A. Summary of Significant Accounting Policies

The accompanying basic financial statements of The City of New York (City or primary government) are presented in conformity with Generally Accepted Accounting Principles (GAAP) for State and local governments in the United States of America as prescribed by the Governmental Accounting Standards Board (GASB). The amounts shown in the "Primary Government" and "component units" columns of the accompanying government-wide financial statements are only presented to facilitate financial analysis and are not the equivalent of consolidated financial statements.

The following is a summary of the significant accounting policies and reporting practices of the City:

1. Reporting Entity

The City is a municipal corporation governed by the Mayor and the City Council. The City's operations also include those normally performed at the county level and, accordingly, transactions applicable to the operations of the five counties that comprise the City are included in these financial statements.

The financial reporting entity consists of the City and its component units, which are legally separate organizations for which the City is financially accountable.

The City is financially accountable for the organizations that make up its legal entity. It is also financially accountable for legally separate organizations if City officials appoint a voting majority of an organization's governing body and, either the City is able to impose its will on that organization, or there is a potential for the organization to provide specific financial benefits to, or to impose specific financial burdens on, the City. The City may also be financially accountable for organizations that are fiscally dependent on the City if there is a potential for the organizations to provide specific financial benefits to the City or impose specific financial burdens on the City, regardless of whether the organizations have separate elected governing boards, governing boards appointed by higher levels of government, or jointly appointed boards. The City is financially accountable for all of its component units.

Some component units are included in the financial reporting entity by discrete presentation. Other component units, despite being legally separate from the City, are so integrated with the City that they are in substance part of the City. These component units are blended with the City.

The New York City Transit Authority is an affiliated agency of the Metropolitan Transportation Authority (MTA) of the State of New York (State), which is a component unit of the State and is thus excluded from the City's financial reporting entity.

All of the component units publish separate annual financial statements, which are available at: Office of the Comptroller, Bureau of Accountancy-Room 200 South, 1 Centre Street, New York, New York 10007, or at *www.comptroller.nyc.gov*.

Blended Component Units

Component Units that provide service exclusively to the City, whose governing bodies are substantially the same as that of the City, whose total debts outstanding are expected to be repaid with resources of the City, or who are organized as not-for-profits and the City is the sole corporate member (business-type activities), are reported as if they were part of the City, or blended into the City's financial statements. They include the following:

New York City School Construction Authority (SCA). SCA is a public benefit corporation created by the State Legislature in 1988. SCA's responsibilities, as defined in the enabling legislation, are the design, construction, reconstruction, improvement, rehabilitation, and repair of the City's public schools. SCA is governed by a three-member Board of Trustees, all of whom are appointed by the Mayor, including the City's Department of Education (DOE) Chancellor, who serves as the Chairperson.

SCA's operations are funded by appropriations made by the City, which are based on a five-year capital plan developed by the DOE. The City's appropriation for the five-year capital plan for the fiscal years 2015 through 2019 is $16.6 billion.

SCA also carries out certain projects funded by the City Council and Borough Presidents, pursuant to the City Charter.

As SCA is a pass-through entity, in existence for the sole purpose of constructing capital projects, all costs incurred are capitalized into construction-in-progress. Upon completion of projects, the assets are transferred to the DOE.

New York City Transitional Finance Authority (TFA). TFA, a corporate governmental agency constituting a public benefit corporation and instrumentality of the State, was created in 1997 to issue and sell bonds and notes to fund a portion of the capital program of the City, the purpose of which is to maintain, rebuild, and expand the infrastructure of the City and to pay TFA's administrative expenses.

TFA's authorizing legislation, which was amended several times, authorizes TFA to have outstanding $13.5 billion of Future Tax Secured (FTS) Bonds. TFA FTS Bonds are secured by the City's collections of personal income tax and, if necessary, sales tax. In addition, TFA is authorized to issue additional FTS Bonds provided that the amount of such additional bonds, together with the amount of indebtedness contracted by the City, does not exceed the debt limit of the City. TFA is also authorized to have outstanding Recovery Bonds up to $2.5 billion to fund the City's costs related to, and arising from, events on September 11, 2001 at the World Trade Center, notwithstanding the limits discussed above. Further, legislation enacted in April 2006 enables TFA to have outstanding up to $9.4 billion of Building Aid Revenue Bonds (BARBs), notes, or other obligations for purposes of funding costs of the five-year educational facilities capital plan for the City school system and TFA's administrative expenditures.

TFA is administered by five directors, who serve ex-officio, consisting of the Director of Management and Budget of the City, the Comptroller of the City, the Speaker of the City Council, the Commissioner of Finance of the City, and the Commissioner of the Department of Design and Construction of the City. TFA does not have any employees; its affairs are administered by employees of the City and of another component unit of the City, for which TFA pays a management fee and overhead, based on its allocated share of personnel and overhead costs.

TSASC, Inc. (TSASC). TSASC is a special-purpose, local development corporation organized under the Not-for-Profit Corporation Law of the State of New York. TSASC was created as a financing entity to issue and sell bonds and notes to fund a portion of the City's capital program.

Pursuant to a purchase and sale agreement with the City, the City sold to TSASC all of its future rights, titles, and interest in the tobacco settlement revenues (TSRs) under the Master Settlement Agreement and the Decree and Final Judgment. The proportion of these revenues pledged to debt service was 37.4%.

TSASC is a non-stock, membership corporation governed by a Board of Directors, a majority of whom are officials of the City. TSASC does not have any employees; its affairs are administered by employees of the City and of another component unit of the City, for which TSASC pays a management fee, rent, and overhead based on its allocated share of personnel and overhead costs.

New York City Educational Construction Fund (ECF). ECF is a public benefit corporation established to construct mixed-use real estate projects that include new school facilities, thereby increasing the number of seats for the DOE on behalf of New York City school children. The ECF builds combined-occupancy structures on City-owned land conveyed to the ECF by the City. The City is required to make rental payments on the school portions of the ECF projects sufficient, together with the revenue received by the ECF from the non-school portions of the ECF projects, to make debt service payments as they come due on ECF Bonds.

The ECF has a Board of Trustees consisting of the Chancellor of the DOE and two trustees appointed by the Mayor.

Fiscal Year 2005 Securitization Corporation (FSC). FSC was established in 2004 as a special-purpose, bankruptcy-remote, local development corporation organized under the Not-for-Profit Corporation Law of the State of New York. FSC was formed for the purpose of issuing bonds to acquire securities held in an escrow account securing City General Obligation Bonds of the City. The securities, which are held in a trust by the trustee for FSC, are scheduled to generate sufficient cash flow to fund the debt service and operational expenditures of FSC for the life of FSC's bonds. FSC is expected to cease operations and dissolve on or before fiscal year 2022 as the final payment on FSC's bonds is due April 1, 2020. After such date, the Corporation will have no assets or liabilities and no bonds outstanding and will have fully expended its debt service funds.

FSC does not have any employees; its affairs are administered by employees of the City and of another component unit of the City, for which FSC pays a management fee and overhead based on its allocated share of personnel and overhead costs. FSC is governed by a Board of Directors elected by its three members, all of whom are officials of the City.

Sales Tax Asset Receivable Corporation (STAR). STAR is a special-purpose, bankruptcy-remote, local development corporation organized under the Not-for-Profit Corporation Law of the State of New York.

Section 3238-a of the New York State Public Authorities Law, which terminates on July 1, 2034, requires that $170 million be paid annually by the State Local Government Assistance Corporation to the City or its assignee. STAR bonds, backed by these revenues, retired all outstanding bonds of the Municipal Assistance Corporation for The City of New York (MAC). Retirement of the outstanding MAC bonds resulted in the receipt by the City of tax revenues that would otherwise have been paid to MAC for the payment of debt service on MAC's bonds.

STAR does not have any employees; its affairs are administered by employees of the City and of another component unit of the City, for which STAR pays a management and overhead fee based on its allocated share of personnel and overhead costs. STAR is governed by a Board of Directors elected by its six members, all of whom are officials of the City.

Hudson Yards Development Corporation (HYDC). HYDC, a local development corporation organized by the City under the Not-for-Profit Corporation Law of the State of New York, was created to manage and implement the development and redevelopment activities (Project) of the Hudson Yards area on the West Side of Manhattan (Project Area). HYDC is governed by a Board of thirteen Directors, a majority of whom serve as officials or employees of The City at the pleasure of the Mayor. HYDC works with various City and State agencies and authorities, and with private developers, on the design, construction, and implementation of the various elements of the Project, and to further private development and redevelopment of the Project Area.

Hudson Yards Infrastructure Corporation (HYIC). HYIC, a local development corporation organized by the City under the Not-for-Profit Corporation Law of the State of New York, was created for the purpose of financing certain infrastructure improvements in the Hudson Yards area on the West Side of Manhattan (Project). HYIC does not engage in development directly, but finances development spearheaded by HYDC and carried out by existing public entities. HYIC fulfills its purpose through the issuance of bonds to finance the Project, including the operations of HYDC, and the collection of revenues, including payments in lieu of taxes and district improvement bonuses from private developers and appropriations from the City, to support its operations and pay principal and interest on its outstanding bonds. HYIC is governed by a Board of Directors elected by its five members, all of whom are officials of the City.

HYIC does not have any employees; its affairs are administered by employees of the City and of another component unit of the City, for which HYIC pays a management fee and overhead based on its allocated share of personnel and overhead costs.

New York City School Support Services, Inc. (NYCSSS). NYCSSS is a Type C not-for-profit corporation organized under the Not-for-Profit Corporation Law of the State of New York. NYCSSS was incorporated for the purpose of providing staffing of custodial helpers for the DOE. NYCSSS' contract with the City was registered on April 28, 2016. The term of the contract is three years terminating on June 30, 2019, with an additional year for renewal through fiscal year 2020. The DOE is in the process of renewing the contract with NYCSSS. Pursuant to this contract, NYCSSS receives monthly payments that cover its projected expenses for the forthcoming month and these contractual payments are NYCSSS' sole source of revenue. NYCSSS is governed by a Board of Directors consisting of five members, two of whom serve ex-officio.

Business-Type Activities

Brooklyn Bridge Park Corporation (BBPC). BBPC is a not-for-profit corporation incorporated under the Not-for-Profit Corporation Law of the State of New York in 2010. BBPC was formed for the purpose of lessening the burdens of government by further developing and enhancing the economic vitality of the Brooklyn waterfront through the development, operation, and maintenance of a renovated waterfront area. BBPC is responsible for the planning, construction, maintenance, and operation of Brooklyn Bridge Park, an 85-acre sustainable waterfront park, stretching 1.3 miles along Brooklyn's East River shoreline. The majority of BBPC's funding comes from a limited number of revenue-generating development sites within the project's footprint. BBPC is governed by a 17-member Board of Directors appointed by the Mayor, the Governor of New York State, and local elected officials.

Governors Island Corporation, doing business as **The Trust for Governors Island (TGI),** is a not-for-profit corporation incorporated under the Not-for-Profit Corporation Law of the State of New York in 2010. TGI was formed for the purpose of lessening the burdens of government by providing the planning, preservation, redevelopment, and ongoing operations and maintenance of approximately 150 acres of Governors Island plus surrounding lands underwater. TGI receives funding from the City, and previously from the State of New York. TGI is governed by a 13-member Board of Directors appointed by the Mayor and nominated by the Mayor, the Governor of the State of New York, and local officials.

WTC Captive Insurance Company, Inc. (WTC Captive). WTC Captive is a not-for-profit corporation incorporated under the Not-for-Profit Corporation Law of the State of New York in 2004 in response to the events of September 11, 2001. WTC Captive was funded with $999.9 million in funds by the Federal Emergency Management Agency (FEMA) and used this funding to support a liability insurance contract (Contract) that provides specified coverage (including general liability, environmental liability, professional liability, and marine liability) against certain third-party claims made against the City and approximately 145 contractors and subcontractors working on the City's FEMA-funded debris removal project. Coverage is provided on both an excess of loss and first dollar basis, depending on the line of coverage. WTC Captive uses deposit accounting, which is applicable when no insurance risk is transferred in an insurance contract. Additionally, as all of WTC Captive's resources must be used to satisfy obligations under the Contract or returned; it reports only changes to its liabilities and no net position. See also Judgments and Claims in Note D.5. WTC Captive is governed by a five-member Board of Directors appointed by the Mayor and includes a contractor representative.

New York City Tax Lien Trusts (NYCTL Trusts). The NYCTL Trusts are Delaware statutory trusts, which were created to acquire certain tax liens from the City in exchange for the proceeds from bonds issued by the NYCTL Trusts, net of reserves funded by the bond proceeds and bond issuance costs. The City is the sole beneficiary to the NYCTL Trusts and is entitled to receive distributions from the NYCTL Trusts after payments to the bondholders and certain reserve requirements have been satisfied. The NYCTL Trusts do not have any employees. The NYCTL Trusts' affairs are administered by the owner trustee, its program manager, tax lien servicer, paying agent, and investment custodian.

The NYCTL Trusts are:

- NYCTL 1998-2 Trust
- NYCTL 2016-A Trust
- NYCTL 2017-A Trust
- NYCTL 2018-A Trust

Discretely Presented Component Units

Component units that do not meet the criteria for blending are presented discretely, separate from the financial data of the City. The component units' column in the government-wide financial statements includes the financial data of these entities, which are reported in a separate column to emphasize that they are legally separate from the City. They include the following:

New York City Water and Sewer System (the System). The System provides water supply, treatment, and distribution and sewage collection, treatment, and disposal for the City and began operations in July 1985. The System is a joint operation consisting of two legally-separate and independent entities. The New York City Municipal Water Finance Authority (Water Authority) is a public benefit corporation created in accordance with the New York City Municipal Water Finance Act in 1984. The New York City Water Board (Water Board) was created by Chapter 515 of the laws of 1984 of the State of New York. The Water Authority issues debt to finance the cost of capital improvements to the System. The Water Board leases the System from the City and fixes and collects 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 Water Authority's bonds and to put the System on a self-sustaining basis. 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 Water Authority and the Water Board. The Water Authority board has several members, four of whom serve ex-officio, including the Commissioner of DEP, Commissioner of Finance, and Director of Management and Budget of the City; Commissioner of the Department of Environmental Conservation of the State; and three public members, two appointed by the Mayor and one by the Governor. The Water Board has seven members, all appointed by the Mayor.

New York City Housing Authority (NYCHA). NYCHA is a public benefit corporation created in 1934 under the New York State Public Housing Law. NYCHA develops, constructs, manages, and maintains affordable housing for eligible low-income families in the City. NYCHA also maintains a leased housing program, which provides housing assistance payments to families.

Substantial operating losses result from the essential services that NYCHA provides exceeding revenues. To meet the funding requirements of these operating losses, NYCHA receives subsidies from: (i) the Federal government, primarily the U.S. Department of Housing and Urban Development, in the form of annual grants for operating assistance, debt service payments, contributions for capital, and reimbursement of expenditures incurred for certain Federal housing programs; (ii) New York State in the form of debt service and capital payments; and (iii) the City in the form of debt service and capital payments. Subsidies are established through budgetary procedures, which establish amounts to be funded by the grantor agencies.

The NYCHA Board is comprised of seven members appointed by the Mayor, including three NYCHA resident members. The Chair of the Board is the Chief Executive Officer of NYCHA and is responsible for the supervision of the business and affairs of NYCHA.

New York City Housing Development Corporation (HDC). HDC, a corporate governmental agency constituting a public benefit corporation of the State of New York, was established in 1971 to encourage the investment of private capital through low-interest mortgage loans in order to increase the supply of safe and sanitary dwelling accommodations for families and persons whose need for housing accommodations cannot be provided by unassisted private enterprise. To accomplish its objectives, HDC is empowered to finance housing through new construction or rehabilitation and to provide permanent financing for multi-family residential housing. HDC finances significant amounts of its activities through the issuance of bonds, notes and debt obligations. The bonds, notes and debt obligations of HDC are not debts of either the State or the City. The combined financial statements include: (i) the accounts of HDC, and (ii) two active, blended component units: the New York City Housing Assistance Corporation and the New York City Residential Mortgage Insurance Corporation. HDC also includes the Housing New York Corporation, which became an inactive subsidiary of HDC on November 3, 2003 and is not expected to be dissolved, and the NYC HDC Real Estate Owned Corporation, a blended component of HDC that has not been active in recent years.

HDC is governed by a board consisting of the Commissioner of Housing Preservation and Development, the Commissioner of Finance of the City, the Director of Management and Budget of the City, and four public members, two appointed by the Mayor and two appointed by the Governor of the State.

New York City Health and Hospitals Corporation (NYC Health + Hospitals). NYC Health + Hospitals, a public benefit corporation, assumed responsibility for the operation of the City's municipal hospital system in 1970. NYC Health + Hospitals provides a full continuum of care, including primary and specialty care, inpatient acute, outpatient, long-term care, and home health services.

NYC Health + Hospitals' financial statements include its blended component units, HHC Insurance Company, Inc., HHC Capital Corporation, HHC Physicians Purchasing Group, Inc., HHC ACO Inc. and HHC Assistance Corporation. NYC Health + Hospitals' Financial Statements also include MetroPlus, a discretely presented component unit of NYC Health + Hospitals.

NYC Health + Hospitals mainly provides, on behalf of the City, comprehensive medical and mental health services to City residents regardless of ability to pay. Funds appropriated from the City are direct or indirect payments made by the City on behalf of NYC Health + Hospitals for patient care rendered to prisoners, uniformed City employees, and various discretely-funded facility-specific programs; for interest on City General Obligation debt which funded NYC Health + Hospitals capital acquisitions; for funding for collective bargaining agreements; and for settlements of claims for medical malpractice, negligence, other torts, and alleged breach of contracts and payments by the City. Reimbursement by NYC Health + Hospitals is negotiated annually with the City.

NYC Health + Hospitals is governed by a Board of Directors consisting of 16 members, five of whom are ex-officio members by virtue of their positions as heads of certain City agencies, appointed by the Mayor; five appointed solely by the Mayor; five appointed by the Mayor upon their designation by the City Council; and the Corporation's President and the Chief Executive Officer, who is appointed by the other directors and serves ex-officio.

New York City Economic Development Corporation (EDC). EDC was organized under the Not-for-Profit Corporation Law of the State of New York. EDC's primary activities consist of rendering a variety of services and administering certain economic development programs on behalf of the City relating to the attraction, retention and expansion of commerce in the City. These programs and services include encouragement of construction, acquisition, rehabilitation and improvement of commercial and industrial enterprises within the City and the provision of grants to qualifying business enterprises as a means of helping to create and retain employment therein.

EDC is governed by a Board of Directors, who are also the members of the corporation. The 27 members are appointed by the Mayor, including appointments upon nomination by each Borough President of the City, the Speaker of the City Council, and one in consultation with the Partnership for New York City, Inc.

Brooklyn Navy Yard Development Corporation (BNYDC). BNYDC was organized in 1966 as a not-for-profit corporation according to the Not-for-Profit Corporation Law of the State of New York. In 1971, BNYDC leased the Brooklyn Navy Yard from the City for the purpose of rehabilitating it and attracting new businesses and industry to the area. That lease was amended, restated and the term extended by a lease commencing July 1, 2012, for a period of 49 years with five ten-year extension periods. The members of the Board of Directors serve at the pleasure of the Mayor.

New York City Industrial Development Agency (IDA). IDA is a public benefit corporation established in 1974 to actively promote, retain, attract, encourage, and develop an economically-sound commerce and industry base to prevent unemployment and economic deterioration in the City. Under its programs, IDA may provide one or more of the following tax benefits: exemption from mortgage recording tax; payments in lieu of real property taxes (PILOTs) that are less than full taxes; and exemption from City and State sales and use taxes as applied to construction materials and machinery and equipment. IDA is governed by a Board of Directors, which establishes official policies and reviews and approves requests for financial assistance. Its membership is prescribed by statute and includes a public official and Mayoral appointees.

New York City Business Assistance Corporation (NYBAC). NYBAC is a non-profit organization incorporated pursuant to section 1411 of the Not-for-Profit Corporation Law of the State of New York in December of 1988. NYBAC was created for the purpose of relieving and reducing unemployment; promoting and providing for additional and maximum employment in New York City; encouraging the development and/or retention of business in the City; instructing or training individuals to improve or develop their capabilities for jobs in business; carrying on scientific research for the purpose of aiding the City by attracting new business or by encouraging economic development; lessening the burdens of government; and acting in the public interest, including, but not limited to, promoting the general welfare of the people of the City.

NYBAC is governed by a Board of Directors consisting of five directors. NYBAC members elect directors who are employees of the City's Office for Economic Development, who serve ex-officio.

Build NYC Resource Corporation (Build NYC). Build NYC is a local development corporation organized under the Not-for-Profit Corporation Law of the State of New York to assist entities eligible under the Federal tax laws in obtaining tax-exempt bond and taxable bond financing; it began operating in 2011. Build NYC's primary goal is to facilitate access to private activity tax-exempt bond financing for eligible entities to acquire, construct, renovate, and/or equip their facilities as well as refinance previous financing transactions. Build NYC is governed by a Board of Directors.

New York City Land Development Corporation (LDC). LDC was formed in 2012, as a local development corporation organized under the Not-for-Profit Corporation Law of the State of New York. LDC assists the City with leasing and selling certain properties for the purpose of economic development. The mission of LDC is to encourage economic growth throughout the five boroughs of the City by acquiring City-owned property and disposing of it to strengthen the City's competitive position and facilitate investments that build capacity, generate economic opportunity, and improve the quality of life. LDC is governed by a five-member Board of Directors appointed by the Mayor.

New York City Neighborhood Capital Corporation (NYCNCC). NYCNCC was incorporated in 2014 under Section 402 of the Not-for-Profit Corporation Law of the State of New York. NYCNCC was formed for the following purposes: (i) to make qualified low-income community investments in the service area of the City; (ii) to operate as a qualified Community Development Entity (CDE) under the Federal New Markets Tax Credit Program; (iii) to form and manage subsidiary limited liability companies which are certified as CDEs to receive equity contributions, which will be utilized primarily to make qualified low-income community investments; and (iv) to engage in all activities consistent with the business of NYCNCC. The NYCNCC is governed by an 11-member Board of Directors, consisting of employees of EDC, who are appointed by the Deputy Mayor for Economic Development on behalf of the City.

Brooklyn Public Library (BPL). BPL is a not-for-profit corporation, incorporated by the New York State Legislature in 1902. BPL serves more than 2.5 million Brooklynites with a Central Library, a Business Library, and 58 branch locations. BPL receives significant support through governmental appropriations, primarily from the State and the City. The BPL is governed by a Board of Trustees consisting of 38 members, comprised of appointees by the Mayor, the Brooklyn Borough President, and elected trustees. The Mayor, City Comptroller, Speaker of the City Council, and Brooklyn Borough President are ex-officio members.

