additional amount for Pre-Medicare retirees above age 55 is available to Medicare retirees or retirees who are younger than age 55 for plans sponsored by an employer where the majority of employees are engaged in high-risk professions, including law enforcement officers and fire fighters. It has been assumed that the majority of the employees of The City are not engaged in such professions, so the assumptions have not extended the adjustment to these additional ages.

In cases where The City provides only a portion of the OPEB benefits, which give rise to the Cadillac Tax, the calculated Cadillac Tax is allocated to the appropriate paying entity in proportion to the OPEB liabilities for relevant OPEB benefits.

**Active/Inactive Liabilities**—Beginning with the June 30, 2010 OPEB actuarial valuation, it was assumed that the liability for the Active/Inactive members should be 40% of the measured liability of the Active/Inactive population. This is roughly equivalent to assuming that 60% of the Active/Inactive members will terminate membership prior to vesting and not receive OPEB. Beginning with the June 30, 2012 OPEB actuarial valuation, the entry age AAL is assumed to include the 40% of the measured present value of projected benefits.

## 15. 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's 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 voluntary commencement of remediation. As of June 30, 2016 and 2015, the System reported $32.4 million and $79.0 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 System facilities operated at these locations.

## 16. SUBSEQUENT EVENTS

— On July 14, 2016, the Authority drew down $109.0 million of Fiscal 2016 Series 4 BANs.

— On August 11, 2016, the Authority drew down $99.3 million of Fiscal 2016 Series 4 BANs.

— On September 8, 2016, the Authority drew down $143.6 million of Fiscal 2016 Series 4 BANs.

— On October 6, 2016, the Authority issued $201.0 million of fixed rate new money Second Resolution Bonds, Fiscal 2017 Series AA. Proceeds from the bonds were used to pay for construction projects, bond issuance costs, and to retire the balance of commercial paper outstanding.

— On October 6, 2016, the Authority issued $289.5 million of adjustable rate new money Second Resolution Bonds, Fiscal 2017 Series BB. The bonds are supported by liquidity facilities provided by three banks. Proceeds from the bonds were used to pay for construction projects and bond issuance costs.

* * * * * *

# REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)

## SCHEDULE OF FUNDING PROGRESS FOR THE OTHER POST EMPLOYMENT BENEFIT PLAN

June 30, 2016, 2015 and 2014 (in thousands):

| YEAR ENDED | ACTUARIAL VALUATION DATE | ACTUARIAL VALUE OF ASSETS | ACTUARIAL ACCRUED LIABILITY (AAL) ENTRY AGE | UNFUNDED ALL (UAAL) | FUNDED RATIO | COVERED PAYROLL | UAAL AS A PERCENTAGE OF COVERED PAYROLL |
|---|---|---|---|---|---|---|---|
| June 30, 2016 | June 30, 2015 | $ — | $ 1,134 | $ 1,134 | — | $ 1,235 | 91.8% |
| June 30, 2015 | June 30, 2014 | — | 856 | 856 | — | 1,289 | 66.4 |
| June 30, 2014 | June 30, 2013 | — | 819 | 819 | — | 1,181 | 69.3 |

## SCHEDULE OF THE AUTHORITY'S PROPORTIONATE SHARE OF THE NET PENSION LIABILITY

Last Ten Fiscal Years* (in thousands):

| | 2016 | 2015 | 2014 | 2013 |
|---|---|---|---|---|
| Authority's proportion of the net pension liability | 0.005% | 0.005% | 0.005% | 0.005% |
| Authority's proportionate share of the net pension liability | $ 1,215 | $ 1,012 | $ 901 | $ 1,154 |
| Authority's covered-employee payroll | $ 1,235 | $ 1,289 | $ 1,181 | $ 1,124 |
| Authority's proportionate share of the net pension liability as percentage of its covered employee payroll | 98.381% | 78.51% | 76.29% | 102.7% |
| Plan fiduciary net position as a percentage of the total pension liability | 68.0% | 73.1% | 75.3% | 67.2% |