The Queens Borough Public Library and Affiliate (QBPL). QBPL is a not-for-profit corporation, incorporated by the State Legislature in 1907. QBPL is a free association library and provides free public library service in the Borough of Queens. QBPL receives a substantial amount of support from the City, in addition to support from other governmental entities, and private sources. The operations of QBPL also include its affiliate, Queens Library Foundation, Inc., which supports QBPL. The QBPL is governed by a Board of Trustees consisting of 19 members, comprised of appointees by the Mayor and Queens Borough President and elected trustees. The Mayor, Public Advocate, City Comptroller, Speaker of the City Council, and Brooklyn Borough President are ex-officio members.

The Mayor's Fund to Advance New York City (the Fund). The Fund was initially incorporated under the name New York City Public Private Initiatives, Inc., in June 1994, under the Not-for-Profit Corporation Law of the State of New York. In July 2003, the Fund adopted its current name. The purpose of The Fund is to create partnerships between The City and the private sector in an effort to enhance public programs and improve the quality of life for New York City's residents. The Fund is governed by a Board of Directors who are all appointed by the Mayor.

Public Realm Improvement Fund Governing Group, Inc. (Governing Group). The Governing Group is a non-profit organization incorporated pursuant to section 1411 of the Not-for-Profit Corporation Law of the State of New York. The Governing Group was created October 2017, for the purpose of lessening the burdens of government for the City of New York and acting in the public interest, by bolstering and enhancing East Midtown's status as a premier central business district with a high-quality public realm. Since the Governing Group did not experience activity during fiscal year 2018, and as such, fiscal year 2019 is the first year of operations.

The Governing Group is governed by a Board of Directors consisting of thirteen members, seven of whom are ex-officio members by virtue of their position as heads of certain City agencies. The remaining six members are non ex-officio Non-Mayoral members representing the Manhattan Borough President, the Speaker of the City Council, the City Council, and other community based organizations.

2. Basis of Presentation

Government-Wide Statements: The government-wide financial statements (the Statement of Net Position and the Statement of Activities) display information about the City and its component units. These statements include the financial activities of the overall government except for fiduciary activities. Eliminations of internal activity have been made in these statements. The City is reported separately from certain legally separate component units, for which the City is financially accountable. All of the activities of the City are either governmental or business-type activities.

The *Statement of Activities* presents a comparison between program expenses, which include allocated indirect expenses, and program revenues for each function of the City's governmental activities. Direct expenses are those that are clearly identifiable with a specific function. Program revenues include: (i) charges for services such as rental revenue from operating leases on markets, ports, and terminals and (ii) grants and contributions that are restricted to meeting the operational or capital requirements of a particular function or program. Taxes and other revenues, not specifically included among program revenues, are reported as general revenues.

Fund Financial Statements: The fund financial statements provide information about the City's funds, including blended component units. The emphasis of fund financial statements is on major governmental funds, each displayed in a separate column. All remaining governmental funds are aggregated and reported as nonmajor funds.

The City uses funds to report its financial position and the results of its operations. Fund accounting is designed to demonstrate legal compliance and to aid financial management by segregating transactions related to certain government functions or activities. A fund is a separate accounting entity with a self-balancing set of accounts.

The City's funds are classified into three categories: governmental, proprietary and fiduciary; each category, in turn, is divided into separate "fund types".

Governmental Funds

The City reports the following governmental funds:

General Fund. This is the general operating fund of the City. Substantially all tax revenues, Federal and State aid (except aid for capital projects), and other operating revenues are accounted for in the General Fund. This fund also accounts for expenditures and transfers as appropriated in the expenditures budget, which provides for the City's day-to-day operations, including transfers to Debt Service Funds for payment of long-term liabilities. The fund balance in the General Fund is reported as nonspendable.

Capital Projects Fund. This fund is used to account for and report financial resources that are restricted, committed, or assigned to expenditures for capital outlays, including the acquisition or construction of capital facilities and other capital assets. Capital Projects Funds exclude capital-related outflows financed by component unit proprietary funds or for assets that will be held in trust for individuals, private organizations, or other governments. Resources of the Capital Projects Fund are derived principally from proceeds of City and TFA bond issues, payments from the Water Authority, and from Federal, State, and other aid.

General Debt Service Fund. This fund is used to account for and report financial resources that are restricted, committed, or assigned to expenditures for principal and interest. This fund, into which payments of real estate taxes and other revenues are deposited in advance of debt service payment dates, is required by State legislation and is administered and maintained by the State Comptroller. Debt service on all City notes and bonds is paid from this fund.

Nonmajor Governmental Funds. The City reports the following blended component units within the Nonmajor Governmental Funds: **SCA, TFA, TSASC, ECF, FSC, STAR, HYDC, HYIC and NYCSSS.** If a component unit is blended, the governmental fund types of the component unit are blended with those of the City by including them in the appropriate combining statements of the City. Although the City's General Fund is usually the main operating fund of the reporting entity, the General Fund of a blended component is reported as a Special Revenue Fund. The City does not have other Special Revenue Funds.

Proprietary Funds

Proprietary funds focus on the determination of operating income, changes in net position, financial position and cash flows. There are two types of proprietary funds, enterprise funds and internal service funds. Enterprise funds are used to report an activity for which a fee is charged to external users for goods or services. The City reports the following blended component units as enterprise funds: **BBPC, TGI, WTC Captive and the NYCTL Trusts.** The City does not have any internal service funds.

Fiduciary Funds

The fiduciary funds are used to account for assets and activities when a governmental unit is functioning either as a trustee or an agent for another party. The City's fiduciary funds are divided into two separate fund types: the Pension and Other Employee Benefit Trust Funds and the Agency Fund.

The **Pension and Other Employee Benefit Trust Funds** account for the operations of:

- Pension Trusts
  - New York City Employees' Retirement System (NYCERS)
  - Teachers' Retirement System of The City of New York (TRS)
  - New York City Board of Education Retirement System (BERS)
  - New York City Police Pension Funds (POLICE)
  - New York City Fire Pension Funds (FIRE)
- Deferred Compensation Plans (DCP)
- The New York City Other Postemployment Benefits Plan (the OPEB Plan)

Each of the pension trusts report all jointly administered plans including primary pension (QPPs), and/or variable supplements funds (VSFs) and/or tax deferred annuity plans (TDAs), as appropriate. While the VSFs are included with QPPs for financial reporting purposes, in accordance with the Administrative Code of The City of New York (ACNY), VSFs are not pension funds or retirement systems. Instead, they provide scheduled supplemental payments, in accordance with applicable statutory provisions. Although a portion of these payments are guaranteed by the City, the State has the right and power to amend, modify, or repeal VSFs and the payments they provide. However, any assets transferred to the VSFs are held in trust solely for the benefit of its members. More information is available in note E.5.

The Deferred Compensation Plans report the various jointly administered Deferred Compensation Plans of The City of New York and related agencies and Instrumentalities and the New York City Employee Individual Retirement Account (NYCEIRA).

Note: These fiduciary funds publish separate annual financial statements, which are available at: Office of the Comptroller, Bureau of Accountancy-Room 200 South, 1 Centre Street, New York, New York 10007, or at www.comptroller.nyc.gov.

These funds use the accrual basis of accounting and a measurement focus on the periodic determination of additions, deductions, and net position restricted for benefits.

The **Agency Fund** accounts for miscellaneous assets held by the City for other funds, governmental units, and individuals. School fundraiser monies for scholarships, assets seized by the federal government to be used for investigative purposes, and cash bail for use by the surety/assignee, are the major miscellaneous assets accounted for in this fund. The Agency Fund is custodial in nature and does not involve the measurement of results of operations.

Discretely Presented Component Units

The discretely presented major component units consist of **the System, NYCHA, HDC, NYC Health + Hospitals and EDC.** The discretely presented nonmajor components units are **BNYDC, IDA, NYBAC, Build NYC, LDC, NYCNCC, BPL, QBPL, the Fund, and the Governing Group.** Their activities are accounted for in a manner similar to private business enterprises, in which the focus is on the periodic determination of revenues, expenses, and net income.

New Accounting Standards Adopted

In Fiscal Year 2019, the City adopted two new statements of financial accounting standards issued by the Governmental Accounting Standards Board:

- Statement No. 88, *Certain Disclosures Related To Debt, Including Direct Borrowings And Direct Placements*
- Statement No. 90, *Majority Equity Interests-An Amendment Of GASB Statements No. 14 And No. 61*

Statement No. 88 defines debt for purposes of disclosure in notes to financial statements as a liability that arises from a contractual obligation to pay cash (or other assets that may be used in lieu of cash) in one or more payments to settle an amount that is fixed at the date the contractual obligation is established. This Statement requires that additional essential information related to debt be disclosed in notes to financial statements, including unused lines of credit; assets pledged as collateral for the debt; and terms specified in debt agreements related to significant events of default with finance-related consequences, significant termination events with finance-related consequences, and significant subjective acceleration clauses. The Statement also requires that existing and additional information be provided for direct borrowings and direct placements of debt separately from other debt. Details of the City's implementation with respect to Statement No. 88 is included in Long-Term Liabilities (see Note D.5).

Statement No. 90 establishes reporting requirements for governments that hold a majority equity interest in a legally separate organization. An equity interest is a financial interest in a legally separate organization evidenced by the ownership of shares of the organization's stock or by otherwise having an explicit measurable right to the net resources of the organization. A government has a majority equity interest in a legally separate organization if: (1) a government's holding of the equity interest meets the definition of an investment in paragraph 64 of GASB Statement No. 72; or (2) a government's holding of the equity interest *does not* meet the definition of investment; or (3) a government acquires 100% equity interest. The adoption of Statement No. 90, had no impact on the City's financial statements.

Pronouncements Issued But Not Yet Effective

GASB has issued the following pronouncements that may affect future financial position, results of operations, cash flows, or financial presentation of the City upon implementation. Management has not yet evaluated the effect of implementation of these standards.

GASB Statement No.	GASB Accounting Standard	Effective Fiscal Year
84	*Fiduciary Activities*	2020
87	*Leases*	2021
89	*Accounting for Interest Cost Incurred before the End of a Construction Period*	2021
91	*Conduit Debt Obligations*	2022

3. Basis of Accounting

The government-wide financial statements are reported using the economic resources measurement focus and the accrual basis of accounting in which revenues are recorded when earned and expenses are recorded at the time liabilities are incurred, regardless of when the related cash flows take place. Nonexchange transactions include: sales and income taxes, property taxes, grants, entitlements and donations, and are recorded on the accrual basis of accounting.

Revenues from property tax are recognized in the fiscal year for which the taxes are levied. Revenues from grants, entitlements, and donations are recognized in the fiscal year in which all eligibility requirements have been satisfied.

Governmental funds use the flow of current financial resources measurement focus. This focus is on the determination of and changes in financial position, and generally only current financial resources and current liabilities are included on the balance sheet although certain receivable amounts may not be currently available. These funds use the modified accrual basis of accounting, whereby revenues are recognized in the accounting period in which they become both measurable and available to finance expenditures of the fiscal period. Revenues from taxes are generally considered available if received within two months after the fiscal year-end. Revenues from categorical and other grants are generally considered available if expected to be received within one year after the fiscal year-end. Expenditures are recorded when the related liability is incurred and payment is due, except for principal and interest on long-term debt, pensions, post employment benefits other than pensions and certain other estimated liabilities, which are recorded only when payment is due.

The measurement focus of the Pension and Other Employee Benefit Trust Funds and Other Trust Funds is on the flow of economic resources. This focus emphasizes the determination of and changes in net position. With this measurement focus, all assets and liabilities associated with the operation of these funds are included on the Statement of Fiduciary Net Position. These funds use the accrual basis of accounting whereby revenues are recognized in the accounting period in which they are earned, and expenses are recognized in the period incurred.

The Agency Fund uses the accrual basis of accounting and does not measure the results of operations.

4. Encumbrances

Encumbrance accounting, under which purchase orders, contracts, and other commitments for expenditures are recorded to reflect the use of the applicable spending appropriations, is used by the General Fund during the fiscal year to control expenditures. The cost of those goods received and services rendered on or before June 30 are recognized as expenditures. Encumbrances that do not result in expenditures by year-end lapse.

5. Cash and Investments

The City considers all highly liquid investments (including restricted assets), with a maturity of three months or less when purchased, to be cash equivalents. Cash equivalents are carried at amortized cost which approximates fair value.

The annual average collected bank balances maintained during Fiscal Years 2019 and 2018 were approximately $1.74 and $ 1.41 billion, respectively.

Investments are reported in the balance sheet at fair value. Investment income, including changes in the fair value of investments, is reported in operations.

Investments in fixed income securities are recorded at fair value. Securities purchased pursuant to agreements to resell are carried at the contract price, exclusive of interest, at which the securities will be resold.

Investments of the Pension and Other Employee Benefit Trust Funds and Other Trust Funds are reported at fair value. Investments are stated at the last reported sales price on a national securities exchange or as priced by a nationally recognized securities pricing service as on the last business day of the fiscal year, except for securities held as alternative investments where fair value is determined by the general partners or other experts.

A description of the City's fiduciary funds securities lending activities in Fiscal Years 2019 and 2018 is included in Deposits and Investments (see Note D.1).

6. Inventories

Inventories on hand at June 30, 2019 and 2018, estimated based on average cost at $428 and $412 million, respectively, have been reported on the government-wide *Statement of Net Position*. Inventories are recorded as expenditures in governmental funds at the time of purchase, and accordingly have not been reported on the governmental funds balance sheet.

7. Restricted Cash and Investments

Certain proceeds of the City and component unit bonds, as well as certain resources set aside for payments to bond holders, are classified as restricted cash and investments on the balance sheet, because their use is limited by applicable bond covenants.

8. Capital Assets

Capital assets include all land, buildings, equipment (including software), and other elements of the City's infrastructure having an initial minimum useful life of five years, having a cost of more than $35 thousand, and having been appropriated in the Capital Budget (see Note C.1). Capital assets, which are used for general governmental purposes and are not available for expenditure, are accounted for and reported in the government-wide financial statements. Infrastructure elements include the roads, bridges, curbs and gutters, streets and sidewalks, park land and improvements, piers, bulkheads and tunnels. The capital assets of the water distribution and sewage collection system are recorded in the System component unit financial statements under a lease agreement between the City and the Water Board.

Capital assets are generally stated at historical cost, or at estimated historical cost, based on appraisals or on other acceptable methods, when historical cost is not available. Donated capital assets are reported at their acquisition value. Capital leases are classified as capital assets in amounts equal to the lesser of the fair market value or the present value of net minimum lease payments at the inception of the lease (see Note D.3).

Accumulated depreciation and amortization are reported as reductions of capital assets. Depreciation is computed using the straight-line method based upon estimated useful lives of generally 25 to 50 years for new construction, 10 to 25 years for betterments and/or reconstruction, 5 to 15 years for equipment (including software), and 15 to 40 years for infrastructure. Capital lease assets and leasehold improvements are amortized over the term of the lease or the life of the asset, whichever is less.

9. Vacation and Sick Leave

Earned vacation and sick leave is recorded as an expenditure in the period when it is payable from current financial resources in the fund financial statements. The estimated value of vacation leave earned by employees, which may be used in subsequent years, and earned vacation and sick leave to be paid upon termination or retirement from future resources, is recorded as a liability in the government-wide financial statements.

10. Judgments and Claims

The City is generally uninsured with respect to risks including, but not limited to, property damage, personal injury, and workers' compensation. However, as required by the Stafford Act, the City insures certain assets, which have been restored with grant funds from the Federal Emergency Management Agency, through the National Flood Insurance Program. In the fund financial statements, expenditures for judgments and claims (other than workers' compensation and condemnation proceedings) are recorded on the basis of settlements reached or judgments entered within the current fiscal year. Expenditures for workers' compensation are recorded when paid. Settlements relating to condemnation proceedings are reported when the liability is estimable. In the government-wide financial statements, the estimated liability for all judgments and claims incurred but not yet expended is recorded as a noncurrent liability.

11. Long-Term Liabilities

For long-term liabilities, only that portion expected to be financed from expendable available financial resources is reported as a fund liability of a governmental fund. All long-term liabilities are reported in the government-wide *Statement of Net Position*. Long-term liabilities expected to be financed from discretely presented component units' operations are accounted for in those component units' financial statements.

12. Derivative Instruments

The fair value balances and notional amounts of derivative instruments outstanding at June 30, 2019, classified by type, and the changes in fair value of such derivative instruments for the fiscal year then ended, are as follows:

Governmental Activities

		Changes in Fair Value from June 30, 2018		Fair Value at June 30, 2019		
Item		**Classification**	**Amount**	**Classification**	**Amount**	**Notional**
			(in thousands)			
Cashflow Hedges:						
H	Pay-Fixed interest rate swap	Deferred Outflow	$ (3,232)	Debt	$(11,450)	$75,000
Investment derivative instruments:						
A	Pay-Fixed interest rate swap	Investment Revenue	1,632	Investment	(2,039)	82,139
B	Pay-Fixed interest rate swap	Investment Revenue	544	Investment	(680)	27,379
C	Pay-Fixed interest rate swap	Investment Revenue	544	Investment	(680)	27,379
D	Pay-Fixed interest rate swap	Investment Revenue	544	Investment	(680)	27,379
E	Pay-Fixed interest rate swap	Investment Revenue	(759)	Investment	(7,652)	85,075
H	Pay-Fixed interest rate swap	Investment Revenue	(11,853)	Investment	(41,983)	275,000
K	Basis Swap	Investment Revenue	5,915	Investment	—	—

On March 21, 2019, the City terminated Investment Derivative K. The total Notional Amount terminated was $500 million and there was no payment or receipt from the counterparty in connection with the termination.

Fair Value for the derivative instruments is the estimated exit price that assumes a transaction takes place in the City's principal market, or in the City's most advantageous market in the absence of a principal market. These inputs include the mid-market valuation and then incorporates the credit risk of either the City or its counterparty and the bid/offer spread that would be charged to the City in order to transact. The mid-market values of the derivative instruments were estimated using the income approach. This method calculates the future net settlement payments required by the swap, assuming that the current forward rates implied by the yield curve correctly anticipate future spot interest rates. These payments are then discounted using the spot rates implied by the current yield curve for hypothetical zero-coupon bonds due on the date of each future net settlement date. The derivative instruments are classified in Level 2 as their valuation relies primarily on observable inputs.

Hedging Derivative Instruments

The following table displays the objective and terms of the City's hedging derivative instruments outstanding at June 30, 2019, along with the credit rating of the associated counterparty. Regarding derivative instruments, where the counterparty is unrated, the rating provided is that of the counterparty's guarantor.

Item	Type	Objective	Notional Amount (in thousands)	Effective Date	Maturity Date	Terms	Counterparty Rating
H	Pay-Fixed interest rate swap	Hedge of changes in cash flows on the 2004 Series A bonds	$75,000	7/14/2003	8/1/2031	Pay 2.964%; receive 61.85% of USD-LIBOR-BBA	Aa2/A+

LIBOR: London Interbank Offered Rate Index

Risks

<u>Credit risk:</u> The City is exposed to credit risk on hedging derivative instruments. To minimize its exposure to loss related to credit risk, it is the City's policy to require counterparty collateral posting provisions in its hedging derivative instruments. These terms require full collateralization of the fair value of hedging derivative instruments (net of the effect of applicable threshold requirements and netting arrangements) should the counterparty's credit rating fall, as follows:

- The counterparty with respect to derivative instrument H is required to post collateral if its credit rating goes below A2/A. Collateral posted should be in the form of U.S. Treasury securities held by a third-party custodian. The City has never been required to access collateral.

It is the City's policy to enter into netting arrangements whenever it has entered into more than one derivative instrument transaction with a counterparty. Under the terms of these arrangements, should one party become insolvent or otherwise default on its obligations, closeout netting provisions permit the non-defaulting party to accelerate and terminate all outstanding transactions and net the transactions' fair values so that a single sum will be owed by, or owed to, the non-defaulting party.

The aggregate fair value of hedging derivative instruments requiring collateralization at June 30, 2019 was $(11.45) million.

<u>Interest rate risk:</u> The City is exposed to interest rate risk on its swaps. On its pay-fixed, receive-variable interest rate swaps, as LIBOR, the City's net payment on the swaps increases.

<u>Basis risk:</u> The City is exposed to basis risk on its pay-fixed interest rate swaps, because the variable-rate payments received by the City on these hedging derivative instruments are based on a rate or index other than interest rates the City pays on its hedged variable-rate debt, which is remarketed either daily or weekly. Under the terms of its synthetic fixed rate swap transactions, the City pays a variable rate on its bonds based on the Securities Industry and Financial Markets Association (SIFMA), but receives a variable rate on the swaps based on a percentage of LIBOR.

<u>Tax risk:</u> The City is at risk that a change in Federal tax rates will alter the fundamental relationship between the SIFMA and LIBOR Indices. A reduction in Federal tax rates, for example, will likely increase the City's payment on its underlying variable rate bonds in the synthetic fixed rate transactions.

<u>Termination risk:</u> The City or its counterparties may terminate a derivative instrument if the other party fails to perform under the terms of the contract. The City is at risk that a counterparty will terminate a swap at a time when the City owes it a termination

payment. The City has mitigated this risk by specifying that the counterparty has the right to terminate only as a result of certain events, including: a payment default by the City; other City defaults which remain uncured for 30 days after notice; City bankruptcy; insolvency of the City (or similar events); or a downgrade of the City's credit rating below investment grade (i.e., BBB-/Baa3). If at the time of termination, a hedging derivative instrument is in a liability position, the City would be liable to the counterparty for a payment equal to the liability, subject to netting arrangements, if applicable.

Counterparty risk: The City is at risk that a counterparty will not meet its obligations under the swap. If a counterparty were to default under its agreement when the counterparty would owe a termination payment to the City, the City may have to pay another entity to assume the position of the defaulting counterparty. The City has sought to limit its counterparty risk by contracting only with highly rated entities or requiring guarantees of the counterparty's obligations under the swap documents.

Rollover risk: The City is exposed to rollover risk on hedging derivative instruments that are hedges of debt that mature or may be terminated prior to the maturity of the hedged debt. When these hedging derivative instruments terminate, the City will be re-exposed to the risks being hedged by the hedging derivative instrument.