## SCHEDULE OF THE AUTHORITY'S PENSION CONTRIBUTIONS

Last Ten Fiscal Years* (in thousands):

| | 2016 | 2015 | 2014 | 2013 | 2012 | 2011 | 2010 | 2009 |
|---|---|---|---|---|---|---|---|---|
| Actuarially determined contribution | $ 170 | $ 161 | $ 141 | $ 136 | $ 157 | $ 113 | $ 121 | $ 55 |
| Contribution in relation to the actuarially determined contribution | $ (170) | $ (161) | $ (141) | $ (136) | $ (157) | $ (113) | $ (121) | $ (55) |
| Contribution deficiency (excess) | $ — | $ — | $ — | $ — | $ — | $ — | $ — | $ — |
| Authority's covered-employee payroll[1] | $ 1,235 | $ 1,289 | $ 1,181 | $ 1,124 | $ 919 | $ 1,026 | $ 676 | $ 729 |
| Contribution as a percentage of covered-employee payroll | 13.77% | 12.49% | 11.94% | 12.10% | 17.08% | 11.01% | 17.90% | 7.54% |

* This data is presented for those years for which information is available.
[1] Covered-employee payroll data from the actuarial valuation date with one-year lag.

# STATISTICAL SECTION

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

## CONTENTS

**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 by Category - Ten Year Trend

| | 2016 | 2015 | 2014 | 2013 RESTATED | 2012 RESTATED | 2011 | 2010 | 2009 | 2008 | 2007 |
|---|---|---|---|---|---|---|---|---|---|---|
| Net Investment in Capital Assets | ($430,201) | ($598,349) | ($771,165) | ($945,890) | ($840,201) | ($215,322) | $920,728 | $1,253,882 | $1,737,181 | $2,056,879 |
| **Restricted for:** | | | | | | | | | | |
| Debt Service | 1,457,332 | 1,224,925 | 1,145,505 | 918,229 | 687,656 | 573,461 | 239,192 | 285,348 | 209,130 | 161,661 |
| Operations & Maintenance | 250,447 | 226,383 | 221,440 | 212,233 | 212,885 | 199,636 | 191,772 | 195,844 | 200,438 | 175,161 |
| Unrestricted (deficit) | (543,491) | (723,166) | (754,581) | (668,471) | (869,372) | (910,633) | (1,632,209) | (1,474,823) | (980,858) | (667,418) |
| **Total Net Position** | **$734,087** | **$129,793** | **($158,801)** | **($483,899)** | **($809,032)** | **($352,858)** | **($280,517)** | **$260,251** | **$1,165,891** | **$1,726,283** |

### Changes in Net Position - Ten Year Trend

| | 2016 | 2015 | 2014 | 2013 RESTATED | 2012 RESTATED | 2011 | 2010 | 2009 | 2008 | 2007 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Operating Revenues** | | | | | | | | | | |
| Water Supply and Distribution | $1,431,148 | $1,382,189 | $1,351,550 | $1,278,646 | $1,238,352 | $1,158,977 | $1,005,045 | $920,033 | $784,856 | $796,404 |
| Sewer Collection and Treatment | 2,275,524 | 2,197,679 | 2,148,964 | 2,033,047 | 1,857,527 | 1,797,777 | 1,562,777 | 1,430,588 | 1,220,653 | 1,238,612 |
| Bad Debt Expense | (4,467) | (23,301) | (26,979) | (16,983) | (28,541) | (76,799) | (14,032) | (36,060) | — | (226,028) |
| Other Operating Revenues | 185,793 | 211,267 | 266,996 | 172,283 | 140,595 | 111,552 | 190,251 | 97,946 | 97,778 | 98,061 |
| **Total Operating Revenues** | **3,887,998** | **3,767,834** | **3,740,531** | **3,466,993** | **3,207,933** | **2,991,507** | **2,744,041** | **2,412,507** | **2,103,287** | **1,907,049** |
| **Operating Expenses** | | | | | | | | | | |
| Operation and Maintenance | 1,313,840 | 1,517,132 | 1,518,424 | 1,375,740 | 1,446,852 | 1,397,867 | 1,829,835 | 1,448,268 | 1,320,439 | 1,147,157 |
| Administration and General | 61,455 | 55,865 | 68,936 | 56,738 | 47,402 | 40,424 | 40,257 | 50,581 | 44,027 | 35,493 |
| Depreciation and Amortization | 918,950 | 1,023,906 | 740,879 | 677,560 | 692,296 | 628,339 | 574,483 | 696,345 | 646,377 | 579,860 |
| **Total Operating Expenses** | **2,294,245** | **2,596,903** | **2,328,239** | **2,110,038** | **2,186,550** | **2,066,630** | **2,444,575** | **2,195,194** | **2,010,843** | **1,762,510** |
| **Operating Income** | **1,593,753** | **1,170,931** | **1,412,292** | **1,356,955** | **1,021,383** | **924,877** | **299,466** | **217,313** | **92,444** | **144,539** |
| **Nonoperating Revenue (Expenses)** | | | | | | | | | | |
| Interest Expense | (1,195,773) | (1,264,538) | (1,263,305) | (1,225,771) | (1,246,863) | (1,178,226) | (1,019,633) | (929,333) | (834,085) | (771,656) |
| Loss on Retirement/ Impairment of Fixed Assets | (4,488) | (2,334) | (18,815) | (20,976) | (1,646) | (3,426) | (23,254) | (299,450) | (14,598) | (23,257) |
| Subsidy Income | 164,502 | 163,655 | 174,606 | 174,862 | 196,241 | 180,986 | 128,110 | 108,708 | 104,234 | 90,601 |
| Capital Distribution | (11,082) | (25,337) | (39,627) | (25,429) | (42,005) | (53,591) | (32,580) | (51,921) | (24,619) | (33,133) |
| Investment Income | 53,322 | 22,426 | 50,148 | 58,793 | 48,936 | 38,313 | 65,760 | 99,122 | 108,892 | 98,132 |
| **Net income (loss) before capital contributions** | **600,234** | **64,803** | **315,299** | **318,434** | **(23,954)** | **(91,067)** | **(582,131)** | **(855,561)** | **(567,732)** | **(494,774)** |
| **Capital Contributions** | **4,060** | **223,791** | **9,799** | **7,699** | **26,903** | **18,696** | **30,424** | **11,529** | **7,340** | **12,357** |
| Change in Net Position | 604,294 | 288,594 | 325,098 | 326,133 | 2,949 | (72,371) | (551,707) | (844,032) | (560,392) | (482,417) |
| Net Position - Beginning of Year | 129,793 | (158,801) | (483,899) | (809,032) | (352,888) | (280,517) | 260,251 | 1,165,891 | 1,726,283 | 2,899,381 |
| Restatement of Beginning Net Position | — | — | — | (1,000) | (459,093) | — | 10,939 | (61,608) | — | (690,681) |
| **Net position - end of year** | **$734,087** | **$129,793** | **($158,801)** | **($483,899)** | **($809,032)** | **($352,888)** | **($280,517)** | **$260,251** | **$1,165,891** | **$1,726,283** |

## REVENUE CAPACITY INFORMATION

### Water and Sewer Rate Increases - Ten Year Trend

| EFFECTIVE DATE | INCREASE IN FLAT-RATE WATER/METERED WATER | METERED WATER RATE (PER CCF)[1] | SEWER RATE |
|---|---|---|---|
| July 1, 2007 | Increased 11.5% | 2.02 | 159% of water charge |
| July 1, 2008 | Increased 14.5% | 2.31 | 159% of water charge |
| July 1, 2009 | Increased 12.9% | 2.61 | 159% of water charge |
| July 1, 2010 | Increased 12.9% | 2.95 | 159% of water charge |
| July 1, 2011 | Increased 7.5% | 3.17 | 159% of water charge |
| July 1, 2012 | Increased 7.0% | 3.39 | 159% of water charge |
| July 1, 2013 | Increased 5.6% | 3.58 | 159% of water charge |
| 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 |

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

### Average Daily Water Consumption - Ten Year Trend

| FISCAL YEAR | TOTAL (MGD)[1] | UPSTATE COUNTIES (MGD)[1] | CITY (MGD)[1] | PER CAPITA (GALS/DAY)[2] |
|---|---|---|---|---|
| 2007 | 1,218 | 120 | 1,098 | 137 |
| 2008 | 1,235 | 119 | 1,116 | 139 |
| 2009 | 1,152 | 114 | 1,038 | 129 |
| 2010 | 1,127 | 112 | 1,016 | 126 |
| 2011 | 1,152 | 117 | 1,035 | 127 |
| 2012 | 1,117 | 109 | 1,009 | 123 |
| 2013 | 1,123 | 110 | 1,013 | 124 |
| 2014 | 1,116 | 111 | 1,005 | 123 |
| 2015 | 1,115 | 112 | 1,003 | 123 |
| 2016 | 1,109 | 112 | 997 | 122 |