Contingencies

The City's derivative instruments include provisions that require the City to post collateral in the event its credit rating falls below Baa1 (Moody's) or BBB+ (Standard & Poor's) for derivative instruments A and B, or below Baa3 (Moody's) or BBB- (Standard & Poor's) for derivative instruments H or below Baa3 (Moody's) and BBB- (Standard & Poor's) for derivative instruments C, D and E. The collateral posted is to be in the form of cash, U.S. Treasury securities, or specified U.S. Government Agency securities in the amount equal to (when in the form of cash) or greater than (when in the form of securities) the fair value of derivative instruments in liability positions, net of the effect of applicable netting arrangements and applicable thresholds. If the City does not post collateral when required, the derivative instrument may be terminated by the counterparty. The collateral requirements would be $65.08 million for ratings below Baa3 or BBB- based on posting cash. The City's credit rating as of June 30, 2019 was Aa1 (Moody's) and AA (Standard & Poor's); therefore, no collateral was posted as of that date.

Swap Collateral Requirements upon a Rating Downgrade of the City[(1)]

Swap/Counterparty	Fair Value as of June 30, 2019[(2)] (in thousands)	Collateral Threshold at Baa2/BBB to Baa3/BBB-[(3)]	Collateral Amount (in thousands)	Collateral Threshold below Baa3/BBB-	Collateral Amount[(4)] (in thousands)
JP Morgan Chase Bank, N.A.	$ (2,039)	$3,000	$ —	—	$ 2,000
Merrill Lynch Capital Services, Inc.[(5)]	(680)	3,000	—	—	680
US Bank National Association	(9,012)	Infinity	—	—	9,000
Wells Fargo Bank, NA	(53,433)	Infinity	—	—	53,400
Total Fair Value	$(65,164)		$ —		$65,080

(1) All of the City's swap counterparties have agreements that collateral is to be posted by the City if the City were to owe a termination payment and its ratings fall below a certain level. Based on the credit rating level, the amount of collateral required can range from zero to the amount of the counterparty's exposure based on the market value of the swap.

(2) A negative value means the City would owe a termination payment.

(3) A downgrade of the City to either Baa2 (Moody's) or BBB (S&P) is the highest rating level at which the City would be required to post collateral.

(4) Represents the total amount of required collateral for ratings below Baa3/BBB-. The amount of collateral required to be posted would be the amount shown, less any collateral previously posted.

(5) The swap counterparties, other than Merrill Lynch Capital Services Inc., round the collateral amount up or down to the nearer $100,000. Merrill Lynch does not round the amount.

13. Real Estate Tax

Real estate tax payments for the Fiscal Year ended June 30, 2019, were due July 1, 2018 and January 1, 2019 except that payments by owners of real property assessed at $250,000 or less and cooperatives whose individual units, on average, are valued at $250,000 or less, which were due in quarterly installments on the first day of each quarter beginning on July 1.

The adopted levy date for fiscal year 2019 taxes was June 14, 2018. The lien date is the date taxes are due.

Real estate tax revenue represents payments received during the year, payments received against the current fiscal year, and prior years' levies within the first two months of the following fiscal year reduced by tax refunds (for the fund financial statements). Real estate tax revenues not available are reported as deferred inflows of resources. The government-wide financial statements recognize real estate tax revenue (net of refunds), which are not available to the governmental fund type in the fiscal year for which the taxes are levied. Real estate taxes received or reported as receivables before the period for which the property taxes are levied, or the period when resources are required to be used, or when use is first permitted, are reported as deferred inflows of resources.

The City offered a 0.5% discount on the full amount of a taxpayer's yearly property tax if the entire amount shown on their bill is paid by the July due date (or grace period due date), a 0.25% discount on the last three quarters if the taxpayer waits until the October due date to pay the entire amount due, or a 0.125% discount on the last six months of taxes when the taxpayer pays the balance by the January due date. Payment of real estate taxes before July 15, 2018, on properties with an assessed value of $250,000 or less and before July 1, 2018, on properties with an assessed value over $250,000 received the discount. Collections of these real estate taxes received on or before June 30, 2019 and 2018 were approximately $8.6 and $8.8 billion, respectively.

The City sold approximately $58.6 million of real property tax liens, fully attributable to fiscal year 2019, at various dates in Fiscal Year 2019. As in prior years' lien sale agreements, the City will refund the value of liens later determined to be defective, plus interest and a 5% surcharge. No reserve for defective tax liens in Fiscal Year 2019 is required.

The City sold approximately $105.5 million of real property tax liens, fully attributable to fiscal year 2018, at various dates in Fiscal Year 2018. As in prior years' lien sale agreements, the City will refund the value of liens later determined to be defective, plus interest and a 5% surcharge. It has been estimated that $5.0 million worth of liens sold in Fiscal Year 2018 will require refunding. The estimated refund accrual amount of $5.0 million, including the surcharge and interest, resulted in Fiscal Year 2018 net sale proceeds of $100.5 million.

In fiscal years 2019 and 2018, $237 and $228 million respectively, were provided as allowances for uncollectible real estate taxes against the balance of the receivable. Delinquent real estate taxes receivable that are estimated to be collectible but which are not collected in the first two months of the next fiscal year are recorded as deferred inflows of resources in the governmental funds balance sheet but included in general revenues on the government-wide *Statement of Activities.*

The City is permitted to levy real estate taxes for general operating purposes in an amount up to 2.5% of the average full value of taxable real estate in the City for the last five years and in unlimited amounts for the payment of principal and interest on long-term City debt. Amounts collected for payment of principal and interest on long-term debt in excess of that required for that purpose in the year of the levy, must be applied toward future years' debt service. For the Fiscal Years ended June 30, 2019 and 2018, excess amounts of $172 and $276 million, respectively, were transferred to the General Debt Service Fund.

14. Other Taxes and Other Revenues

Taxpayer-assessed taxes, such as sales and income taxes, net of refunds, are recognized in the accounting period in which they become susceptible to accrual for the fund financial statements. Assets recorded in the governmental fund financial statements, but the revenue is not available, are reported as deferred inflows of resources. Additionally, the government-wide financial statements recognize sales and income taxes (net of refunds), which are not available to the governmental fund type in the accounting period for which the taxes are assessed.

15. Federal, State and Other Aid

For the government-wide and fund financial statements, categorical aid, net of a provision for estimated disallowances, is reported as receivable when the related eligibility requirements are met. Unrestricted aid is reported as revenue in the fiscal year of entitlement. Resources received before the time requirements are met, but after all other eligibility requirements are met, are reported as deferred inflows of resources.

16. Bond Discounts, Premiums and Issuance Costs

In the fund financial statements, bond premiums, discounts and issuance costs are presented as other financing sources and uses. In the government-wide financial statements, bond premiums and discounts are deferred and amortized over the term of the bonds payable using the straight-line method. Bond premiums and discounts are presented as additions/reductions to the face amount of the bonds payable. Bond issuance costs are recognized as an expense in the period incurred.

17. Intra-Entity Activity

Payments from a fund receiving revenue to a fund through which the revenue is to be expended are reported as transfers. Such payments include transfers for debt service and capital construction. In the government-wide financial statements, resource flows between the City and the discretely presented component units are reported as if external transactions.

18. Subsidies

The City makes various payments to subsidize a number of organizations which provide services to City residents including but not limited to Art and Cultural institutions. These payments are recorded as expenditures in the fiscal year paid.

19. Deferred Outflows and Inflows of Resources

In accordance with Government Accounting Standards Board Statement No. 63, *Financial Reporting of Deferred Outflows of Resources, Deferred Inflows of Resources, and Net Position*, the City reports deferred outflows of resources in the *Statement of Financial Position* in a separate section following Assets. Similarly, the City reports deferred inflows of resources in the *Statement of Net Position* in a separate section following Liabilities.

The Components of the deferred outflows of resources and deferred inflows of resources are as follows:

	FY 2019		FY 2018	
	Primary Government	Component Units	Primary Government	Component Units
	(in thousands)			
Deferred Outflows of Resources				
Deferred outflows from pension	$ 2,377,333	$ 132,600	$ 1,755,836	$ 221,508
Deferred outflows from OPEB	11,980,800	939,047	4,728,507	217,509
Accumulated decrease in fair value of hedging derivatives	11,450	—	8,218	—
Unamortized deferred bond refunding costs	377,239	—	455,600	—
Other	55	161,251	163	132,284
Total deferred outflows of resources	$14,746,877	$1,232,898	$ 6,948,324	$ 571,301
Deferred Inflows of Resources:				
Deferred inflows from pension	$12,778,884	$ 667,686	$ 9,354,814	$ 484,781
Real estate taxes	8,648,945	—	8,813,166	—
Deferred inflows from OPEB	11,586,646	1,404,408	7,821,543	772,518
Service concession arrangements	80,944	—	97,668	—
Grant advances	3,113	—	—	—
Other	133,004	44,401	85,325	18,806
Total deferred inflows of resources	$33,231,536	$2,116,495	$26,172,516	$1,276,105

20. Fund Balance

In accordance with Government Accounting Standards Board Statement No. 54, *Fund Balance Reporting and Governmental Fund Type Definitions*, the classification of Fund Balance is based on the extent to which the City is bound to observe constraints imposed upon the use of the resources in the governmental funds. The classifications are as follows:

Nonspendable–includes fund balance amounts that cannot be spent, either because they are not in spendable form, or because of legal or contractual constraints requiring such amounts to remain intact. As required by the New York State Financial Emergency Act, the City must prepare its budget covering all expenditures, other than capital items, balanced so that the results do not show a deficit when reported in accordance with GAAP. Therefore, the General Fund's fund balance must legally remain intact and is classified as nonspendable. Additionally, certain receivable amounts are not anticipated to be collected in the current period.

Restricted–includes fund balance amounts that are constrained for specific purposes when such constraints are externally imposed by creditors, laws or regulations of other governments, or by constitutional provisions or enabling legislation.

Committed–includes fund balance amounts that are constrained for specific purposes when such constraints are internally imposed by the government's formal action at the highest level of decision making authority and do not lapse at year-end. In accordance with the New York City Charter, the City Council is the City's highest level of decision-making authority and can, by legal resolution prior to the end of a fiscal year, approve to establish, modify or rescind a fund balance commitment. For the blended component units reported as Nonmajor Funds, the respective Boards of Directors (Boards) constitute the highest level of decision-making authority. When resolutions are adopted by the Boards that constrain fund balances for a specific purpose, such resources are accounted for and reported as committed for such purpose, unless and until a subsequent resolution altering the commitment is adopted by a Board.

Assigned–includes fund balance amounts that are intended to be used for specific purposes that are neither considered restricted or committed. The City does not have any assigned amounts in its major funds. For the blended component units reported as Nonmajor Funds, the fund balances which are constrained for use for a specific purpose based on the direction of the President of the component unit to direct the movement of such funds are accounted for and reported as assigned for such purpose unless and until a subsequent authorized action by the same, or another duly authorized officer, or by a board, is taken which removes or changes the assignment.

Unassigned–The City's Capital Projects Fund's deficit is classified as unassigned.

The City uses restricted amounts first when both restricted and unrestricted resources are available. Additionally, the City first uses committed, then assigned, and lastly unassigned resources when expenditures are made.

The City does not have a formal minimum fund balance policy. Below is the detail included in the fund balance classifications for the governmental funds fiscal years June 30, 2019 and 2018:

Fiscal Year 2019

	General Fund	Capital Projects Fund	Debt Service Fund	Nonmajor Governmental Funds	Total Governmental Funds
			(in thousands)		
Nonspendable:					
General Fund balance	$ 488,216	$ —	$ —	$ —	$ 488,216
Prepaid expenditures	—	—	—	166	166
Spendable:					
Restricted					
Capital projects	—	88,701	—	572,314	661,015
Debt service	—	—	171,576	1,924,512	2,096,088
Committed					
Debt service	—	—	1,555,515	—	1,555,515
Assigned					
Debt service	—	—	—	2,138,264	2,138,264
Operations	—	—	—	259,769	259,769
Unassigned					
Capital Projects Fund	—	(3,807,625)	—	—	(3,807,625)
Nonmajor Special Revenue Funds	—	—	—	(572)	(572)
Total Fund Balances (Deficit)	$ 488,216	$(3,718,924)	$1,727,091	$4,894,453	$ 3,390,836

Fiscal Year 2018	General Fund	Capital Projects Fund	Debt Service Fund	Nonmajor Governmental Funds	Total Governmental Funds
			(in thousands)		
Nonspendable:					
General Fund balance	$ 483,133	$ —	$ —	$ —	$ 483,133
Prepaid expenditures	—	—	—	151	151
Spendable:					
Restricted					
Capital projects	—	136,980	—	1,068,802	1,205,782
Debt service	—	—	275,793	1,461,169	1,736,962
Committed					
Debt service	—	—	1,646,498	—	1,646,498
Assigned					
Debt service	—	—	—	2,470,386	2,470,386
Operations	—	—	—	296,983	296,983
Unassigned					
Capital Projects Fund	—	(2,421,721)	—	—	(2,421,721)
Nonmajor Special Revenue Funds	—	—	—	(70)	(70)
Total Fund Balances (Deficit)	$ 483,133	$(2,284,741)	$1,922,291	$5,297,421	$ 5,418,104

21. Pensions

In government-wide financial statements, pensions are recognized and disclosed using the accrual basis of accounting (see Note E.5 and the RSI section immediately following the notes to financial statements), regardless of the amount recognized as pension expenditures on the modified accrual basis of accounting. The City recognizes a net pension liability for each qualified pension plan in which it participates, which represents the excess of the total pension liability over the fiduciary net position of the qualified pension plan, measured as of the City's fiscal year-end or the City's proportionate share thereof in the case of a cost-sharing multiple-employer plan. 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 that arise from changes in actuarial assumptions or other inputs and differences between expected or actual experience, are amortized over the weighted average remaining service life of all participants, including retirees, in the respective qualified pension plan and recorded as a component of pension expense beginning with the period in which they arose. Projected earnings on qualified pension plan investments are recognized as a component 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.

22. Other Postemployment Benefits

Other Postemployment Benefits (OPEB) cost for retiree healthcare and similar, non-pension retiree benefits, is required to be measured and disclosed using the accrual basis of accounting (see Note E.4), regardless of the amount recognized as OPEB expense on the modified accrual basis of accounting. Annual OPEB cost is calculated in accordance with GASB Statement No. 75.

23. Estimates and Assumptions

A number of estimates and assumptions relating to the reporting of revenues, expenditures, assets and liabilities, and the disclosure of contingent liabilities were used to prepare these financial statements in conformity with GAAP. Actual results could differ from those estimates.

B. Reconciliation of Government-Wide and Fund Financial Statements

A summary reconciliation of the difference between total fund balances (deficit) as reflected on the governmental funds balance sheet and total net position (deficit) of governmental activities as shown on the government-wide *Statement of Net Position* is presented in an accompanying schedule to the governmental funds balance sheet. The asset and liability elements, that comprise the difference are related to the governmental funds using the current financial resources measurement focus and the modified accrual basis of accounting, while the government-wide financial statements use the economic resources measurement focus and the accrual basis of accounting.

Similarly, a summary reconciliation of the difference between net change in fund balances, as reflected on the governmental funds *Statement of Revenues, Expenditures, and Changes in Fund Balances*, and Change in Net Position of governmental activities, as shown on the government-wide *Statement of Activities*, is presented in an accompanying schedule to the governmental funds *Statement of Revenues, Expenditures, and Changes in Fund Balances*. The revenue and expense elements, that comprise the reconciliation difference, stem from governmental funds using the current financial resources measurement focus and the modified accrual basis of accounting, while the government-wide financial statements use the economic resources measurement focus and the accrual basis of accounting.

C. Stewardship, Compliance and Accountability

1. Budgets and Financial Plans

Budgets

Annual expense budget appropriations, which are prepared on the modified accrual basis, are adopted for the General Fund, and unused appropriations lapse at fiscal year-end. The City uses appropriations in the capital budget to authorize the expenditure of funds for various capital projects. Capital appropriations, unless modified or rescinded, remain in effect until the completion of each project.

The City is required by State Law to adopt and adhere to a budget, on a basis consistent with GAAP, that would not have General Fund expenditures and other financing uses in excess of revenues and other financing sources.

Expenditures made against the expense budget are controlled through the use of quarterly spending allotments and units of appropriation. A unit of appropriation represents a subdivision of an agency's budget and is the level of control at which expenditures may not legally exceed the appropriation. The number of units of appropriation, and the span of operating responsibility which each unit represents, differs from agency to agency depending on the size of the agency and the level of control required. Transfers between units of appropriation and supplementary appropriations may be made by the Mayor, subject to the approval provisions set forth in the City Charter. Supplementary appropriations increased the expense budget by $4.41 and $4.37 billion subsequent to its original adoption in Fiscal Years 2019 and 2018, respectively.

Financial Plans

Additionally, the New York State Financial Emergency Act for The City of New York requires the City to operate under a "rolling" Four-Year Financial Plan (Plan). Revenues and expenditures, including transfers, of each year of the Plan are required to be balanced on a basis consistent with GAAP. The Plan is broader in scope than the expense budget; it comprises General Fund revenues and expenditures, Capital Projects Fund revenues and expenditures, and all short and long-term financing.

The expense budget is generally consistent with the first year of the Plan and operations under the expense budget must reflect the aggregate limitations contained in the approved Plan. The City reviews its Plan periodically during the year and, if necessary, makes modifications to incorporate actual results and revisions to assumptions.

2. Deficit Fund Balance

The Capital Projects Fund had deficits of $3.72 and $2.28 billion for the years ended June 30, 2019 and 2018, respectively. These deficits represent the amounts expected to be financed from future bond issues or intergovernmental reimbursements. To the extent the deficits will not be financed or reimbursed, a transfer from the General Fund will be required.

D. Detailed Notes on All Funds

1. Deposits and Investments

Deposits

The City's bank depositories are designated by the New York City Banking Commission, which consists of representatives of the Comptroller, the Mayor, and the Finance Commissioner. The Banking Commission considers a list of requirements to approve banks for designation, including but not limited to independent bank rating agency reports, bank regulators' reports, the banks' quarterly financial statements reported to the SEC, independently audited public financial statements and the New York State Department of Financial Services and Federal supervisory agency Community Reinvestment Act (CRA) reports to determine the financial soundness of each bank. In addition, the City's banking relationships are under periodic operational, financial and credit reviews.

The City Charter limits the amount of deposits, at any time, in any one bank or trust company, to a maximum of one-half of the amount of the capital and net surplus of such bank or trust company. The discretely presented component units included in the City's reporting entity maintain their own banking relationships, which generally conform with the City's.

The City's bank account balances in excess of the prevailing Federal Deposit Insurance Corporation (FDIC) insurance limits are fully collateralized in accordance with the New York State General Municipal Law (GML) and the New York City Department of Finance Collateral Policy, dated December 5, 2012. The FDIC insurance limit is only applied one time to each bank relationship with multiple bank accounts. Each New York City Designated Bank must pledge Eligible Securities and/or Letters of Credit (LOC) that satisfy the minimum GML collateral requirements. The Designated Banks are required to closely monitor daily City bank account balances and adjust the amount of collateral pledged when the City's bank account balance changes to ensure that City deposits are always fully collateralized. With the exception of banks pledging a LOC as collateral, the banks are required, on a daily basis, to aggregate the total balances of all bank accounts under the City's tax ID, deduct the FDIC insurance limit and pledge collateral which more than covers the remaining balances. The custodians provide collateral reports to the Department of Finance Collateral Committee on a daily basis.

Cash & Cash Equivalents

The following is a summary of the cash and cash equivalents of the City's Governmental Activities as of June 30, 2019 and June 30, 2018:

	Governmental Activities	
	2019	2018
	(in thousands)	
Restricted cash and cash equivalents:		
Cash	$ 25,032	$ 20,583
Cash Equivalents	2,780,718	2,962,686
Total restricted cash and cash equivalents:	2,805,750	2,983,269
Unrestricted cash and cash equivalents:		
Cash*	2,451,706	1,726,874
Cash Equivalents	4,457,708	5,950,052
Total unrestricted cash and cash equivalents:	6,909,414	7,676,926
Grand Total cash and cash equivalents	$ 9,715,164	$10,660,195

* Unrestricted cash for Governmental Activities represents book balances that include items in transit.

At June 30, 2019 and 2018, the City's unrestricted Governmental Activities bank balances were $2.51 and $2.23 billion, respectively. Of those amounts, there was no exposure to custodial credit risk at June 30, 2019; however, at June 30, 2018, $949 thousand was exposed to custodial credit risk (this is the risk that in the event of a bank failure, the City's deposits may not be returned or the City will not be able to recover collateral securities that are in the possession of an outside party). At June 30, 2019 and 2018, the City's restricted Governmental Activities cash balances were $25.03 and $20.58 million, respectively. Of those amounts, $8 and $11 thousand were exposed to custodial credit risk. Bank balances are exposed to custodial credit risk when they are uninsured and uncollateralized.

The following is a summary of the cash and cash equivalents of the City's business-type activities as of June 30, 2019 and June 30, 2018:

	Business-Type Activities 2019	2018
	(in thousands)	
Restricted cash and cash equivalents:		
Cash	$ 35,485	$ 51,033
Cash Equivalents	—	—
Total restricted cash and cash equivalents:	35,485	51,033
Unrestricted cash and cash equivalents:		
Cash	105,973	20,042
Cash Equivalents	7,709	9,962
Total unrestricted cash and cash equivalents:	113,682	30,004
Grand Total cash and cash equivalents	$149,167	$ 81,037

At June 30, 2019 and 2018, the City's unrestricted business-type activities bank balances were $105.97 and $20.04 million, respectively. Of those amounts, there was no exposure to custodial credit risk at June 30, 2019 and 2018. At June 30, 2019 and 2018, the City's restricted business-type activities cash balances were $35.49 and $51.03 million, respectively. Of those amounts, there was no exposure to custodial credit risk at June 30, 2019 and 2018.

Investments

The City's investment of its primary government cash is currently limited to U.S. Government guaranteed securities and U.S. Government agency securities purchased directly and through repurchase agreements from primary dealers, as well as commercial paper rated A1 and P1 by Standard & Poor's Corporation and Moody's Investors Service, Inc., respectively. The repurchase agreements must be collateralized by U.S. Government guaranteed securities, U.S. Government agency securities, or eligible commercial paper in a range of 100% to 102% of the matured value of the repurchase agreements.