*[1] mgd = millions of gallons used per day*

*[2] Population source: U.S. Department of Commerce, Bureau of the Census.*

## SCHEDULES OF DEBT CAPACITY INFORMATION

### Revenue Bond Coverage Last Ten Fiscal Years

Years Ended June 30, 2007 — 2016 (in thousands):

| | | DEBT SERVICE REQUIREMENTS [1] | | | | |
|---|---|---|---|---|---|---|
| FISCAL YEAR | CASH RECEIPTS $ | PRINCIPAL $ | INTEREST $ | TOTAL $ | FIRST RESOLUTION DEBT SERVICE COVERAGE | SECOND RESOLUTION DEBT SERVICE COVERAGE[2] |
| 2007 | 1,994,909 | 200,780 | 483,661 | 684,441 | 3.83 | 2.89 |
| 2008 | 2,236,541 | 201,791 | 556,627 | 758,418 | 4.23 | 2.92 |
| 2009 | 2,400,849 | 204,530 | 575,476 | 780,006 | 4.67 | 3.05 |
| 2010 | 2,622,290 | 249,093 | 592,194 | 841,287 | 5.24 | 3.09 |
| 2011 | 3,039,374 | 345,591 | 778,235 | 1,123,826 | 5.77 | 2.67 |
| 2012 | 3,270,827 | 378,042 | 700,658 | 1,078,700 | 7.41 | 2.98 |
| 2013 | 3,512,710 | 343,287 | 617,189 | 960,476 | 10.32 | 3.61 |
| 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 |

[1] *Debt service requirements include First Resolution debt service and Second Resolution debt service, net of subsidy from the NYS Environmental Facilities Corporation and the year-end balance carried forward from the prior fiscal year.*

[2] *Revenue for coverage purposes is net of Authority expenses.*

### Ratio of Debt Outstanding Ten Year Trend

Years Ended June 30, 2007 — 2016 (in thousands):

| FISCAL YEAR | TOTAL DEBT OUTSTANDING | DEBT PER CAPITA |
|---|---|---|
| 2007 | 17,046,375 | 2.13 |
| 2008 | 19,010,299 | 2.36 |
| 2009 | 21,619,470 | 2.66 |
| 2010 | 23,728,997 | 2.93 |
| 2011 | 26,275,774 | 3.17 |
| 2012 | 27,992,861 | 3.35 |
| 2013 | 28,864,590 | 3.42 |
| 2014 | 30,144,755 | 3.55 |
| 2015 | 29,941,881 | 3.53 |
| 2016 | 30,251,327 | N/A |

*N/A = data not available*

### Ten Largest Customers (in thousands):

| NAME | FISCAL YEAR 2016 BILLED |
|---|---|
| New York City Housing Authority | $188,667 |
| The City of New York | 111,300 |
| Consolidated Edison, Inc. | 21,887 |
| New York City Health and Hospital Corporation | 13,918 |
| River Bay Corporation (Co-op City) | 12,375 |
| Port Authority of New York and New Jersey | 10,569 |
| The Parkchester Condo (North & South) | 8,752 |
| Peter Cooper Village/Stuyvesant Town | 8,531 |
| New York Presbyterian Hospital | 7,437 |
| Columbia University | 6,618 |

## 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 |
|---|---|---|---|---|
| 2006 | 298,379,912 | 0.97 | 7,993,906 | -0.24 |
| 2007 | 301,231,207 | 0.96 | 8,013,775 | 0.25 |
| 2008 | 304,093,966 | 0.95 | 8,068,195 | 0.68 |
| 2009 | 306,771,529 | 0.88 | 8,131,574 | 0.79 |
| 2010 | 309,346,863 | 0.84 | 8,092,426 | 0.75 |
| 2011 | 311,718,857 | 0.77 | 8,287,000 | 1.15 |
| 2012 | 314,102,623 | 0.76 | 8,365,069 | 0.94 |
| 2013 | 316,427,395 | 0.74 | 8,436,047 | 0.85 |
| 2014 | 318,907,401 | 0.78 | 8,495,194 | 0.70 |
| 2015 | 321,418,820 | 0.79 | 8,550,405 | 0.65 |