The following is a summary of the fair value of investments of the City's primary government as of June 30, 2019 and 2018:

Governmental Activities:

	Investment Maturities (in years)					
	2019			2018		
Investment Type	Less than 1	1 to 5	More than 5	Less than 1	1 to 5	More than 5
	(in thousands)					
Unrestricted						
U.S. Government securities	$2,594,090	$ —	$ —	$2,211,504	$296,695	$ —
U.S. Government agency obligations	2,137,359	—	—	2,469,622	171,387	—
Commercial paper	982,156	—	—	1,810,770	—	—
Time deposits	50,871	—	—	74,546	—	—
Investment derivative instruments	—	—	(53,714)(1)	—	—	(50,281)(2)
Total unrestricted	$5,764,476	$ —	$(53,714)	$6,566,442	$468,082	$(50,281)
Restricted						
U. S. Government securities	$349,263	$ —	$142,704	$ 498,687	$ 21,513	$ 92,386
U.S. Government agency obligations	962,775	—	—	890,629	—	—
Time deposits	3	—	—	5	—	—
Total restricted	$1,312,041	$ —	$142,704	$1,389,321	$ 21,513	$ 92,386

(1) The City has five pay-fixed interest rate swaps that are treated as investment derivative instruments. Additionally, the City has one pay-fixed swap (H) that is partially treated as an investment derivative instrument. On June 30, 2019, the swaps had fair values of $(2,039) thousand, $(680) thousand, $(680) thousand, $(680) thousand, $(7,652) thousand, and $(41,983) thousand, respectively.

(2) The City has five pay-fixed interest rate swaps and one basis swap that are treated as investment derivative instruments. Additionally, the City has one pay-fixed swap (H) that is partially treated as an investment derivative instrument. On June 30, 2018, the swaps had fair values of $(3,671) thousand, $(1,224) thousand, $(1,224) thousand, $(1,224) thousand, $(6,893) thousand, $(5,915) thousand, and $(30,130) thousand, respectively.

Business-Type Activities:

	Investment Maturities (in years)					
	2019			2018		
Investment Type	Less than 1	1 to 5	More than 5	Less than 1	1 to 5	More than 5
	(in thousands)					
Unrestricted						
U.S. Government securities	$39,092	$ —	$ 51,460	$10,840	$ 46,733	$ 49,389
U.S. Government agency obligations	—	—	—	—	—	—
Commercial paper	20,963	128,426	—	1,459	100,547	4,215
Money Market Funds	—	—	—	41	—	—
Time deposits	10,636	—	—	300	748	—
Mortgage Backed & Asset Backed Securities	—	—	85,297	—	—	117,722
Total unrestricted	$70,691	$128,426	$136,757	$12,640	$148,028	$171,326
Restricted						
Money Market Fund	$39,126	$ —	$ —	$37,134	$ —	$ —
Total restricted	$39,126	$ —	$ —	$37,134	$ —	$ —

Fair Value Hierarchy

The City categorizes its fair value measurements within the fair value hierarchy established by generally accepted accounting principles. The hierarchy is based on the valuation inputs used to measure fair value of the assets. Level 1 inputs are quoted prices in an active market for identical assets; Level 2 inputs are significant other observable inputs; and Level 3 inputs are significant unobservable inputs (the City does not have any investments for which Level 3 inputs are required).

The following is a summary of the fair value hierarchy of the fair value of investments of the City's primary government as of June 30, 2019 and June 30, 2018:

	2019			2018		
		Fair Value Measurements Using			Fair Value Measurements Using	
Investments[1] by Fair Value Level	Total	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Total	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)
	(in thousands)					
U.S. Government securities	$ 5,305,686	$1,752,044	$3,553,642	$ 5,461,171	$1,951,902	$3,509,269
U.S. Government agency obligations	3,490,766	—	3,490,766	3,550,657	—	3,550,657
Commercial paper	1,434,548	212	1,434,336	2,432,562	1,459	2,431,103
Money Market Funds (includes time deposits)	122,135	736	121,399	296,861	1,089	295,772
Mortgage Backed & Asset Back Securities	85,297	—	85,297	117,722	—	117,722
Investment derivative instruments	(53,714)	—	(53,714)	(50,281)	—	(50,281)
Total Investment & Cash Equivalent by Fair Value Level	$10,384,718[2]	$1,752,992	$8,631,726	$11,808,692[2]	$1,954,450	$9,854,242

(1) Includes cash equivalents carried at fair value by blended components.

(2) As of June 30, 2019 and June 30, 2018, all ECF investment maturities were recorded at carrying value. For the year ended June 30, 2019 and June 30, 2018, ECF's listed investments totaled $89.52 and $112.62 million, respectively.

Investments classified in Level 1 of the fair value hierarchy, valued at $1.75 and $1.95 billion in Fiscal Years 2019 and 2018 respectively, are valued using quoted prices in active markets.

U.S. Government securities totaling $3.53 and $3.42 billion, U.S. Government agency obligations totaling $3.49 and $3.55 billion, commercial paper totaling $1.43 and $2.43 billion, money market funds totaling $121.40 and $295.77 million and mortgage backed and asset backed securities totaling $85.30 and $117.72 million in Fiscal Years 2019 and 2018 respectively, classified in Level 2 of the fair value hierarchy are valued using matrix pricing techniques maintained by various pricing vendors. Matrix pricing is used to value securities based on the securities' relationship to benchmark quoted prices. Fair value is defined as the quoted market value on the last trading day of the period. These prices are obtained from various pricing sources by our custodian bank.

U.S. Government securities, totaling $22.33 and $88.91 million in Fiscal Years 2019 and 2018 respectively, under a forward supply contract classified in Level 2 of the fair value hierarchy are valued using present value and option pricing model techniques.

Investment derivative instruments, totaling $(53.71) and $(50.28) million in Fiscal Years 2019 and 2018, respectively, are classified in Level 2 of the fair value hierarchy. Fair value is described as the exit price that assumes a transaction takes place in the City's most advantageous market in the absence of a principal market. These inputs include the mid-market valuation and then incorporates the credit risk of either the City or its counterparty and the bid/offer spread that would be charged to the City in order to transact. The mid-market values of the interest rate swaps were estimated using the income approach. This method calculates the future net settlement payments required by the swap, assuming that the current forward rates implied by the yield curve correctly anticipate future spot interest rates. These payments are then discounted using the spot rates implied by the current yield curve for hypothetical zero-coupon bonds due on the date of each future net settlement date.

Interest rate risk. As a means of limiting its exposure to fair value losses arising from rising interest rates, the City's investment policy limits the weighted average maturity to a period of less than 2 years. The City's current weighted average maturity is less than 201 days.

Credit risk. Investment guidelines and policies are 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. As of June 30, 2019 and 2018, investments in Fannie Mae or Freddie Mac and Federal Home Loan Bank (FHLB) were rated in the highest long-term or short-term ratings category (as applicable) by Standard & Poor's and/or Moody's Investor Service. These ratings were AA+ and A-1+ by Standard & Poor's and Aaa and P-1 by Moody's for long-term and short-term instruments, respectively.

Concentration of credit risk. The City's investment policy limits investments to no more than $250 million invested at any time in either commercial paper of a single issuer or investment agreements with a single provider.

Custodial credit risk-investments. For investments, custodial credit risk is the risk that, in the event of the failure of the counterparty, the City will also not be able to recover the value of its investments or collateral securities that are in the possession of the custodian. Investment securities are exposed to custodial credit risk if the securities are uninsured, are not registered in the name of the City, and are held by either the counterparty or the counterparty's trust department or agent.

The City's investment policy related to custodial credit risk calls for limiting its investments to highly rated institutions and/or requiring high quality collateral be held by the counterparty or custodian in the name of the City.

Investment Derivative Instruments

Note: More information on derivative instruments discussed herein can be found in Note A.12, by referencing the indicated derivative instrument's identifying letter.

Credit risk: The City is exposed to credit risk on investment derivative instruments. To minimize its exposure to loss related to credit risk, it is the City's policy to require counterparty collateral posting provisions in its investment derivative instruments. These terms require collateralization of the fair value of investment derivative instruments (net of the effect of applicable threshold requirements and netting arrangements) should the counterparty's credit rating fall below the following:

The counterparty (or its respective guarantor) with respect to derivative instruments B, D, and E is required to post collateral if one of its credit ratings goes below A3/A-. The counterparty with respect to derivative instrument H is required to post collateral if one of its credit ratings goes below A2/A. The counterparty with respect to derivative instruments A and C is required to post collateral if it has at least one rating below Aa3 or AA-. The City has never been required to access collateral.

As discussed in Note A.12, it is the City's policy to enter into netting arrangements whenever it has entered into more than one derivative instrument transaction with a counterparty.

The aggregate fair value of investment derivative instruments requiring collateralization at June 30, 2019 was $(53.71) million. A negative aggregate fair value means the City would have owed payments to the counterparties. The City had no counterparty credit exposure to any of the investment derivative instrument counterparties as of that date.

Interest rate risk: The City is exposed to interest rate risk on its swaps. In derivative instruments A, B, C, D, E and H, pay-fixed, receive-variable interest rate swaps, as LIBOR decreases, the City's net payment on the swap increases.

Basis risk: The City is exposed to basis risk on derivative instruments A, B, C, D, E and H because the variable-rate payment received by the City is based on a rate or index other than the interest rate the City pays on its variable-rate debt. Under the terms of its derivative instruments A, B, C, D, E and H, the City pays a variable rate on the outstanding underlying bonds based on SIFMA, but receives a variable rate on the swap based on a percentage of LIBOR.

Tax risk: The City is at risk that a change in Federal tax rates will alter the fundamental relationship between the SIFMA and LIBOR indices. A reduction in Federal tax rates, for example, will likely increase the City's payment on its underlying variable rate bonds in derivative instruments A, B, C, D, E and H.

Termination risk: The City or its counterparties may terminate a derivative instrument if the other party fails to perform under the terms of the contract. The City is at risk that a counterparty will terminate a swap at a time when the City owes it a termination payment. The City has mitigated this risk by specifying that the counterparty has the right to terminate only as a result of certain events, including: a payment default by the City; other City defaults which remain uncured for 30 days after notice; City bankruptcy; insolvency of the City (or similar events); or a downgrade of the City's credit rating below investment grade (i.e., BBB-/Baa3). If at the time of termination, an investment derivative instrument is in a liability position, the City would be liable to the counterparty for a payment equal to the liability, subject to netting arrangements.

Counterparty risk: The City is at a risk that a counterparty (or its guarantor) will not meet its obligations under the swap. If a counterparty were to default under its agreement when the counterparty would owe a payment to the City, the City may have to pay another entity to assume the position of the defaulting counterparty. The City has sought to limit its counterparty risk by contracting only with highly-rated entities or requiring guarantees of the counterparty's obligations under the swap documents.

The discretely presented component units included in the City's reporting entity maintain their own investment policies that generally conform to those of the City.

The criteria for the Pension and Other Employee Benefit Trust Funds' and Other Trust Funds' investments are as follows:

1. Fixed income investments may be made in U.S. Government guaranteed securities or securities of U.S. Government agencies, securities of entities rated BBB or better by both Standard and Poor's Corporation and Moody's Investors Service, Inc., securities below BBB up to 10% of the total asset allocation and any bond that meets the qualifications of the New York State Retirement and Social Security Law, the New York State Banking Law, and the New York City Administrative Code.
2. Equity investments may be made only in those stocks that meet the qualifications of the New York State Retirement and Social Security Law, the New York State Banking Law, and the New York City Administrative Code.
3. Short-term investments may be made in the following:
    a. U.S. Government guaranteed securities or U.S. Government agency securities.
    b. Commercial paper rated A1, P1, or F1 by Standard & Poor's Corporation or Moody's Investors Service, Inc., or Fitch, respectively.
    c. Repurchase agreements collateralized in a range of 100% to 102% of matured value, purchased from primary dealers of U.S. Government securities.

d. Investments in bankers' acceptances, certificates of deposit, and time deposits are limited to banks with worldwide assets in excess of $50 billion that are rated within the highest categories of the leading bank rating services, and selected regional banks also rated within the highest categories.

e. Other top-rate securities maturing in less than 4 years.

4. Investments up to 25% of total pension fund assets in instruments not specifically covered by the New York State Retirement and Social Security Law.

5. No investment in any one corporation can be: (i) more than 2% of the pension plan net position; or (ii) more than 5% of the total outstanding issues of the corporation.

All investments are held by the City's custodial banks (in bearer or book-entry form) solely as an agent of the Comptroller of The City of New York on behalf of the various account owners. Payments for purchases are not released until evidence of ownership of the underlying investments are received by the City's custodial bank.

Securities Lending

State statutes and Board policies permit the Pension and Certain Other Employee Benefit Trust Funds to lend its securities to broker-dealers and other entities for collateral, for the same securities in the future with a simultaneous agreement to return the collateral in the form of cash, treasury and U.S. Government securities. The Funds' agent lends the following types of securities: short term securities, common stocks, long-term corporate bonds, U.S. Government and U.S. Government agency bonds, asset-backed securities and international equities and bonds held in collective investment funds. In return, the Funds receive collateral in the form of cash, U.S. Treasury and U.S. Government agency securities at 100% to 108% of the principal plus accrued interest for reinvestment. At June 30, 2019 and 2018, management believes that the Funds had no credit risk exposure to borrowers because the amounts the Funds owed the borrowers equaled or exceeded the amounts the borrowers owed the Funds. The contracts with the Funds' custodians require the securities lending agent to indemnify the Funds. In the situation when a borrower goes into default, the Agent will liquidate the collateral to purchase replacement securities. Any shortfall before the replacement securities cost and the collateral value is covered by the Agent. All securities loans can be terminated on demand within a period specified in each agreement by either the Funds or the borrowers. Cash collateral is invested by the securities lending agent using approved lender's investment guidelines. The weighted average maturity is 61 days. The securities lending program in which the Funds participate only allows pledging or selling securities in the case of borrower default.

The City reports securities loaned as assets on the *Statement of Fiduciary Net Position*. Cash received as collateral on securities lending transactions, and investments made with that cash, are also recorded as assets. Liabilities resulting from these transactions are reported on the *Statement of Fiduciary Net Position*. Accordingly, the City records the investments purchased with the cash collateral as Investments; Collateral From Securities Lending Transactions with a corresponding liability are recorded as Securities Lending Transactions.

2. Capital Assets

The following is a summary of governmental activities capital assets for the Fiscal Years ended June 30, 2018 and 2019:

Primary Government	Balance June 30, 2017	Additions	Deletions	Balance June 30, 2018	Additions	Deletions	Balance June 30, 2019
				(in thousands)			
Governmental activities:							
Capital assets, not being depreciated/amortized:							
Land	$ 2,180,461	$ 70,615	$ 183	$ 2,250,893	$ 144,665	$ 4,311	$ 2,391,247
Construction work-in-progress	3,744,311	2,991,795	3,384,562	3,351,544	3,440,996	3,592,462	3,200,078
Total capital assets, not being depreciated/amortized	5,924,772	3,062,410	3,384,745	5,602,437	3,585,661	3,596,773	5,591,325
Capital assets, being depreciated/amortized:							
Building	61,138,821	3,384,562	235,078	64,288,305	3,592,462	127,654	67,753,113
Equipment (including software)	9,420,121	764,285	338,857	9,845,549	1,216,977	61,878	11,000,648
Infrastructure	22,943,206	2,038,772	367,204	24,614,774	2,036,950	440,227	26,211,497
Total capital assets, being depreciated/amortized	93,502,148	6,187,619	941,139	98,748,628	6,846,389	629,759	104,965,258
Less accumulated depreciation/amortization							
Building	26,312,687	2,171,927	227,649	28,256,965	3,282,419	107,077	31,432,307
Equipment (including software)	6,520,196	648,485	316,293	6,852,388	939,461	41,428	7,750,421
Infrastructure	9,077,245	1,107,150	367,205	9,817,190	1,125,322	408,694	10,533,818
Total accumulated depreciation/amortization	41,910,128	3,927,562(1)	911,147	44,926,543	5,347,202(1)	557,199	49,716,546
Total capital assets, being depreciated/amortized, net	51,592,020	2,260,057	29,992	53,822,085	1,499,187	72,560	55,248,712
Governmental activities capital assets, net	$57,516,792	$5,322,467	$3,414,737	$59,424,522	$5,084,848	$3,669,333	$60,840,037

(1) Depreciation expense was charged to functions/programs of the City for the Fiscal Years ended June 30, 2018 and 2019.

The following is a summary of the governmental activities depreciation expense by function/program for the Fiscal Years ended June 30, 2019 and 2018:

	2019	2018
	(in thousands)	
Governmental activities:		
General government	$ 528,355	$ 555,589
Public safety and judicial	307,283	271,401
Education	2,934,040	1,602,323
City University	4,398	4,335
Social services	66,579	68,093
Environmental protection	187,521	187,946
Transportation services	768,136	769,908
Parks, recreation and cultural activities	408,394	390,156
Housing	4,706	3,163
Health	120,814	57,343
Libraries	16,976	17,305
Total depreciation expense-governmental activities	$5,347,202	$3,927,562

The following are the sources of funding for the governmental activities capital assets for the Fiscal Years ended June 30, 2019 and 2018. Sources of funding for capital assets are not available prior to Fiscal Year 1987.

	2019	2018
	(in thousands)	
Capital Projects Funds:		
Prior to Fiscal Year 1987	$ 6,484,659	$ 6,487,183
City and TFA bonds	100,608,731	94,479,042
Federal grants	599,109	583,707
State grants	98,008	92,552
Private grants	81,886	81,573
Capitalized leases	2,684,190	2,627,008
Total funding sources	$110,556,583	$104,351,065

At June 30, 2019 and 2018, the governmental activities capital assets include approximately $1.2 billion of City-owned assets leased for $1 per year to the New York City Transit Authority which operates and maintains the assets. In addition, assets leased to NYC Health + Hospitals and to the System are excluded from governmental activities capital assets and are recorded in the respective component unit financial statements.

Included in buildings at June 30, 2019 and 2018, are leased properties that have elements of ownership. These assets are recorded as capital assets as follows:

	Capital Leases	
Governmental activities:	2019	2018
	(in thousands)	
Capital asset:		
Capitalized leases — buildings	$2,684,190	$2,627,008
Less accumulated amortization	1,131,210	968,450
Capitalized leases — buildings, net	$1,552,980	$1,658,558

Capital Commitments

At June 30, 2019, the outstanding commitments relating to projects of the New York City Capital Projects Fund amounted to approximately $23.1 billion.

To address the need for significant infrastructure and public facility capital investments, the City has prepared a ten-year capital spending program which contemplates City Capital Projects Fund expenditures of $116.9 billion over Fiscal Years 2019 through 2028. To help meet its capital spending program, the City and TFA borrowed $5.7 billion in the public credit market in Fiscal Year 2019. The City and TFA plan to borrow $7.8 billion in the public credit market in Fiscal Year 2020.

On January 31, 2019, NYCHA, the City and the U.S. Department of Housing and Urban Development entered into an agreement relating to lead-based paint and other health and safety concerns in NYCHA's properties. Pursuant to this agreement, a Federal monitor has been appointed to oversee NYCHA's compliance with the terms of the agreement and federal regulations and the City will provide additional funding. Pursuant to the agreement, the 2019-2023 Capital Commitment Plan reflects $1.2 billion in additional City capital funds, with an additional $1 billion in City capital funds reflected in the remaining years of the Ten Year Capital Strategy for fiscal years 2020 through 2029. NYCHA has announced that it may be out of compliance with federal requirements beyond the regulations concerning lead-based paint and other health and safety concerns that were the subject of such agreement. NYCHA has estimated that its total projected capital costs are approximately $32 billion over the next five years.

The following is a summary of business-type activities capital assets for the Fiscal Years ended June 30, 2018 and 2019:

Primary Government	Balance June 30, 2017	Additions	Deletions	Balance June 30, 2018	Additions	Deletions	Balance June 30, 2019
				(in thousands)			
Business-Type Activities:							
Capital assets, not being depreciated/amortized:							
Construction work-in-progress	$ 144,081	$ 40,848	$ 90,378	$ 94,551	$ 28,268	$ 64,814	$ 58,005
Total capital assets, not being depreciated/amortized	144,081	40,848	90,378	94,551	28,268	64,814	58,005
Capital assets, being depreciated/amortized:							
Building	32,133	11,716	—	43,849	—	—	43,849
Equipment (including software)	8,876	643	—	9,519	11,685	—	21,204
Infrastructure	457,480	74,542	—	532,022	51,613	—	583,635
Total capital assets, being depreciated/amortized	498,489	86,901	—	585,390	63,298	—	648,688
Less accumulated depreciation/amortization:							
Building	1,563	449	—	2,012	438	—	2,450
Equipment (including software)	4,375	900	—	5,275	1,087	—	6,362
Infrastructure	65,312	35,102	—	100,414	31,841	—	132,255
Total accumulated depreciation/amortization	71,250	36,451	—	107,701	33,366	—	141,067
Total capital assets, being depreciated/amortized, net	427,239	50,450	—	477,689	29,932	—	507,621
Business-type activities capital assets, net	$ 571,320	$ 91,298	$ 90,378	$ 572,240	$ 58,200	$ 64,814	$ 565,626

3. Leases

The City leases a significant amount of property and equipment from others. Leased property having elements of ownership is recorded in the government-wide financial statements. The related obligations, in amounts equal to the present value of minimum lease payments payable during the remaining term of the leases, are also recorded in the government-wide financial statements. Other leased property not having elements of ownership are classified as operating leases. Both capital and operating lease payments are recorded as expenditures when payable. Total expenditures on such leases for the Fiscal Years ended June 30, 2019 and 2018 were approximately $1,217 and $1,145 million, respectively.

As of June 30, 2019, the City (excluding discretely presented component units) had future minimum payments under capital and operating leases with a remaining term in excess of one year as follows:

	Capital Leases	Operating Leases	Total
Governmental activities:		(in thousands)	
Fiscal year ending June 30:			
2020	$ 181,298	$ 811,778	$ 993,076
2021	175,964	758,060	934,024
2022	173,860	705,856	879,716
2023	190,421	674,218	864,639
2024	149,750	644,787	794,537
2025-2029	641,209	2,635,073	3,276,282
2030-2034	406,067	1,357,512	1,763,579
2035-2039	190,580	569,603	760,183
2040-2044	12,243	25,228	37,471
2045-2049	—	12,412	12,412
2050-2054	—	1,464	1,464
Future minimum payments	2,121,392	$8,195,991	$10,317,383
Less: Interest	568,412		
Present value of future minimum payments	$1,552,980		

The present value of future minimum lease payments includes approximately $807 million for leases with Public Benefit Corporations (PBC) where State law generally provides that in the event the City fails to make any required lease payment, the amount of such payment will be deducted from State aid otherwise payable to the City and paid to PBCs.

The City also leases City-owned property to others, primarily for markets, ports, and terminals. Total rental revenue on these capital and operating leases for the Fiscal Years ended June 30, 2019 and 2018 was approximately $273 and $261 million, respectively. As of June 30, 2019, the following future minimum rentals are provided for by the leases:

	Capital Leases	Operating Leases	Total
Governmental activities:		(in thousands)	
Fiscal Year ending June 30:			
2020	$ 737	$ 230,329	$ 231,066
2021	737	223,666	224,403
2022	647	219,380	220,027
2023	616	217,645	218,261
2024	616	189,971	190,587
2025-2029	3,428	905,953	909,381
2030-2034	3,453	866,205	869,658
2035-2039	1,183	838,760	839,943
2040-2044	240	824,332	824,572
2045-2049	100	817,211	817,311
2050-2054	—	275,478	275,478
2055-2059	—	44,871	44,871
2060-2064	—	44,871	44,871
2065-2069	—	44,871	44,871
2070-2074	—	42,960	42,960
2075-2079	—	42,747	42,747
2080-2084	—	42,747	42,747
2085-2089	—	21,374	21,374
Thereafter until 2111	—	2	2
Future minimum lease rentals	11,757	$5,893,373	$5,905,130
Less interest	5,844		
Present value of future minimum lease rentals	$ 5,913		

4. Service Concession Arrangements

The City is the transferor in 73 Service Concession Arrangements contracted at the Parks Department. The agreements convey to the operators the right, either through licenses or permits, to construct capital assets and operate and maintain all service concessions. The City has the right to approve the type of services the operators may provide and the fees that may be charged by the operators to the public. As per the agreements, the operators provide amenities and facilities to park users, which generate General Fund revenues for the City and also create valuable business and employment opportunities for the public. The Parks Department operators help preserve some of the City's unique park facilities and provide public amenities while creating and developing new park destinations with fewer public funds.

The Service Concession Agreements do not contain any upfront payments from the operators nor are there any guarantees or commitments by the City. By concession type, the value of the Capital Assets associated with the above Service Concession Arrangements and the deferred inflows resulting from such arrangements are as follows at June 30:

	2019			2018		
Concession Type	Number of Concessions	Deferred Inflows	Capital Assets Value	Number of Concessions	Deferred Inflows	Capital Assets Value
		(in thousands)			(in thousands)	
Restaurants	30	$ 19,046	$ 43,880	30	$ 23,199	$ 94,257
Sports Centers	14	17,145	51,089	14	17,139	48,869
Golf Courses	15	31,575	60,398	15	35,248	62,058
Gas Stations	7	377	728	7	470	753
Amusement Parks/Carousels	3	12,323	70,941	3	21,210	73,232
Stables	3	246	906	3	301	942
Other	1	232	343	1	101	144
Total	73	$ 80,944	$ 228,285	73	$ 97,668	$ 280,255

5. Long-Term Liabilities

Changes in Long-term liabilities

In Fiscal Years 2018 and 2019, the changes in long-term liabilities were as follows:

Primary Government	Balance June 30, 2017	Additions	Deletions	Balance June 30, 2018	Additions	Deletions	Balance June 30, 2019	Due Within One Year
Governmental activities:				(in thousands)				
Bonds and notes payable								
General Obligation Bonds[1]	$ 37,190,646	$ 4,942,470	$ 4,330,215	$ 37,802,901	$ 2,874,245	$ 3,983,411	$ 36,693,735	$2,217,695
from direct borrowing and direct placement	700,000	200,000	75,000	825,000	150,000	150,000	825,000	—
Total General Obligation Bonds	37,890,646	5,142,470	4,405,215	38,627,901	3,024,245	4,133,411	37,518,735	2,217,695
TFA bonds	40,084,745	5,560,530	3,182,770	42,462,505	7,282,015	3,710,050	46,034,470	1,424,075
from direct borrowing and direct placement	610,900	298,800	16,900	892,800	—	302,800	590,000	32,600
Total TFA Bonds	40,695,645	5,859,330	3,199,670	43,355,305	7,282,015	4,012,850	46,624,470	1,456,675
Total TSASC Bonds	1,089,540	—	18,625	1,070,915	—	18,355	1,052,560	29,375
Total IDA Bonds	80,400	—	3,425	76,975	—	14,965	62,010	2,300
Total STAR Bonds	1,884,500	—	79,755	1,804,745	—	83,505	1,721,240	87,650
Total FSC Bonds	131,705	—	45,560	86,145	—	64,360	21,785	21,785
Total HYIC Bonds	2,750,760	—	26,890	2,723,870	—	—	2,723,870	—
Total ECF Bonds	235,880	—	4,680	231,200	40,350	53,195	218,355	4,840
Total before premiums/discounts(net)	84,759,076	11,001,800	7,783,820	87,977,056	10,346,610	8,380,641	89,943,025	3,820,320
Less premiums/(discounts)(net)	4,826,897	1,295,802	744,656	5,378,043	956,385	793,151	5,541,277	—
Total governmental activities bonds and notes payable	89,585,973	12,297,602	8,528,476	93,355,099	11,302,995	9,173,792	95,484,302	3,820,320
Capital lease obligations	1,548,591	225,772	115,805	1,658,558	80,800	186,378	1,552,980	94,991
Other tax refunds	1,042,193	1,040,178	112,493	1,969,878	157,717	180,878	1,946,717	119,717
Judgments and claims	6,857,648	1,158,375	1,324,939	6,691,084	1,446,758	1,287,551	6,850,291	116,040
Real estate tax certiorari	1,073,381	259,934	125,026	1,208,289	198,635	410,287	996,637	232,180
Vacation and sick leave	4,648,180	671,425	427,879	4,891,726	490,859	331,502	5,051,083	159,357
Net Pension liability	56,241,371	20,115,987	28,597,290	47,760,068	21,156,711	25,576,486	43,340,293	—
Net OPEB liability	88,422,672	12,803,284	2,729,740	98,496,216	18,328,310	9,034,468	107,790,058	—
Landfill closure and postclosure care costs	1,508,009	—	201,160	1,306,849	70,643	96,201	1,281,291	72,782
Pollution remediation obligation	202,577	197,181	150,083	249,675	146,329	149,684	246,320	129,461
Total governmental activities long-term liabilities	$251,130,595	$48,769,738	$42,312,891	$257,587,442	$53,379,757	$46,427,227	$264,539,972	$4,744,848
Business-type activities:								
Bonds and notes payable								
NYCTL 2015-A TRUST bonds	$ 10,918	$ —	$ 10,918	$ —	$ —	$ —	$ —	$ —
NYCTL 2016-A TRUST bonds	26,496	—	22,912	3,584	—	3,584	—	—
NYCTL 2017-A TRUST bonds	—	68,017	39,242	28,775	—	19,446	9,329	9,329
NYCTL 2018-A TRUST bonds	—	—	—	—	74,659	38,556	36,103	36,103
Total before premiums/discounts(net)	37,414	68,017	73,072	32,359	74,659	61,586	45,432	45,432
Less premiums/(discounts)(net)	(3)	1	1	(3)	2	1	(2)	(2)
Total business-type activities bonds and notes payable	37,411	68,018	73,073	32,356	74,661	61,587	45,430	45,430
Other liabilities	367,941	16,706	17,817	366,830	5,999	16,249	356,580	24,153
Total business-type activities long-term liabilities	$ 405,352	$ 84,724	$ 90,890	$ 399,186	$ 80,660	$ 77,836	$ 402,010	$ 69,583

[1] General Obligation Bonds are generally liquidated with resources of the General Debt Service Fund. Other long-term liabilities are generally liquidated with resources of the General Fund.

The bonds and notes payable, net of treasury obligations, at June 30, 2019 and 2018 summarized by type of issue are as follows:

	2018				2019			
Primary Government	**City General Obligation**[1]	**Other bonds and notes payable**[2]	**Revenue**[3]	**Total**	**City General Obligation**[1]	**Other bonds and notes payable**[2]	**Revenue**[3]	**Total**
				(in thousands)				
Governmental activities:								
Bonds and notes payable								
General Obligation Bonds	$37,802,901	$ —	$ —	$37,802,901	$36,693,735	$ —	$ —	$36,693,735
from direct borrowing and direct placement	825,000	—	—	825,000	825,000	—	—	825,000
Total General Obligation Bonds	38,627,901	—	—	38,627,901	37,518,735	—	—	37,518,735
TFA bonds	—	34,518,250	—	34,518,250	—	37,923,340	—	37,923,340
from direct borrowing and direct placement	—	892,800	—	892,800	—	590,000	—	590,000
TFA BARBs	—	—	7,944,255	7,944,255	—	—	8,111,130	8,111,130
Total TFA Bonds	—	35,411,050	7,944,255	43,355,305	—	38,513,340	8,111,130	46,624,470
Total TSASC Bonds	—	—	1,070,915	1,070,915	—	—	1,052,560	1,052,560
Total IDA Bonds	—	76,975	—	76,975	—	62,010	—	62,010
Total STAR Bonds	—	—	1,804,745	1,804,745	—	—	1,721,240	1,721,240
Total FSC Bonds	—	—	86,145	86,145	—	—	21,785	21,785
Total HYIC Bonds	—	—	2,723,870	2,723,870	—	—	2,723,870	2,723,870
Total ECF Bonds	—	—	231,200	231,200	—	—	218,355	218,355
Total before premiums/discounts(net)	38,627,901	35,488,025	13,861,130	87,977,056	37,518,735	38,575,350	13,848,940	89,943,025
Less premiums/(discounts)(net).	1,923,467	2,884,979	569,597	5,378,043	1,846,876	833,624	2,860,777	5,541,277
Total bond payable	$40,551,368	$38,373,004	$14,430,727	$93,355,099	$39,365,611	$39,408,974	$16,709,717	$95,484,302
Business-type activities:								
NYCTL Trusts Bonds	$ —	$ —	$ 32,359	$ 32,359	$ —	$ —	$ 45,432	$ 45,432
Total before net of premium / discount	—	—	32,359	32,359	—	—	45,432	45,432
Less premiums/(discounts)(net).	—	—	(3)	(3)	—	—	(2)	(2)
Total bond payable	$ —	$ —	$ 32,356	$ 32,356	$ —	$ —	$ 45,430	$ 45,430

(1) The City issues its General Obligation for capital projects which include construction, acquisition, repair or life extending maintenance of the City's infrastructure.

(2) Other bonds and notes payable includes TFA (excluded BARBs) and IDA. They are general obligations of the respective issuers.

(3) Revenue bonds include ECF, FSC, HYIC, STAR, TFA (BARBs), NYCTL Trusts and TSASC.

The following table summarizes future debt service requirements as of June 30, 2019:

Primary Government	Governmental Activities									
	City General Obligation Bonds				Other bonds and Notes Payable				Revenue Bonds	
	Bonds		Bond from Direct Borrowing/ Direct Placements		Bonds		Bond from Direct Borrowing/ Direct Placements		Bonds	
	Principal	Interest[1]	Principal	Interest[1]	Principal	Interest	Principal	Interest	Principal	Interest
	(in thousands)									
Fiscal year ending June 30:										
2020	$ 2,217,695	$ 1,609,566	$ —	$ 24,750	$ 1,398,660	$ 1,589,218	$ 32,600	$ 12,484	$ 211,940	$ 683,415
2021	2,182,441	1,512,385	—	24,750	1,550,485	1,530,404	34,100	11,758	241,400	659,788
2022	2,257,730	1,411,042	20,000	24,750	1,586,450	1,470,446	35,800	10,998	291,040	649,420
2023	2,335,946	1,304,973	30,000	24,150	1,604,950	1,408,800	37,500	10,200	377,730	634,783
2024	2,396,996	1,197,596	—	23,250	1,583,635	1,345,175	—	9,792	483,300	615,069
2025-2029	10,085,678	4,490,821	55,065	115,010	8,149,230	5,738,798	100,000	45,128	2,813,715	2,682,541
2030-2034	6,966,182	2,554,163	102,225	102,068	7,690,080	4,049,519	—	38,080	3,341,885	1,903,790
2035-2039	4,989,007	1,146,853	157,315	83,171	8,112,885	2,216,122	—	38,080	3,029,920	1,098,715
2040-2044	2,626,583	366,609	260,395	55,769	5,667,240	557,167	275,000	29,371	1,797,135	514,215
2045-2049	635,434	37,377	200,000	13,862	641,735	16,093	75,000	3,022	1,260,875	128,384
2050-2054	4	14	—	—	—	—	—	—	—	—
Thereafter until 2147	39	133	—	—	—	—	—	—	—	—
Total future debt service requirements	36,693,735	15,631,532	825,000	491,530	37,985,350	19,921,742	590,000	208,913	13,848,940	9,570,120
Less interest	—	(15,631,532)	—	(491,530)	—	(19,921,742)	—	(208,913)	—	(9,570,120)
Total principal outstanding	$36,693,735	$ —	$825,000	$ —	$37,985,350	$ —	$590,000	$ —	$13,848,940	$ —

Business-type activities

	Bonds	
	Principal	Interest[1]
	(in thousands)	
Fiscal year ending June 30:		
2020	$ —	$ 1,337
2021	—	1,337
2022	—	1,337
2023	—	1,337
2024	—	1,337
2025-2029	—	6,685
2030-2034	45,432	3,168
Total future debt service requirements	45,432	16,538
Less interest	—	(16,538)
Total principal outstanding	$ 45,432	$ —

(1) Includes interest for general obligation bonds estimated at a 3% rate on tax-exempt adjustable rate bonds and at a 4% rate on taxable adjustable rate bonds.

The average (weighted) interest rates for outstanding City General Obligation Bonds as of June 30, 2019 and 2018, were 4.49% and 4.48%, respectively, and both ranged from 0% to 8.6%. The last maturity of the outstanding City debt is in the year 2147.

Since the City has variable rate debt outstanding, the terms by which interest rates change for variable rate debt are as follows: for Auction Rate Securities, an interest rate is established periodically by an auction agent at the lowest clearing rate based upon bids received from broker-dealers. Variable Rate Demand Bonds (VRDBs) are long-term bonds that have a daily or weekly "put" feature backed by a bank Letter of Credit or Standby Bond Purchase Agreement. VRDBs are repriced daily or weekly and provide investors with the option to tender the bonds at each repricing. A broker, called a Remarketing Agent, is responsible for setting interest rates and reselling to new investors any securities that have been tendered. CPI Bonds pay the holder a floating interest rate tied to the consumer price index. The rate is a fixed spread plus a floating rate equal to the change in the Consumer Price Index-Urban (CPI-U) for a given period. LIBOR Bonds pay the holder a floating interest rate calculated as a percentage of the LIBOR. SIFMA Index Bonds pay the holder a floating index rate based on the Securities Industry and Financial Markets Association Municipal Swap Index plus spread.

In Fiscal Years 2019 and 2018, the City issued $1.82 and $1.84 billion, respectively, of General Obligation Bonds to advance refund General Obligation Bonds of $2.02 and $2.10 billion, respectively, aggregate principal amounts. The net proceeds from the sales of the refunding bonds, together with other funds of $15.64 and $9.71 million, respectively, were irrevocably placed in escrow accounts and invested in United States Government securities. As a result of providing for the payment of the principal and interest to maturity, and any redemption premium, the advance refunded bonds are considered to be defeased and, accordingly, the liability is not reported in the government-wide financial statements. In Fiscal Year 2019, the refunding transactions will decrease the City's aggregate debt service payments by $263.80 million and provide an economic gain of $235.67 million. In Fiscal Year 2018, the refunding transactions decreased the City's aggregate debt service payments by $341.94 million and provided an economic gain of $314.50 million. At June 30, 2019 and 2018, $20.11 and $20.26 billion, respectively, of the City's outstanding General Obligation Bonds were considered defeased.

The State Constitution requires the City to pledge its full faith and credit for the payment of the principal and interest on City term and serial bonds and guaranteed debt. The General Obligation debt-incurring power of the City is limited by the Constitution to 10% of the average of five years' full valuations of taxable real estate. Excluded from this debt limitation is certain indebtedness incurred for water supply, certain obligations for transit, sewage, and other specific obligations which exclusions are based on a relationship of debt service to net revenue. In July 2009, the State Assembly passed legislation stipulating that certain TFA debt would be included in the calculation of debt-incurring margin within the debt limit of the City.

As of June 30, 2019 and 2018, the 10% general limitation was approximately $106.24 and $98.24 billion, respectively. Also, as of June 30, 2019, the City's remaining GO debt-incurring power totaled $29.32 billion, after providing for capital commitments. As of July 1, 2019, the debt incurring power was $41.56 billion based on the change in the five-year full valuation average for fiscal year 2020.

Pursuant to State law, the City's General Debt Service Fund is administered and maintained by the State Comptroller. Payments of real estate taxes and other revenues are deposited in advance of debt service payment dates into the Fund. Debt service on all City notes and bonds is paid from this Fund. In Fiscal Year 2019, prepayment transfers of $1.70 billion were made from the General Fund which included discretionary transfers of $1.53 billion to the General Debt Service Fund for Fiscal Year 2020 debt service. In Fiscal Year 2018, prepayment transfers of $1.90 billion were made from the General Fund to the General Debt Service Fund for Fiscal Year 2019 debt service.

As of June 30, 2019, the City has 55 series of Variable Rate Demand Bonds (VRDBs) outstanding that have a "put" feature and are backed by either a Standby Bond Purchase Agreement (SBPA) or a Letter of Credit (LOC) with a total par value of approximately $4.8 billion.

The SBPAs contain various events of default that are summarized below. Events of default, which result in the immediate termination of the SBPA, cause tendered and unremarketed bonds to pay interest to bondholders at a maximum rate specified in the underlying documents, which is typically 9% for tax-exempt bonds and 14% for taxable bonds. Other events of default under a SBPA may cause a mandatory tender to the bank providing the SBPA and result in the interest rate on the bonds held by the bank increasing to the default rate, which is typically equivalent to the lesser of 25% and the Base Rate plus a spread ranging generally from 2% to 4%, until the City takes action to cure the default. The Base Rate is typically a rate per annum equal to the highest of (i) a fixed rate generally in the vicinity of 8%; (ii) the federal funds rate plus a spread ranging generally from 0.5% to 4%; (iii) the prime rate plus a spread ranging generally from 0% to 3%; and (iv) other indices with specified spreads which may vary. Events of Default under an LOC may result in a termination of the LOC within a stated period of generally eight days and a mandatory tender of the bonds to the LOC bank. The bank then holds the bonds at the default rate, which is typically equivalent to the lesser of 25% and the Base Rate plus a range from 2% to 4.5%, until the City takes action to cure the default.

Events of default under the SBPAs or LOC Reimbursement Agreements supporting the 55 series of VRDBs are summarized below. The summaries are qualified in their entirety by references to the actual SBPAs and LOC Reimbursement Agreements, which can be found by following prompts on the New York City home page on the Municipal Securities Rulemaking Board's Electronic Municipal Market Access (EMMA) website (http://emma.msrb.org). Events of default can include, but are not necessarily limited to: payment defaults by the City; City failure to observe certain covenants; City representations in bond documents prove to be incorrect; bankruptcy or insolvency of the City; provisions in the City's bond documents cease to be valid and binding or the City repudiates obligations; the City declares a moratorium on payment of any of its debts; the City's long-term unenhanced bond ratings are withdrawn, suspended for credit-related reasons, or reduced below certain thresholds; or the City fails to satisfy non-appealable monetary judgements above a certain amount.

Certain of the events of default under a SBPA result in the immediate termination of the SBPA under certain circumstances and tendered and unremarketed bonds will bear interest at the maximum rate, as described above.

Certain of the events of default under a SBPA may result in a mandatory tender event under certain circumstances and the bonds will bear interest at the default rate in the relevant SBPA.

If an Event of Default under a LOC Reimbursement shall have occurred and be continuing, bonds can potentially bear interest at the default rate and the LOC Bank will be entitled to take further action as contemplated under the bond documents or as permitted under applicable law or in equity. Further, in certain situations, the City is required to exchange bonds held by the bank for refunding bonds with an increased interest rate (typically the base rate plus a certain spread) and an accelerated maturity schedule, typically five years after the exchange.

As of June 30, 2019, the City has ten series of Index Rate Bonds outstanding with a total par value of $845.8 million, of which nine series are Direct Purchases with a total par value of $825 million. The Series 1994E-4 bonds and the Series 2012G-5 bonds were issued with Continuing Covenant Agreements with event of default provisions comparable to those of the City's Variable Rate Demand Bonds. The Continuing Covenant Agreements can be found on the Municipal Securities Rulemaking Board's EMMA website at https://emma.msrb.org. The Series 1994E-4 bonds have a default rate of 12% per annum. The Series 2012G-5 bonds have a default rate of the Base Rate plus 3% per annum. The Base Rate equals the highest of the Federal Funds Rate plus 3%, the Prime Rate plus 2%, or 6%.

Hedging derivative instrument payments and hedged debt

The table that follows represents debt service payments on certain general obligation variable-rate bonds and net receipts/payments on associated hedging derivative instruments (see Note A.12), as of June 30, 2019. Although interest rates on variable rate debt and the current reference rates of hedging derivative instruments change over time, the calculations included in the table below are based on the assumption that the variable rate and the current reference rates of hedging derivative instruments on June 30, 2019 will remain the same for their term.

	Governmental Activities			
	General Obligation Bonds		Hedging Derivatives Instruments, Net	Total
	Principal	Interest		
	(in thousands)			
Fiscal Year ending June 30:				
2020	$ —	$ 1,305	$ 1,108	$ 2,413
2021	—	1,305	1,108	2,413
2022	—	1,305	1,108	2,413
2023	—	1,305	1,108	2,413
2024	—	1,305	1,108	2,413
2025-2029	48,770	4,611	3,914	57,295
2030-2034	26,230	601	510	27,341
Total	$ 75,000	$ 11,737	$ 9,964	$ 96,701

Judgments and Claims

The City is a defendant in lawsuits pertaining to material matters, including claims asserted which are incidental to performing routine governmental and other functions. This litigation includes, but is not limited to: actions commenced and claims asserted against the City arising out of alleged constitutional violations; torts; breaches of contract; other violations of law; and condemnation proceedings.

As of June 30, 2019 and 2018, claims in excess of $1.18 and $1.41 trillion, respectively, were outstanding against the City for which the City estimates its potential future liability to be $6.85 and $6.69 billion, respectively.