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

### Personal Income - Ten Year Trend

| | PERSONAL INCOME | | | PER CAPITA | | |
|---|---|---|---|---|---|---|
| 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 |
| 2006 | 11,395 | 377.7 | 3.32 | 38,189 | 47,247 | 123.9 |
| 2007 | 12,001 | 415.3 | 3.46 | 39,840 | 51,827 | 130.2 |
| 2008 | 12,503 | 419.6 | 3.36 | 41,116 | 52,006 | 126.6 |
| 2009 | 12,096 | 407.9 | 3.38 | 39,429 | 50,167 | 127.4 |
| 2010 | 12,477 | 431.8 | 3.47 | 40,334 | 52,708 | 130.9 |
| 2011 | 13,255 | 457.6 | 3.46 | 42,521 | 55,217 | 130.1 |
| 2012 | 13,915 | 474.8 | 3.42 | 44,301 | 56,759 | 128.2 |
| 2013 | 14,074 | 481.6 | 3.42 | 44,477 | 57,069 | 128.4 |
| 2014 | 14,810 | 507.3 | 3.45 | 46,439 | 59,741 | 129.7 |
| 2015 | 15,459 | 540.4 | 3.50 | 48,095 | 63,196 | 131.4 |

*N/A = data not available*

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

*Amounts as of November 30, 2015*

## DEMOGRAPHIC AND ECONOMIC INFORMATION (CONTINUED)

### Unemployment Rate - Ten Year Trend

| YEAR | CITY OF NEW YORK % | CHANGE FROM PRIOR PERIOD % |
|---|---|---|
| 2006 | 4.99 | -0.79 |
| 2007 | 5.10 | 0.11 |
| 2008 | 5.72 | 0.62 |
| 2009 | 9.42 | 3.70 |
| 2010 | 9.52 | 0.10 |
| 2011 | 9.05 | -0.47 |
| 2012 | 9.25 | 0.20 |
| 2013 | 8.60 | -0.65 |
| 2014 | 7.15 | -1.45 |
| 2015 | 5.58 | -1.57 |

*Source: NY State, Department of Labor.*

### Ten Largest Employers

| NAME | NUMBER OF EMPLOYEES, 2013 |
|---|---|
| City of New York | 151,678 |
| New York City Department of Education | 119,618 |
| United States Government | 80,900 |
| State of New York | 69,926 |
| Metropolitan Transportation Authority | 67,381 |
| North Shore-LIJ Health System | 48,650 |
| JPMorgan Chase & Co. | 37,363 |
| New York City Health and Hospitals Corp. | 35,044 |
| Mount Sinai Health System | 32,056 |
| Macy's Inc | 31,200 |

*Source: Crain's New York Business - Book of Lists 2015*

## OPERATING INFORMATION

### Water Pollution Control Plants Daily Flow

| PLANT | DESIGN FLOW (MGD) [1] | 12 MONTH AVG. (MGD) [1] JULY 14 - JULY 15 | JULY 15 - JULY 16 |
|---|---|---|---|
| Wards Island | 275 | 209 | 200 |
| North River | 170 | 116 | 111 |
| Hunts Point | 200 | 120 | 122 |
| 26th Ward | 85 | 45 | 44 |
| Coney Island | 110 | 85 | 86 |
| Owls Head | 120 | 94 | 92 |
| Newtown Creek | 310 | 217 | 209 |
| Red Hook | 60 | 27 | 26 |
| Jamaica | 100 | 78 | 76 |
| Tallmans Island | 80 | 58 | 55 |
| Bowery Bay | 150 | 109 | 100 |
| Rockaway | 45 | 16 | 16 |
| Oakwood Beach | 40 | 28 | 26 |
| Port Richmond | 60 | 30 | 26 |
| **Total** | **1,805** | **1,232** | **1,189** |

[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 |
| Richmond Tunnel | Tunnel 2 to Staten Island Uptake Shaft | 5.0 | 10 | 1970 |
| Staten Island Siphon | Richmond Tunnel and Brooklyn Trunk Water Mains | 2.0 | 6 | 2016 |

[1] *Tunnels are not round* [2] *Variable diameter tunnels*

## OPERATING INFORMATION (CONTINUED)

**Number of Employees - Department of Environmental Protection - Ten Year Trend**

| YEAR | NUMBER OF EMPLOYEES | PERCENTAGE CHANGE FROM PRIOR PERIOD |
|---|---|---|
| 2007 | 5,844 | 2.98% |
| 2008 | 5,895 | 0.87% |
| 2009 | 5,785 | -1.87% |
| 2010 | 5,749 | -0.62% |
| 2011 | 5,653 | -1.67% |
| 2012 | 5,564 | -1.57 % |
| 2013 | 5,567 | 0.05% |
| 2014 | 5,547 | -0.36% |
| 2015 | 5,558 | 0.20% |
| 2016 | 5,720 | 2.91% |

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