As described in Note A.10, the estimate of the liability for all judgments and claims has been reported in the government-wide *Statement of Net Position* under noncurrent liabilities. The liability was estimated by using the probable exposure information provided by the New York City Law Department (Law Department), and supplemented by information provided by the Law Department with respect to certain large individual claims and proceedings. The recorded liability is the City's best estimate based on available information and application of the foregoing procedures.

Complaints on behalf of approximately 11,900 plaintiffs alleging respiratory or other injuries from alleged exposures to World Trade Center dust and debris at the World Trade Center site or the Fresh Kills landfill were commenced against the City and other entities involved in the post-September 11 rescue and recovery process. Plaintiffs include, among others, Department of Sanitation employees, firefighters, police officers, construction workers and building clean-up workers. The actions were consolidated in Federal District Court pursuant to the Air Transportation and System Stabilization Act, which grants exclusive Federal jurisdiction for all claims related to or resulting from the September 11 attack. A not-for-profit "captive" insurance company, WTC Captive was formed to cover claims against the City and its private contractors relating to debris removal work at the World Trade Center site and the Fresh Kills landfill. WTC Captive was funded by a grant from the Federal Emergency Management Agency in the amount of $999.9 million. On June 10, 2010, the WTC Insurance Company announced that a settlement was reached with attorneys for the plaintiffs. On November 19, 2010, District Court Judge Hellerstein announced that more than the required 95% of plaintiffs agreed to the settlement, thus making it effective. Approximately $700 million has been paid under the settlement, leaving residual funds of approximately $290 million to insure and defend the City and its contractors against any new claims. Since the applicable statute of limitations runs from the time a person learns of his or her injury or should reasonably be aware of the injury, additional plaintiffs may bring lawsuits in the future for late emerging cancers, which could result in substantial damages. No assurance can be given that the remaining insurance will be sufficient to cover all liability that might arise from such claims.

In 1996, a class action was brought against the City Board of Education and the State under Title VII of the Civil Rights Act of 1964 alleging that the use by the Board of Education of two teacher certification examinations mandated by the State had a disparate impact on minority candidates. In 2006, the United States Court of Appeals for the Second Circuit dismissed the claims against the State. In December 2012, the District Court decided a controlling legal question against the City. On February 4, 2013, the Second Circuit affirmed the District Court's decision. The District Court has appointed a Special Master to oversee claimants' individualized hearings both as to damages and eligibility for Board of Education employment. The hearings relate to members of the class that took the Liberal Arts and Science Test (LAST) from 1996 to 2004. Currently, approximately 4,000 such individuals have submitted claim forms and may be eligible for damages. On June 5, 2015, the Court ruled that a second version of LAST, LAST-2, that was administered from 2004 to 2014, violated Title VII because it did not measure skills necessary to do the job. Currently, up to 700 potential LAST-2 class members have submitted claim forms and may be eligible for damages. In August 2015, the Court found that the State's new teacher certification test, the Academic Literacy Skills Test (ALST), administered since

Spring 2014, was not discriminatory and evaluated skills necessary to do the job. Hearings to determine each claimant's damages are ongoing. While some final judgments have been entered, it is too early to permit an accurate estimation of the ultimate potential cost to the City.

The Office of Inspector General of the United States Department of Health and Human Services (OIG) conducted a review of Medicaid Personal Care Services claims made by providers in the City from January 1, 2004 through December 31, 2006, and concluded that 18 out of 100 sampled claims by providers failed to comply with Federal and State requirements. The Medicaid Personal Care Services program in the City is administered by the City's Human Resources Administration. In its audit report issued in June 2009, the OIG, extrapolating from the case sample, estimated that the State improperly claimed $275.3 million in federal Medicaid reimbursement during the audit period and recommended to the Center for Medicare and Medicaid Services (CMS) that it seek to recoup that amount from the State. To the City's knowledge, CMS has not taken any action to recover amounts from the State based on the findings in this audit, but no assurance can be given that it will not do so in the future.

Section 22 of Part B of Chapter 109 of the Laws of 2010 amended an earlier unconsolidated state law to set forth a process under which the State Department of Health may recover from a social services district, including the City, the amount of a Federal Medicaid disallowance or recovery that the State Commissioner of Health "determines was caused by a district's failure to properly administer, supervise or operate the Medicaid program." Such a determination would require a finding that the local agency had "violated a statute, regulation or clearly articulated written policy and that such violation was a direct cause of the Federal disallowance or recovery." It is not clear whether the recovery process set out in the amendment can be applied to a Federal disallowance against the State based upon a pre-existing audit; however, in the event that it does, and results in a final determination by the State Commissioner of Health against the City, such a determination could result in substantial liability for the City as a result of the audit.

In July 2014, disability rights advocate organizations and disabled individuals commenced a putative class action against the City in the United States District Court for the Southern District of New York. Plaintiffs allege, among other matters, that the City has not complied with certain requirements of the Americans with Disabilities Act with respect to the installation, configuration and maintenance of curb ramps on sidewalks and requirements for sidewalk walkways in general in Manhattan south of 14th Street. In March 2019, plaintiffs and the City agreed to a settlement that will require the City to undertake a comprehensive survey of all City street corners and to install Americans with Disabilities Act-compliant curb ramps on all City street corners on an agreed upon schedule. After the fairness hearing, the Court granted final approval of the class action settlement.

On December 21, 2015, the United States Attorney for the Southern District of New York (USAO-SDNY) sent a findings letter to the DOE indicating various areas in which he alleged that the City elementary schools were not accessible to students with disabilities in violation of the Americans with Disabilities Act of 1990. The City and USAO-SDNY are currently in discussion as to the matters raised in the letter. While the City has an ongoing program to make smaller schools accessible, an acceleration of alterations to City elementary schools to address concerns raised in the findings letter could result in a substantial acceleration of compliance costs to the City but not damages.

In late 2015, a putative class action was filed against the City and the New York City Taxi and Limousine Commission alleging numerous commercial claims in connection with the November 2013 and February 2014 auctions of wheelchair accessible taxi medallions. Plaintiffs allege that the New York City Taxi and Limousine Commission negligently posted false information about average medallion transfer prices in advance of the auction, falsely inducing plaintiffs to bid higher amounts for their medallions, as well as failed to inform prospective bidders that the New York City Taxi and Limousine Commission would allow black cars to utilize electronic apps to prearrange rides, which plaintiffs argue violates their street hail exclusivity. In June 2017, the City's motion for summary judgment was granted, due to plaintiffs' failure to file notices of claim with the Office of the City Comptroller. Plaintiffs withdrew their appeal of that ruling to pursue related actions subsequently filed. On January 31, 2017 and on March 23, 2017, in State Supreme Court, Queens County, a second and a third putative class action were filed, alleging similar claims. In September 2017, the Court dismissed all but the breach of contract rescission and implied covenant of good faith and fair dealing claims in the second filed action. Motion practice remains ongoing in the second filed action. The Court recently denied plaintiffs' motion for class certification as premature. In November 2017, the Court dismissed the third filed action, which plaintiffs appealed. In March 2019, the Court granted the plaintiffs' motion to reargue and the discovery is underway. If a class of plaintiffs who purchased medallions at the auctions were certified and were to prevail in any of the remaining described cases, damages of several hundred million dollars could be sought.

In an action filed in December 2015, plaintiffs that include owners of taxi medallions, taxi drivers, groups that finance taxi medallions, and taxi medallion interest groups, raised numerous constitutional claims challenging regulations on taxi medallions that allegedly are not applied to for-hire vehicles (FHVs) that operate via electronic apps. The plaintiffs also claimed that such

FHVs benefit from additional TLC regulations that effected an alleged taking of the plaintiffs' taxi medallions. In March 2017, the City was granted its motion to dismiss. The U.S. Court of Appeals for the Second Circuit upheld the dismissal of all federal claims in May 2018, while indicating that it would not rule on plaintiffs' takings claim because plaintiffs failed to avail themselves of State procedures for seeking remedy. Although plaintiffs may elect to file a takings claim in State court, in a May 2018 decision on a similar case that did not seek monetary relief, the Supreme Court of the State of New York, Appellate Division, Second Judicial Department opined that the TLC's actions permitting FHVs to operate via electronic apps do not constitute a taking under State law. If the plaintiffs were to ultimately prevail on a takings claim, the City could be subject to substantial liability.

In June, 2018, a class action on behalf of blind and visually impaired persons commenced in the United States District Court for the Southern District of New York (American Council of the Blind, et al. v. City of New York, et al.) and by Order dated July 22, 2019 the class was certified. The plaintiffs allege that the City is violating the Americans with Disabilities Act, the Rehabilitation Act and the New York City Human Rights Law by not installing Accessible Pedestrian Signals (APS) at all intersections that have a pedestrian control signal for sighted pedestrians. Plaintiffs further argue that under these statutes the City is required at a minimum to install APS whenever it installs a new pedestrian control signal and to install APS whenever it alters an existing pedestrian control signal. Plaintiffs seek declaratory relief that the City has violated these statutes and an order directing the City to comply with these statutes by installing APS at all signalized pedestrian street crossings (over 13,000 intersections), and attorneys' fees. If Plaintiffs were to prevail, the City could be subject to substantial compliance costs.

In addition to the above claims and proceedings, numerous real estate tax certiorari proceedings alleging overvaluation, inequality, and illegality are pending against the City. Based on historical settlement activity, and including an estimated premium for inequality of assessment, the City estimates its potential future liability for outstanding certiorari proceedings to be $997 and $1,208 million at June 30, 2019 and June 30, 2018 respectively, as reported in the government-wide financial statements.

Landfill Closure and Postclosure Care Costs

The City's only active landfill after October 9, 1993 was the Fresh Kills landfill, which has been closed since 2002. Upon the landfill becoming inactive, the City was required by Federal and State law, and under Consent Order with the State Department of Environmental Conservation to complete the Final Closure Plan, and to provide postclosure care for a minimum period of 30 years following closure. The Final Closure Plan includes the construction of final cover, stormwater management, leachate mitigation and/or corrective measures, and landfill gas control systems. Postclosure care includes environmental monitoring, and the operation, maintenance, recordkeeping and reporting for the final closure systems.

The liability for these activities as of June 30, 2019, which equates to the total estimated current cost, is $1.28 billion. There are no costs remaining to be recognized. Cost estimates are based on current data including contracts awarded by the City, contract bids, and engineering studies. These estimates are subject to adjustment for inflation and to account for any changes in landfill conditions, regulatory requirements, technologies, or cost estimates. For government-wide financial statements, the liability for closure and postclosure care is based on total estimated current cost. For fund financial statements, expenditures are recognized using the modified accrual basis of accounting when the related liability is incurred and the payment is due.

Resource Conservation and Recovery Act Subtitle D Part 258, which became effective April, 1997, requires financial assurance regarding closure and postclosure care. This assurance was most recently provided, on March 10, 2017, by the City's Chief Financial Officer placing in the Fresh Kills landfill operating record representations in satisfaction of the Local Government Financial Test. As of June 30, 2019, the financial assurance cost estimate for the Fresh Kills Landfill is $947 million.

The City has five inactive hazardous waste sites not covered by the EPA rule. The City has recorded the long-term liability for these postclosure care costs in the government-wide financial statements.

During Fiscal Year 2019, expenditures for landfill and inactive hazardous waste site closure and postclosure care costs totaled $64.2 million.

The following represents the City's total landfill and hazardous waste sites liability which is recorded in the government-wide *Statement of Net Position*:

	Amount (in thousands)
Landfill	$1,132,209
Hazardous waste sites	149,082
Total landfill and hazardous waste sites liability	$1,281,291

Pollution Remediation Obligations

The pollution remediation obligations (PROs) at June 30, 2019 and June 30, 2018, summarized by obligating event and pollution type, respectively, are as follows:

Obligating Event	**Fiscal Year 2019**		**Fiscal Year 2018**	
	Amount (in thousands)	**Percentage**	**Amount (in thousands)**	**Percentage**
Named by regulator as a potentially responsible party	$ 67,645	27.5%	$ 71,568	28.7%
Voluntary commencement	178,675	72.5	178,107	71.3
Total	$246,320[(1)]	100.0%	$249,675[(1)]	100.0%

Pollution Type	**Amount (in thousands)**	**Percentage**	**Amount (in thousands)**	**Percentage**
Asbestos removal	$113,981	46.3%	$116,319	46.6%
Lead paint removal	30,753	12.5	34,127	13.7
Soil remediation	32,072	13.0	38,452	15.4
Water remediation	57,810	23.5	57,810	23.1
Other	11,704	4.7	2,967	1.2
Total	$246,320[(1)]	100.0%	$249,675[(1)]	100.0%

(1) There are no expected recoveries to reduce the liability.

The PRO liability is derived from registered multi-year contracts which offsets cumulative expenditures (liquidated/unliquidated) against original encumbered contractual amounts. The potential for changes to existing PRO estimates is recognized due to such factors as: additional remediation work arising during the remediation of an existing pollution project; remediation activities may find unanticipated site conditions resulting in necessary modifications to work plans; changes in methodology during the course of a project may cause cost estimates to change, e.g., the new ambient air quality standard for lead considered a drastic change will trigger the adoption of new/revised technologies for compliance purposes; and changes in the quantity which is paid based on actual field measured quantity for unit price items measured in cubic meters, linear meters, etc. Consequently, changes to original estimates are processed as change orders. Further, regarding pollution remediation liabilities that are not yet recognized because they are not reasonably estimable, the Law Department relates that the City has approximately 30 cases involving hazardous substances, including spills from above and underground storage tanks, and other condemnation on, or caused by facilities on City-owned property. and there is also one case involving environmental review and land use. Due to the uncertainty of the legal proceedings, future liabilities cannot be estimated.

The City, in compliance with the State Department of Environmental Conservation Permit Numbers 2-6302-00007/00019, 2-6102-00010/00013, 2-6106-00002/00022, 2-6204-00007/00013, 2-6202-00005/00017, issued pursuant to 6 NYCRR Part 360, must provide financial assurance for the closure of the following Marine Transfer Stations: North Shore, Hamilton Avenue, Southwest Brooklyn, East 91st Street, and West 59th Street. Such surety instrument must conform to the requirements of 6 NYCRR Part 360.12. The liability for closure as of June 30, 2019, which equates to the total current cost, is $1.02 million for North Shore, $896 thousand for Hamilton Avenue, $844 thousand for Southwest Brooklyn, $976 thousand for East 91st Street, and $221 thousand for West 59th Street. The cost estimates are based on current data and are representative of the cost that would be incurred by an independent party. The estimates are subject to adjustment for inflation and to account for changes in regulatory requirements or cost estimates. For government-wide financial statements, the liability for closures are based on total estimated current costs. For fund financial statements, expenditures are recognized using the modified accrual basis of accounting when the closure costs are incurred and the payment is due.

On Monday, October 29, 2012, Super Storm Sandy hit the Mid-Atlantic East Coast. The storm caused widespread damage to the coastal and other low lying areas of the City and power failures in various parts of the City, including most of downtown Manhattan. On January 29, 2013, President Obama signed legislation providing for approximately $50.5 billion in storm-related aid for the region affected by the storm. Although it is not possible for the City to quantify the full, long-term impact of the storm on the City and its economy, the current estimate of the direct costs to the City, NYC Health + Hospitals, and NYCHA is approximately $10.7 billion (comprised of approximately $1.8 billion of expense costs and approximately $8.9 billion of capital project costs). Such direct costs represent funding for emergency response, debris removal, emergency protective measures, repair of damaged infrastructure, and long-term hazard mitigation investments. In addition, the City is delivering Super Storm Sandy-related disaster recovery assistance services, benefiting impacted communities, businesses, homeowners and renters, which the City anticipates will be fully reimbursed by federal funds.

The Financial Plan assumes that the direct costs described above will largely be paid from non-City sources, primarily the federal government, and that the disaster assistance services costs described above will be fully reimbursed by federal funds. The City expects reimbursements to come from two separate federal sources of funding, FEMA and the U.S. Department of Housing and Urban Development (HUD). The City has secured approximately $10.5 billion in FEMA assistance and other federal emergency response grants. The maximum reimbursement rate from FEMA is 90% of total costs. Other federal emergency response grants may have larger local share percentages. The City expects to use $734 million of Community Development Block Grant Disaster Recovery funding allocated by HUD to meet the local share requirements of the FEMA funding, as well as recovery work not funded by FEMA or other federal sources. This allocation would be available to fill gaps in such FEMA funding. As of December 31, 2018, the City, NYC Health + Hospitals and NYCHA have received $3.2 billion in reimbursements from FEMA for the direct costs described above. In addition, HUD has made available over $4.2 billion, of which over $3.2 billion has been received through March 31, 2019 for the direct costs and disaster recovery assistance services described above. No assurance can be given that the City will be reimbursed for all of its costs or that such reimbursements will be received within the time periods assumed in the Financial Plan.

In June 2013, the City released a report (the OneNYC Report), updated in April 2015, with the release of One New York: the Plan for a Strong and Just City, which analyzed the City's climate risks and outlined recommendations to address those risks. The City issues progress reports to the OneNYC Report annually, and issues an updated report every four years. The most recent updated report, entitled OneNYC 2050, was issued in April 2019. As stated in both the OneNYC Report and volume seven of OneNYC 2050, the City's climate resiliency planning is based on the climate change impact projections from the New York City Panel on Climate Change (NPCC), a body of more than a dozen leading independent climate and social scientists. The NPCC has identified that the City is already experiencing the impacts of climate change and projects dramatic impacts from climate change on the City in the future. The NPCC is required to make recommendations to the City regarding climate change projections at least every three years, and has published four reports, most recently in March 2019.

Building on the recommendations contained in the Report, the City is in the process of implementing, over the next ten years, climate resiliency projects costing in excess of $20 billion, most of which are dedicated to areas previously affected by Super Storm Sandy and some of which are directed toward mitigating the risks identified in the NPCC report. Such plans include both stand-alone resiliency projects and the integration of resiliency protection into the City's ongoing investments. These projects are in various stages of feasibility review, design and construction and/or implementation. Funding for these projects is expected to come from City, State and Federal sources. Some projects are expected to require additional funding to the extent that they are in the planning stages or current funding does not provide for the costs of construction. In addition to such projects, the City expects that additional resiliency projects will be identified and implemented in the coming years, including additional projects inside and outside of the areas affected by Super Storm Sandy and addressing risks identified in the NPCC report including coastal storms, sea level rise, extreme heat and intense rainfall.

In 2015, FEMA issued preliminary updated flood insurance rate maps (FIRMs), which would have expanded the 100-year floodplain beyond the areas designated in the flood maps issued in 2007. The City appealed the 2015 preliminary flood maps challenging the modelling FEMA used to develop them. The 2015 preliminary flood maps were adopted into the building code, but the prior 2007 flood maps remain in effect for flood insurance purposes. In 2016, FEMA agreed with the City's appeal, and the City is currently working with FEMA to update the maps. The new maps are expected to generally expand the 100-year floodplain from the 2007 flood maps and may cover different areas than the 2015 preliminary flood maps. Such expansion could negatively impact property values in those newly designated areas. In addition, an increase in areas of the City susceptible to flooding resulting from climate change could result in greater recovery costs to the City if flooding were to occur within such larger areas.

On April 12, 2018, the National Association of Manufacturers released a letter (the NAM Letter) to the SEC dated March 27, 2018, asking the SEC to investigate the possibility that certain California municipalities and the City, which are separately suing certain oil companies for damages resulting from climate change, had misleading statements or omissions in their respective bond official statements with regard to the impact of climate change on such municipalities. The City believes that the allegations set forth in the NAM Letter with respect to the City are without merit.

On March 2, 2010, the United States Environmental Protection Agency (EPA) listed the Gowanus Canal (the Canal), a waterway located in the City, as a federal Superfund site under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). EPA considers the City a potentially responsible party (PRP) under CERCLA, based on contaminants from currently and formerly City-owned and operated properties, as well as from the City's combined sewer overflows (CSOs). On September 30, 2013 EPA issued the Record of Decision (ROD) for the Canal, setting forth requirements for dredging contaminated sediment in the Canal and covering it with a cap as well as source control requirements. The ROD requires that two CSO retention tanks be constructed as part of the source control component of the remedy. EPA estimates that the costs of the tanks will be approximately $85 million. The City estimates that the tanks will actually cost in excess of $735 million, which is included in the City's capital plan. EPA also estimates the overall cleanup costs (to be allocated among potentially responsible parties) will be $506 million. The City anticipates that the actual cleanup costs could substantially exceed EPA's cost estimate. On May 28, 2014, EPA issued a unilateral administrative order requiring the City to design major components of the remedy for the Canal, including the CSO retention tanks and other storm water control measures, and remediate the First Street basin (a currently filled-in portion of the Canal). As required under the Unilateral Order, the City submitted its siting recommendations for the CSO tanks to EPA on June 30, 2015. As set forth in a consent order which was fully executed on June 9, 2016, EPA agrees with the City's preferred location for one of the tanks and, with respect to the other tank, EPA has directed the City to site the tank at the City's preferred location subject to certain milestones. An allocation process has recently been completed between the City and approximately 20 other parties to allocate costs of the design of the in-canal portion of the remediation, which includes dredging and capping the canal. Prior to completion of the allocation process, the City paid a portion of the design costs based on an estimate of the City's potential share of the costs. As a result of the agreed upon allocation process, the City will be required to provide additional funding over the next three years. Such additional funding for design costs is not expected to be a material cost.

On September 27, 2010, EPA listed Newtown Creek, the waterway on the border between Brooklyn and Queens, New York, as a Superfund site. On April 6, 2010, EPA notified the City that EPA considers the City a PRP under CERCLA for hazardous substances in Newtown Creek. In its Newtown Creek PRP notice letter, EPA identified historical City activities that filled former wetlands and low lying areas in and around Newtown Creek and releases from formerly City-owned and operated facilities, including municipal incinerators, as well as discharges from sewers and CSO outfalls, as potential sources of hazardous substances in Newtown Creek. In July, 2011, the City entered into an Administrative Settlement Agreement and Order on Consent with EPA and five other PRPs to conduct an investigation of conditions in Newtown Creek and evaluate feasible remedies. The investigation and feasibility study is expected to take approximately eleven years. The City's share will be determined in a future allocation proceeding. The settlement does not cover any remedy that may ultimately be chosen by EPA to address the contamination identified as a result of the investigation and evaluation.

On May 12, 2014, EPA listed the former Wolff-Alport Chemical Company site (Wolff-Alport Site) in Ridgewood, Queens, as a Superfund site. The designation is based on radioactive contamination resulting from the operations of the Wolff-Alport Chemical Company during the 1920s to 1950s, which, among other things, disposed of radioactive material on-site, on the adjacent right-of-way, and via the sewer system. In 2013, EPA, in cooperation with City and State agencies, completed a response action to implement certain interim remedial measures at the Wolff-Alport Site to address the site's short-term public health risks. In 2015 to 2017, EPA undertook a remedial investigation and feasibility study that assessed, among other things, impacts to the sewer system and City right-of-way from operations at the Wolff-Alport Site, and evaluated a range of remedial alternatives. In September 2017, EPA issued its ROD identifying its selected remedy. The ROD requires jet washing and replacement of sewers, and excavation of contaminated portions of the right-of-way. EPA estimated work for the entire Wolff-Alport Site to cost $39 million. The City anticipates that the costs for work in the sewers and the right-of-way could significantly exceed that estimate. In December 2017, EPA notified the City of its status as a PRP for the work on City property and sought to have the City perform some of the work. In February 2018, the City notified EPA that, subject to certain conditions, it was willing to undertake such work and, on September 24, 2019, EPA issued a Unilateral Administrative Order requiring the City to conduct additional pre-design investigatory work and develop a Remedial Design consistent with the ROD.

The National Park Service (NPS) is undertaking a CERCLA removal action at Great Kills Park on Staten Island to address radioactive contamination that has been detected at the site. Great Kills Park was owned by the City until roughly 1972, when it was transferred to NPS for inclusion in the Gateway National Recreation Area. While owned by the City, the site was used as a sanitary landfill, and the park was also expanded using urban fill. NPS believes that the radioactive contamination is the result of City activities and that the City is therefore liable for the investigation and remediation under CERCLA. The City has negotiated a settlement with NPS to address a remedial investigation and feasibility study. No other PRPs have been identified at this time.

Under CERCLA, a responsible party may be held responsible for monies expended for response actions at a Superfund site, including investigative, planning, removal, remedial and EPA enforcement actions. A responsible party may also be ordered by EPA to take response actions itself. Responsible parties include, among others, past or current owners or operators of a facility from which there is a release of a hazardous substance that causes the incurrence of response costs. The nature, extent, and cost of response actions at either the Canal, Newtown Creek, the Wolff-Alport site or Great Kills Park, the contribution, if any, of discharges from the City's sewer system or other municipal operations, and the extent of the City's liability, if any, for monies expended for such response actions, will likely not be determined for several years and could be material.

6. Interfund Receivables, Payables, and Transfers

At June 30, 2019 and 2018, City and discretely presented component units receivable and payable balances and interfund transfers were as follows:

Governmental activities:

Due from/to other funds:

Receivable Fund	Payable Fund	2019	2018
		(in thousands)	
General Fund	Capital Projects Fund	$3,560,306[1]	$2,368,410[1]
	TFA—Debt Service	155,738	63,711
Capital Projects Fund	TFA—Capital Projects Fund	227,514	184,523
	HYIC—Capital Projects Fund	623	257
HYDC—Capital Projects Fund	HYIC—Capital Projects Fund	125	—
HYIC—Debt Service Fund	HYIC—Capital Projects Fund	30	15
Total due from/to other funds		$3,944,336	$2,616,916

Component Units:

Due from/to City and Component Units:

Receivable Entity	Payable Entity	2019	2018
		(in thousands)	
City—General Fund	Component units—HDC	$3,376,951	$1,907,502
	NYC Health + Hospitals	300,587	480,389
	the System	19,905	—
		3,697,443	2,387,891
City—Capital Projects Fund	Component units—the System	695,328	595,020
	EDC	137,831	149,122
		833,159	744,142
Total due from Component Units		$4,530,602	$3,132,033
Component Unit—the System	City—General Fund	$ —	$ 20,210
Component Unit—BPL	City—General Fund	12,715	3,698
Component Unit—QBPL	City—General Fund	14,713	18,527
Total due to Component Units		$ 27,428	$ 42,435

(1) Net of eliminations within the same fund type.

Note: During Fiscal Years 2019 and 2018, the Capital Projects Fund reimbursed the General Fund for expenditures made on its behalf.

The outstanding balances between funds are the result of the time lag between the dates that the interfund goods and services are provided, the date the transactions are recorded in the accounting system and the date payments between funds are made. All interfund balances are expected to be settled during the subsequent year.

Governmental activities:

Interfund transfers[1]

	Fiscal Year 2019					
	General Fund	Capital Projects Fund	Debt Service Fund	Nonmajor Governmental Funds	Adjustments/ Eliminations	Total
	(in thousands)					
Transfer from (to):						
General Fund	$ —	$ —	$3,432,260	$ 2,844,739	$ —	$ 6,276,999
General Debt Service Fund	(3,432,260)	—	—	—	—	(3,432,260)
Capital Projects Fund	—	—	—	(5,814,290)	—	(5,814,290)
Nonmajor Debt Service Funds.	(3,288,603)	—	—	(46,341)	443,864	(2,891,080)
Nonmajor Capital Projects Funds	—	5,814,290	—	108,014	—	5,922,304
Nonmajor Special Revenue Funds	—	—	—	(61,673)	—	(61,673)
Total	$(6,720,863)	$ 5,814,290	$3,432,260	$(2,969,551)	$ 443,864	$ —

	Fiscal Year 2018					
	General Fund	Capital Projects Fund	Debt Service Fund	Nonmajor Governmental Funds	Adjustments/ Eliminations	Total
	(in thousands)					
Transfer from (to):						
General Fund	$ —	$ —	$4,021,101	$ 2,720,880	$ —	$ 6,741,981
General Debt Service Fund	(4,021,101)	—	—	—	—	(4,021,101)
Capital Projects Fund	—	—	—	(4,035,778)	—	(4,035,778)
Nonmajor Debt Service Funds	(2,902,290)	—	—	143,441	181,410	(2,577,439)
Nonmajor Capital Projects Funds	—	4,035,778	—	11,083	—	4,046,861
Nonmajor Special Revenue Funds	—	—	—	(154,524)	—	(154,524)
Total	$(6,923,391)	$ 4,035,778	$4,021,101	$(1,314,898)	$ 181,410	$ —

[1] Transfers are used to: (i) move unrestricted General Fund revenues to finance various programs that the City must account for in other funds in accordance with budgetary authorizations, including amounts provided as aid or matching funds for grant programs, (ii) move restricted amounts borrowed by authorized fund or component unit to finance Capital Projects Fund expenditures, (iii) move unrestricted surplus revenue from the General Fund to finance Capital Projects Fund expenditures and prepay debt service coming due in the next fiscal year, and (iv) move revenue from the fund with collection authorization to the Debt Service Fund as debt service principal and interest payments become due.

In the Fiscal Year ended 2019, the City made the following transfer: A transfer of unrestricted grants from the General Fund in the amount of $2.3 billion to TFA. The funds were used to fund debt service requirements for future tax secured debt during the Fiscal Year ending June 30, 2020.

In the Fiscal Year ended 2018, the City made the following transfer: A transfer of unrestricted grants from the General Fund in the amount of $2.2 billion to TFA. The funds were used to fund debt service requirements for future tax secured debt during the Fiscal Year ending June 30, 2019.

7. Tax Abatements

NYC Tax Abatement Disclosure as required by Statement No. 77 of the Governmental Accounting Standards Board	**Programs Administered by NYC Housing Preservation & Development (HPD)**	
	J51 Program	**Commercial Conversion Programs 421-a, 421-b and 421-g**
1) Purpose of program.	Encourages the renovation of residential properties to owners of residential real property who perform rehabilitation work.	Designed to encourage the new construction of multiple dwellings (421-a), new construction or conversion or reconstruction of owner-occupied one- and two-family homes (421-b), and the construction and conversion of commercial buildings to residential apartment buildings (421-g) by providing real property tax benefits for eligible parcels.
2) Tax being abated.	Real Property Tax	Real Property Tax
3) Authority under which abatement agreements are entered into.	New York State (NYS) Real Property Tax Law (RPTL): Article 4, Title 2, Section 489 and the NYC Administrative Code, Title 11, Chapter 2, Subchapter 2, Parts 1, 11-242, 11-243, 11-244 and 11-245.8.	NYS RPTL: Article 4, Title 2, Sections 421-a, 421-b, and 421-g.
4) Criteria to be eligible to receive abatement.	The projects may be government-assisted or privately financed for moderate and gut rehabilitation of multiple dwellings. The projects may also be for major capital improvements, conversions of lofts and non-residential buildings into multiple dwellings, and for certain cooperative/condominium and conversions to residential property projects.	a) 421-a Program: The buildings must receive governmental assistance, contain 20% affordable units, or the owner must participate in an affordable housing production program. b) 421-b Program: The homes must be owner-occupied and may not include commercial or other non-residential space. c) 421-g Program: The conversions must have an alteration Type 1 permit dated before June 30, 2006. All of the programs have eligible abatement zones.
5) How recipients' taxes are reduced.	Through both a reduction of the property's assessed value and as a credit to the amount of taxes owed.	421-a and 421-b: Through a reduction of the property's assessed value; 421-g: Through both a reduction of the property's assessed value and as a credit to the amount of taxes owed.
6) How amount of abatement is determined.	The amount of the direct reduction to the remaining billable amount due is based on the calculated "Certified Reasonable Cost"; a percentage is applied to that figure to determine the Lifetime Abatement Amount or Abatement Pool.	a) 421-a Program: The benefit is based on a reduction of assessment value of the new construction for a three year construction benefit period, up to 35 years following the construction period. b) 421-b Program: The building assessment is exempt during the construction period and for an additional two years; the benefit then declines until the ninth year. c) 421-g Program: There is a construction period abatement from the increase in real estate taxes resulting from the work, and a 14 year abatement (ten years full and four year phase out) based on the existing real estate taxes in year one of the benefit term.
7) Provisions for recapturing abated taxes.	N/A	N/A
8) Types of commitments made by the City other than to reduce taxes.	Commitments, other than reducing taxes, may only be applicable with 34-year government-assisted construction projects. In these instances the City supports Participants in the associated construction costs.	N/A
9) Gross dollar amount, on accrual basis, by which the City's tax revenues were reduced as a result of abatement agreement.	2019 / 2018 (in thousands) $297,900 / $294,500	2019 / 2018 (in thousands) $1,651,100 / $1,480,700

Programs Administered by NYC Housing Preservation & Development (HPD)

Division of Alternative Management Programs (DAMP)	Urban Development Action Area Programs (UDAAP)	Low Income Housing Program 420-C
DAMP encourages community growth by returning City-owned buildings to responsible private owners. DAMP offers incentive programs that select alternative managers for residential properties foreclosed by the City for nonpayment of taxes, with the goal of returning these properties to the tax roll.	UDAAP offers incentive programs for rehabilitating housing or building new housing.	To encourage upgrades to existing housing by providing a tax incentive for buildings developed by not-for-profit entities which were financed with the Federal Low Income Tax Credit program.
Real Property Tax	Real Property Tax	Real Property Tax
Housing Finance Law: Article XI: Section 577.	General Municipal Law 696: Article 16.	NYS RPTL: Article 4, Title 2, Section 420c.
The benefits are limited to residential properties that were foreclosed on by the City for nonpayment of taxes.	The housing must be designated by the City Council as an area in need of urban renewal.	The property must provide housing accommodations to persons and families of low income, participates or has participated in the Federal Low-Income Housing Tax Credit (LIHTC) program, and is subject to a regulatory agreement with HPD.
Through a reduction of the property's assessed value.	Through a reduction of the property's assessed value.	Through a reduction of the property's assessed value.
The benefit is equal to the assessed value times an eligible percentage less the DAMP ceiling, which sets a limit on the maximum taxable assessment that can be placed on a property.	The UDAAP benefit is equal to the delta between the building Assessed Value (AV) in the base year and the building AV in the benefit year, up to 20 years.	The benefit provides a 100% reduction from real estate taxes for the term of the regulatory agreement up to a maximum of 60 years.
N/A	N/A	Previously abated taxes are not recaptured unless there is a direct demand from HPD to do so.
N/A	N/A	N/A
2019 / 2018 (in thousands) $48,600 / $42,600	2019 / 2018 (in thousands) $21,200 / $21,800	2019 / 2018 (in thousands) $273,300 / $244,900

NYC Tax Abatement Disclosure as required by Statement No. 77 of the Governmental Accounting Standards Board	**Programs Administered by NYC Department of Finance (DOF)**	
	The Commercial Revitalization (CRP) and Commercial Expansion (CEP) Programs	**Industrial and Commercial Incentive Program (ICIP) and Industrial and Commercial Abatement Program (ICAP)**
1) Purpose of program.	CRP provides a real property tax reduction in lower Manhattan by encouraging owners to invest in building improvements for offices, retail or elementary or secondary schools. The CEP provides a real property tax reduction for space that has been leased for commercial offices, industrial/manufacturing spaces, retail or elementary or secondary schools in the outer boroughs or Manhattan above 96th street and the Garment District.	ICAP replaced ICIP in 2008. Both programs encourage economic development for construction and rehabilitation of commercial, industrial or mixed-use structures.
2) Tax being abated.	Real Property Tax	Real Property Tax
3) Authority under which abatement agreements are entered into.	The CRP is governed by the NYS RPTL: Title 4; the CEP is governed by the NYS RPTL: Title 4a.	NYS RPTL: Article 4, Title 2F, Section 489; aaaaaa-kkkkkk the NYC Administrative Code: Title 11, Chapter 2, Subchapter 2, Part 5.
4) Criteria to be eligible to receive abatement.	Both programs require commercial tenant occupancy in commercial offices and that the space leased out be located in a non-residential or mixed-use building. Both programs also have minimum requirements regarding expenditures for tenant improvement per square foot. In addition, the CEP requires a minimum aggregate floor area of 25,000 square feet.	The programs require industrial construction work where, after completion, at least 75% of the total net square footage is used or available for manufacturing activities. The buildings must also be located in an allowable zone within the City, which varies depending on whether the project is for a commercial new construction, a commercial renovation construction, or an industrial construction. Depending on the property's taxable assessed value, applicants must meet a minimum required expenditure amount in order to be eligible in the tax year, with a taxable status date immediately preceding the issuance of the first building permit or, if no permit is required, the start of construction.
5) How recipients' taxes are reduced.	Through a reduction of the property's assessed value.	As a credit to the amount of taxes owed.
6) How amount of abatement is determined.	The granted abatement is realized from a calculation formula base abatement (the lower of the tax liability/building sq. ft. or $2.50 per sq. ft.) multiplied by square footage multiplied by abatement percentage.	The base abatement amount year is the amount that the post-completion tax liability exceeds 115% of the initial tax liability for each type of abatement, except for the additional industrial abatement. The calculated base abatement is then subjected to a corresponding timetable.
7) Provisions for recapturing abated taxes.	N/A	N/A
8) Types of commitments made by the City other than to reduce taxes.	N/A	N/A
9) Gross dollar amount, on accrual basis, by which the City's tax revenues were reduced as a result of abatement agreement.	2019: $15,200; 2018: $18,700 (in thousands)	2019: $794,500; 2018: $738,700 (in thousands)

Programs Administered by NYC Department of Finance (DOF)

Relocation and Assistance Programs—(REAP), Lower Manhattan Relocation and Employment Assistance Program for Eligible Benefits (LMREAP-EB) and Lower Manhattan Relocation and Employment Assistance Program for Special Eligible Benefits (LMREAP-SEB)	**Sports Arena Used by the NHL and NBA**	**Major Capital Improvement (MCI) Program**
Offers business income tax credits for relocating jobs outside of the City to designated locations within the City.	Ensure the viability of a major league sports facility in the City.	To help compensate landlords of rent-regulated buildings for economic losses resulting from the lengthening of the period for amortizing major capital improvement costs.
The credits may be taken against the City's general corporation tax, banking corporation tax, unincorporated business tax, and/or utility tax.	Real Property Tax	Real Property Tax
NYC Administrative Code: Title 11, Chapter 6, Subchapter 3, Part 4, Section 11-643.9, 11-1105.211-1105.3.	NYS RPTL: Section 429.	NYS RTPL Laws of 2015, Chapter 20 (Part A, §65).
For REAP, LMREAP-EB, and LMREAP-SEB, eligible businesses must have conducted substantial business operations outside of the City for at least 24 consecutive months before relocating; most retail and hotel services do not qualify. The eligibility requirements are that the premises must be nonresidential; have been improved by construction or renovation; the lease term must be at least three years; and expenditures for improvements must be more than $25 per square foot. For LMREAP-SEB, eligible businesses must move at least 250 employees or increase its payroll by 25%.	For Madison Square Garden	The benefits are provided to building owners of rent regulated class 2 properties (residential property with more than 3 units including cooperatives and condominiums).
As a credit to the amount of taxes owed.	Through a reduction of the property's assessed value.	As a credit to the amount of taxes owed.
For REAP, LMREAP-EB and LMREAP-SEB, eligible business receives a $3,000 annual credit, per eligible employee, up to 12 years. REAP allows an additional credit of $1,000 per share for relocating to parts of the eligible area that are not revitalization areas.	100% reduction of the property tax.	The abatement equals 50% of the economic loss attributable to the extended amortization period. The economic loss is determined by multiplying the approved cost of the MCI by a fraction. The numerator is the increase in months in the new amortization period; the denominator is the total number of months in the new amortization period.
N/A	N/A	N/A
N/A	N/A	N/A
2019 / 2018 (in thousands)	2019 / 2018 (in thousands)	2019 / 2018 (in thousands)
$33,000 / $32,000	$43,100 / $42,400	$11,700 / $18,500

NYC Tax Abatement Disclosure as required by Statement No. 77 of the Governmental Accounting Standards Board	**Program Administered by NYC Department of Buildings (DOB)**	**Programs Administered by NYC Industrial Development Agency (IDA)**	**Program Administered by Build NYC Resource Corporation[3]**
	Solar Electric Generating System (SEGS) Abatement Program	**Commercial Growth and Industrial Incentive Programs**	**Build NYC Tax Abatement Program**
1) Purpose of program.	The program provides tax benefits to properties that use solar power. This process allows for a reliable alternative energy source to be available during peak hours and power outages. Additionally, less energy being produced by traditional combustion of fossil fuels means less air pollution and cleaner air, and solar energy does not emit greenhouse gas emissions.	Designed to encourage economic development in the City. The Commercial Growth[1] and Industrial Incentive[2] programs retain, expand, and attract commercial and industrial businesses, and the related economic benefits and job creation and retention associated with them.	As a conduit bond issuer, the primary goal is to facilitate access to private activity tax-exempt bond financing for qualified projects.
2) Tax being abated.	Real Property Tax	a) Real Property Tax (via a PILOT); b) State and Local Sales Tax (ST); and c) Mortgage Recording Tax (MRT).	Mortgage Recording Tax (MRT)
3) Authority under which abatement agreements are entered into.	RPTL: Title 4C (499 aaaa - 499 gggg) parcel.	Industrial Development Act of 1969 as governed by Article 18-A of the General Municipal Law[3].	Section 411 of the New York Not-for-profit Law.
4) Criteria to be eligible to receive abatement.	The abatement is applied to the property for a four-year period starting on July 1, following DOB approval. Class 1, 2, and 4 properties are eligible; however, if you receive ICAP, 421-a, 421-b, 421-g, or pay payments in-lieu-of-tax (PILOTs), your property is NOT eligible for the Solar Electric Generating System Tax Abatement.	All applicants must satisfy eligibility requirements and must demonstrate a need for assistance. Applicants are selected based on an analysis of the economic benefit of the proposed project in compliance with the uniform Tax Exemption Policy of IDA. Stores that benefit from the Fresh Project Program must be located in an eligible area.	The projects must have been undertaken by Build NYC, as mortgagee, who records a mortgage, for the furtherance of its mission. Build NYC assists qualified projects in obtaining tax-exempt bond financing as a conduit bond issuer.
5) How recipients' taxes are reduced	Through both a reduction of the property's assessed value and as a credit to the amount of taxes owed.	The projects are tax exempt but businesses receiving such benefits typically make PILOTs. PILOT payments are a stepped-down percentage of full real estate tax rates.	Build NYC has authorization to exempt MRT due upon the recording of a mortgage associated with Build NYC issued bond transactions.
6) How amount of abatement is determined.	Depending on the date the system was placed in service, the benefit is the lesser of 2.5%-8.75% of the installation costs limited to the property tax for the year, or $62,500.	a) PILOT tax abatements are typically granted for a 21 year period followed by a 4 year "phase in" period during which the tax rates paid by the PILOT recipient are increased each year by 20% of the abated amount until the full rate is reached at the end of year 25. b) The MRT abatement is a singular benefit received at closing only for projects that recorded a mortgage, and c) The ST abatements apply for eligible purchases to be used at project facilities. The Yankee and Mets stadium projects coincide with the underlying debt service related to the construction of the stadiums and the length of the abatements cover a 36-40 year period.	100% reduction of the MRT.
7) Provisions for recapturing abated taxes.	N/A	Program participants are required to adhere to various lease provisions as a prerequisite to receive abatement benefits. The lease provisions authorize benefit recapture in the case of non-compliance.	A change in the utilization of the facility that compromises the tax exempt status of the underlying tax exempt debt, the sale of the property, absent specific preauthorization, that includes the maintenance of the original tax exempt utilization of the property and/or the bankruptcy or cessation of operations of the facility/entity. Projects are subject to a benefit recapture period of ten years.
8) Types of commitments made by the City other than to reduce taxes.	N/A	N/A	N/A
9) Gross dollar amount, on accrual basis, by which the City's tax revenues were reduced as a result of abatement agreement.	2019 — 2018 (in thousands)	2019 — 2018 (in thousands)	2019 — 2018 (in thousands)
	2019: $15,400 2018: $11,200	**Commercial Growth Programs:** a) PILOT — 2019: $77,165; 2018: $52,252 b) ST — 2019: $3,031; 2018: $3,414 **Industrial Incentive Programs:** a) PILOT — 2019: $33,135; 2018: $34,456 b) ST — 2019: $725; 2018: $2,255 c) MRT — 2019: $267; 2018: $6,476	2019: $5,136 2018: $2,444

NYC Tax Abatement Disclosure as required by Statement No. 77 of the Governmental Accounting Standards Board	**Programs Administered by the State of New York**			
	Battery Park City Authority (The Authority)		**Urban Development Corporation (currently known as Empire State Development Corporation [ESDC])**	
1) Purpose of program.	The Authority was created for the benefit of the people of the State of New York, the county of New York, and the City, and is a public purpose, regarded as performing a governmental function in the exercise of the powers conferred upon it, and shall be required to pay no taxes upon any of the properties acquired by it or under its jurisdiction or control or supervision or upon its activities.		The acquisition, construction, reconstruction, rehabilitation, or improvement of such industrial, manufacturing, and commercial facilities, and of such cultural, educational, and recreational facilities including but not limited to facilities identified as projects are public uses and public purposes for which public money be loaned and private property may be acquired and tax exemption granted, and that the powers and duties of the Urban Development Corporation as hereinafter prescribed are necessary and proper for the purpose of achieving the ends here recited.	
2) Tax being abated.	Real Property Tax		Real Property Tax	
3) Authority under which abatement agreements are entered into.	Public Authority Law: Section 1981.		McKinney's Unconsolidated Laws of NY: Section 6252.	
4) Gross dollar amount, on accrual basis, by which the City's tax revenues were reduced as a result of abatement agreement.	2019	2018	2019	2018
	(in thousands)		(in thousands)	
	$162,200	$160,700	$325,700	$332,100

(1) Stadia transactions are a unique subset within the Commercial Growth portfolio. There are only two such transactions and they relate to the construction of the Yankee and Mets baseball stadiums in the Bronx and Queens, respectively. These transactions are unique in that the related PILOT payments coincide with the underlying debt service related to the construction of the stadiums. As such, the length of these abatements related to the Yankee and Mets stadiums cover a 36 and 40 year period, respectively.

(2) These businesses include Warehousing, Distribution Centers and Logistics. The FRESH projects are a subset of the Industrial Incentive Transactions and target food distribution companies.

(3) City Charter 1301(1) (b) requires NYCEDC, NYCIDA and Build NYC to report on projects undertaken for the purposes of the creation or retention of jobs if, in connection with such projects, Financial Assistance was provided in the form of loans, grants or tax benefits. In compliance with this requirement, a detailed report is prepared annually and posted on the NYCEDC web site that lists both summary and transaction level detail for all active projects. This report can be accessed at www.nycedc.com/about-nycedc/financial-public-documents.

Note: There were no amounts received or receivable from other governments; there were no government made commitments other than to reduce taxes; there were no abatements disclosed separately, and no information was omitted if required by GASB Statement No. 77.

E. Other Information

1. Audit Responsibility

In Fiscal Years 2019 and 2018, respectively, the separately administered organizations included in the financial statements of the City audited by auditors other than Grant Thornton, LLP are TSASC, Inc., New York City School Construction Authority, New York City Housing Development Corporation, New York City Industrial Development Agency, New York City Economic Development Corporation, New York City Business Assistance Corporation, Brooklyn Navy Yard Development Corporation, The City of New York Deferred Compensation Plan, WTC Captive Insurance Company, Inc., New York City Educational Construction Fund, Sales Tax Asset Receivable Corporation, Fiscal Year 2005 Securitization Corporation, New York City Tax Lien Trusts, New York City Housing Authority, Hudson Yards Infrastructure Corporation, Hudson Yards Development Corporation, Brooklyn Bridge Park Corporation, The Trust for Governors Island, Build NYC, New York City Land Development Corporation, New York City Neighborhood Capital Corporation, New York City Transitional Finance Authority, New York City Water and Sewer System, the Brooklyn Public Library, the Queens Borough Public Library and Affiliate, New York City School Support Services, The Mayor's Fund to Advance New York City, Public Realm Improvement Fund Governing Group, Inc., New York City Employees' Retirement System, Teachers' Retirement System of The City of New York, New York City Board of Education Retirement System, New York City Police Pension Funds, New York City Fire Pension Funds, and the New York City Other Postemployment Benefits Plan.

	Government-wide						Fund-based			
	Governmental Activities		Business-Type Activities		Component Units		Nonmajor Governmental Funds		Fiduciary Funds	
	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
Total Assets	7%	7%	100%	100%	90%	90%	100%	100%	99%	100%
Revenues, other financing sources and net position held in trust	5%	5%	100%	100%	58%	52%	100%	100%	100%	100%

2. Subsequent Events

The following events occurred subsequent to June 30, 2019.

Water Authority: On July 2, 2019, the New York City Municipal Water Finance Authority issued $459,600,000 of Fiscal 2020 Series AA Second General Resolution Revenue Bonds to refund a portion of its outstanding bonds at lower interest rates.

On July 17, 2019, the New York City Municipal Water Finance Authority issued $450,000,000 of Fiscal 2020 Series BB Second General Resolution Revenue Bonds for capital purposes.

On October 8, 2019, the New York City Municipal Water Finance Authority issued $442,415,000 of Fiscal 2020 Series 2, 3 and 4 Second General Resolution Revenue Bonds to refund a portion of its outstanding bonds and certain bond anticipation notes that were issued for capital purposes.

City Debt: On August 13, 2019, the City of New York issued $1,400,000,000 of Fiscal 2020 Series A General Obligation bonds for capital purposes, reoffered $27,340,000 of Fiscal 2006 Subseries F-4B, $83,165,000 of Fiscal 2006 Subseries H-A and $27,435,000 of Fiscal 2008 Subseries J-8 General Obligation bonds to convert a portion of its outstanding variable rate bonds to fixed rate, reoffered $196,920,000 of Fiscal 2014 Subseries D-3 General Obligation bonds from a variable rate to stepped-coupon bonds, and reoffered $200,000,000 of Fiscal 2014 Subseries I-3 General Obligation bonds from an index rate to a variable rate.

On October 22, 2019, the City of New York issued $1,080,000,000 of Fiscal 2020 Series B General Obligation bonds for capital purposes.

TFA Debt: On August 15, 2019, the New York City Transitional Finance Authority issued $1,350,000,000 of Fiscal 2020 Series A Future Tax Secured bonds for capital purposes.

On October 30, 2019, the New York City Transitional Finance Authority issued $250,000,000 of Fiscal 2020 Series S-1 Building Aid Revenue Bonds for capital purposes.

NYCTL 2019-A Trust: On October 24, 2019, NYCTL 2019-A Trust issued $74,230,000 of Series 2019-A Tax Lien Collateralized Bonds to fund the purchase of certain liens from the City.

3. Other Employee Benefit Trust Funds

Deferred Compensation Plans For Employees of The City of New York and Related Agencies and Instrumentalities (DCP) and the New York City Employee Individual Retirement Account (NYCE IRA)

DCP offers employees of The City and Related Agencies and Instrumentalities two defined contribution plans in accordance with Internal Revenue Code Sections 457 and 401(k). DCP permits employees to defer a portion of their salary on either a pre-tax (traditional) or after-tax (Roth) basis until future years. Funds may not be withdrawn until termination, retirement, death, Board-approved unforeseen emergency or hardship (as defined by the Internal Revenue Code) or, if still working for the City, upon attainment of age 70½ in the 457 Plan or upon age 59½ for the 401(k). A 401(a) defined contribution plan is available to certain employees of the Lieutenant's Benevolent Association and the Captains Endowment Association of The City of New York Police Department.

The NYCE IRA is a deemed Individual Retirement Account (IRA) in accordance with Internal Revenue Code Section 408(q) and is available as both a traditional and Roth IRA to those employees eligible to participate in the 457 Plan and 401(k) Plan and their spouses along with former employees and their spouses. Funds may be withdrawn from the NYCE IRA at any time, subject to an early withdrawal penalty.

Amounts maintained under a deferred compensation plan and an IRA by a state or local government are held in trusts (or in a custodial accounts) for the exclusive benefit of participants and their beneficiaries. The DCP plans and IRA are presented together as an Other Employee Benefit Trust Fund in the City's financial statements.

Participants in DCP or NYCE IRA can choose among seven investment options, or one of twelve pre-arranged portfolios consisting of varying percentages of those investment options. Participants can also invest a portion of their assets in a self-directed brokerage option.

4. Other Postemployment Benefits

The New York City Other Postemployment Benefits Plan (OPEB Plan)

The OPEB Plan is a fiduciary component unit of the City and is composed of: (1) the New York City Retiree Health Benefits Trust (RHBT) which is used to receive, hold, and disburse assets accumulated to pay for some of the OPEB provided by the City to its retired employees, and (2) OPEB paid for directly by the City out of its general resources rather than through RHBT. RHBT was established for the exclusive benefit of the City's retired employees and their eligible spouses and dependents, to fund some of the OPEB provided in accordance with the City's various collective bargaining agreements and the City's Administrative Code. Amounts contributed to RHBT by the City are held in an irrevocable trust and may not be used for any other purpose than to fund the costs of health and welfare benefits of its eligible participants. Consequently, the OPEB Plan is presented as an Other Employee Benefit Trust Fund in the City's financial statements. The separate annual financial statements of the OPEB Plan are available at: Office of the Comptroller, Bureau of Accountancy-Room 200 South, 1 Centre Street, New York, New York 10007, or at www.comptroller.nyc.gov.

Summary of Significant Accounting Policies:

Basis of Accounting. The measurement focus of the OPEB Plan is on the flow of economic resources. This focus emphasizes the determination of changes in the OPEB Plan's net position. With this measurement focus, all assets and liabilities associated with the operation of this fiduciary fund are included on the *Statement of Fiduciary Net Position.* This fund uses the accrual basis of accounting whereby contributions from the employer are recognized when due. Benefits and refunds are recognized when due and payable in accordance with the terms of the plans.

Method Used to Value Investments. Investments are reported on the *Statement of Fiduciary Net Position* at fair value based on quoted market prices.

Program Description. Postemployment benefits other than pensions (OPEB) provided to eligible retirees of the City and their eligible beneficiaries and dependents (hereafter referred to collectively as "Retiree Participants") include: health insurance, Medicare Part B Premium reimbursements and welfare fund contributions. OPEB are funded by the OPEB Plan, a single employer plan.

Funding Policy. The Administrative Code of The City of New York (ACNY) defines OPEB stemming from the City's various collective bargaining agreements. The City is not required by law or contractual agreement to provide funding for the OPEB other than the pay-as-you-go (PAYGO) amounts necessary to provide current benefits to Retiree Participants. For the fiscal year ended June 30, 2019, the City paid $2.7 billion on behalf of the Program. Based on current practice (the Substantive Plan which is derived from ACNY), the City pays the full cost of basic coverage for non-Medicare-eligible and Medicare-eligible Retiree Participants. The costs of these benchmark plans are reflected in the actuarial valuations by using age and gender adjusted premium amounts. Retiree Participants who opt for other basic or enhanced coverage must contribute 100% of the incremental costs above the premiums for the benchmark plans. The City also reimburses covered retirees and eligible spouses 100% of the Medicare Part B Premium rate applicable to a given year and there is no Retiree Participant contribution to the Welfare Funds. The City pays per capita contributions to the Welfare Funds, the amounts of which are based on negotiated contract provisions.

	Number of Participants	
	FY 2019	**FY 2018**
Active plan members	298,123	292,672
Active plan members off payroll who may become eligible to receive benefits	26,626	22,588
Inactive plan members entitled to but not yet receiving benefits	21,893	15,871
Inactive plan members or beneficiaries currently receiving benefits	237,003	232,770
Total	**583,645**	**563,901**

Net OPEB Liability. The Entry Age Normal cost method used in the current OPEB actuarial valuation is unchanged from the prior OPEB actuarial valuation.

Under this method, as used in the Fiscal Year 2019 OPEB valuation, the Actuarial Present Value (APV) of Benefits (APVB) of each individual included in the 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 a valuation year is the Employer Normal Cost. The portion of this APVB not provided for at a valuation date by the APV of Future Employer Normal Costs is the Total OPEB Liability.

The excess, if any, of the Total OPEB Liability over the Plan Fiduciary Net Position is the Net OPEB Liability. Under this method, experience gains (losses), as they occur, reduce (increase) the Net OPEB Liability and are explicitly identified and amortized in the annual expense.

Increases (decreases) in liabilities due to benefit changes, actuarial assumption changes, and actuarial method changes are also explicitly identified and amortized in the annual expense.

Changes in Net OPEB Liability. Changes in the City's net OPEB liability for the Fiscal Years ended June 30, 2019 and June 30, 2018 are as follows:

	Total OPEB Liability (a)	Plan Fiduciary Net Position (b)	Net OPEB Liability (a) - (b)
1. Balances at June 30, 2017	**$ 93,076,575,487**	**$ 4,653,903,266**	**$ 88,422,672,221**
2. Changes for the Year:			
a. Service Cost	4,861,692,657	—	4,861,692,657
b. Interest	3,131,933,077	—	3,131,933,077
c. Differences b/t Expected and Actual Experience	2,295,728,531	—	2,295,728,531
d. Changes in Assumptions	2,513,755,510	—	2,513,755,510
e. Contributions-Employer	—	2,681,645,593	(2,681,645,593)
f. Contributions-Employee	—	—	—
g. Net Investment Income	—	48,093,613	(48,093,613)
h. Actual Benefit Payments	(2,617,669,829)	(2,617,669,829)	—
i. Administrative Expenses	—	(43,105)	43,105
j. Other Changes	—	(130,323)	130,323
k. Net Changes	**10,185,439,946**	**111,895,949**	**10,073,543,997**
3. Balances at June 30, 2018	**$103,262,015,433**	**$ 4,765,799,215**	**$ 98,496,216,218**
4. Changes for the Year:			
b. Service Cost	5,726,465,371	—	5,726,465,371
b. Interest	3,238,121,016	—	3,238,121,016
c. Differences b/t Expected and Actual Experience	9,363,503,239	—	9,363,503,239
d. Changes in Assumptions	(6,280,596,177)	—	(6,280,596,177)
e. Contributions-Employer	—	2,653,131,741	(2,653,131,741)
f. Contributions-Employee	—	—	—
g. Net Investment Income	—	100,740,410	(100,740,410)
h. Actual Benefit Payments	(2,839,899,082)	(2,839,899,082)	—
i. Administrative Expenses	—	(46,110)	46,110
j. Other Changes	—	(175,000)	175,000
k. Net Changes	**9,207,594,367**	**(86,248,041)**	**9,293,842,408**
5. Balances at June 30, 2019	**$112,469,609,800**	**$ 4,679,551,174**	**$107,790,058,626**
6. Sensitivity of the Net OPEB Liability to Changes in the Discount Rate			
a. 1% Decrease			**$127,420,519,011**
b. 1% Increase			**$ 92,364,519,297**
7. Sensitivity of the Net OPEB Liability to Changes in the Healthcare Cost Trend Rate			
a. 1% Decrease			**$ 88,159,361,813**
b. 1% Increase			**$135,452,822,068**

OPEB Expense and Deferred Outflows of Resources and Deferred Inflows of Resources. OPEB expense recognized by the City for the Fiscal Years ended June 30, 2019 and June 30, 2018 are $8.5 and $7.0 billion, respectively.

Deferred outflows of resources and deferred inflows of resources by source reported by the City at June 30, 2019 and June 30, 2018 are as follows:

	Fiscal Year 2019	
	Deferred Outflows of Resources	**Deferred Inflows of Resources**
Differences between Expected and Actual Experience	$ 9,961,291,937	$ 50,174,278
Changes of Assumptions	1,780,754,778	11,536,472,019
Net Difference between Projected and Actual Earnings on OPEB Plan Investments	238,753,961	—
Total	$11,980,800,676	$11,586,646,297

	Fiscal Year 2018	
	Deferred Outflows of Resources	**Deferred Inflows of Resources**
Differences between Expected and Actual Experience	$2,327,786,572	$ 67,760,049
Changes of Assumptions	2,147,193,722	7,753,783,154
Net Difference between Projected and Actual Earnings on OPEB Plan Investments	253,526,989	—
Total	$4,728,507,283	$7,821,543,203

Amounts reported as Deferred Outflows of Resources and Deferred Inflows of Resources related to OPEB will be recognized in OPEB Expense as follows:

Fiscal Years ended June 30	Amount
2020	$ (316,620,353)
2021	(341,946,230)
2022	(368,939,048)
2023	(90,434,840)
2024	1,037,864,144
Thereafter	474,230,706

Funded Status and Funding Progress. As of June 30, 2019, the most recent actuarial measurement date, the funded status was 4.2%. The total OPEB liability for benefits was $112.4 billion, and the plan fiduciary net position was $4.7 billion, resulting in a net OPEB liability of $107.8 billion. The covered payroll (annual payroll of active employees covered) was $27.7 billion, and the ratio of the net OPEB liability to the covered payroll was 389.3%. Actuarial valuations of an ongoing plan involve estimates of the value of reported and future amounts based on assumptions about the probability of the severity and occurrence of events far into the future. The determined actuarial valuations of OPEB incorporated the use of demographic and economic assumptions among others as reflected below. Amounts determined regarding the funded status and the annual expense of the City vary from year to year as actual results are compared with past expectations and new estimates are made about the future. The schedule of changes in the net OPEB liability and related ratios shown in the RSI section immediately following the notes to financial statements, present GASB Statement No. 75 results of OPEB valuations for Fiscal Years 2019 and 2018.

Actuarial Methods and Assumptions. The actuarial assumptions used in the Fiscal Years 2019 and 2018 OPEB valuations are classified as those used in the New York City Retirement Systems (NYCRS) pension valuations and those specific to the OPEB valuations. NYCRS consist of: (i) New York City Employees' Retirement System (NYCERS); (ii) New York City Teachers' Retirement System of The City of New York (TRS); (iii) New York City Board of Education Retirement System (BERS); (iv) New York City Police Pension Fund (POLICE); and (v) New York City Fire Pension Fund (FIRE). The OPEB valuations incorporate only the use of certain NYCRS demographic and economic assumptions. The assumptions used in this OPEB valuation have changed from the prior valuation. For Fiscal Year 2019, the Office of the Actuary (OA) conducted a full review of the actuarial assumptions and methods used to fund the NYCRS. These reviews led to formalized recommendations titled "Proposed Changes in Actuarial Assumptions and Methods Used in Determining Employer Contributions for Fiscal Years Beginning on and After July 1, 2018 for [NYCRS]," and were adopted by all five of the NYCRS Boards. These are available on the Reports page of the OA website (www.nyc.gov/actuary). 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 Fiscal Year 2019 OPEB valuation of the Plan are as follows:

Valuation Date	June 30, 2018
Measurement Date	June 30, 2019
Discount Rate	2.82%[1] for benefits provided by the City, 2.79% for benefits provided by Component Units. Results as of the June 30, 2018 Measurement Date are presented at 3.01% for benefits provided by the City, and 2.98% for Component Units. The projection of cash flows used to determine the discount rate assumed that the City will contribute at a rate equal to the pay-as-you-go amounts plus the average of contributions made over the most recent five-year period in excess of the pay-as-you-go amounts. The contributions apply first to service cost of future plan members based on projection of overall payroll at 3.0% and normal cost rate for Tier 6 members of each of the NYCRS. Remaining contributions are applied to the current and past service costs for current plan members. Based on those assumptions, the City's OPEB plan's fiduciary net position was projected to be available to make all projected OPEB payments for current active and inactive employees until 2029. After that time, benefit payments will be funded on a pay-as-you go basis. The discount rate is the single equivalent rate which results in the same present value as discounting future benefit payments made from assets at the long-term expected rate of return and discounting future benefit payments funded on a pay-as-you-go basis at the Municipal Bond 20-year Index Rate. The long-term expected rate of return of 4.00%, net of expenses, includes an inflation rate of 2.50%. Results for the OPEB plans for Component Units are presented using a discount rate of the Municipal Bond 20-year Index Rate, since there is no pre-funding assumed for these plans.
Actuarial Cost Method	Entry Age Normal cost method, level percent of pay calculated on an individual basis.
Per-Capita Claims Costs	EBCBS and GHI plans are insured via a Minimum Premium arrangement while the HIP and many of the Other HMOs are community rated. Costs reflect age-adjusted premiums for all plans.

(1) As required under GASB 75 this is a weighted blend of the 4.00% return on assets for OPEB plan investments and the S&P Municipal Bond 20 Year High Grade Index yield as of June 30, 2019 of 2.79%.

Initial monthly premium rates used in valuation are shown below:

Plan	Monthly Health Insurance Costs FY 2019
HIP HMO	
Non-Medicare Single	$ 729.97
Non-Medicare Family	1,783.60
Medicare	170.84
GHI/EBCBS	
Non-Medicare Single	741.40
Non-Medicare Family	1,947.32
Medicare	191.64
Others[1]	
Non-Medicare Single	1,075.01
Non-Medicare Family	2,409.82
Medicare Single	338.86
Medicare Family	668.49

(1) Other HMO premiums represent the total premium for medical (not prescription drug) coverage, including retiree contributions.

Additionally, the individual monthly rates at age 65 used in the valuation are shown below:

Plan	Monthly Costs @ Age 65 FY 2019
HIP HMO	
Non-Medicare	$1,641.20
Medicare	$170.84
GHI/EBCBS	
Non-Medicare	$1,690.38
Medicare	$187.24
Other HMOs	Varies by system

Welfare Funds . . . .

The Welfare Fund contribution reported as of the valuation date, June 30, 2018, (including any reported retroactive amounts) was used as the per capita cost for valuation purposes.

The calculations reflect an additional one-time $100 contribution for Fiscal Years 2019 in July 2018 and Fiscal Year 2020 in July 2019.

Reported annual contribution amounts for the last three years are shown in the Fiscal Year 2019 GASB 74/75 report in Section VII, Tables VII-h to VII-1. Welfare Fund rates are based on actual reported Union Welfare Fund code for current retirees. Weighted average annual contribution rates used for future retirees, based on Welfare Fund enrollment of recent retirees, are shown in the following table.

NYCERS	$1,870
TRS	1,823
BERS	1,926
POLICE	1,737
FIRE	1,780

Medicare Part B Premiums . . . .

Calendar Year	Monthly Premium
2013-15	$104.90
2016	109.97
2017	113.63
2018	125.85
2019	134.43

Medicare Part B Premium reimbursement amounts have been updated to reflect actual premium rates announced for calendar years through 2019. Due to limited cost-of-living adjustment in Social Security benefits for Calendar Years 2017, 2018, and 2019 some Medicare Part B participants will not be charged the Medicare Part B premium originally projected or ultimately announced for those years. Thus, the valuation uses a blended estimate as a better representation of future Part B premium costs.

For the Fiscal Year 2019 OPEB valuation the annual premium used was $1,561.68, which is equal to 12 times an average of the Calendar Year 2018 and 2019 monthly premiums shown.

For Calendar Year 2019, the monthly premium of $134.43 was determined as follows:

- 3.5% of the basic $104.90 monthly hold-harmless amount, assuming that there would be no claims made for the slight increase in Part B premiums for continuing retirees, and
- 96.5% of the announced premium of $135.50 for Calendar Year 2019, representing the proportion of the Medicare population that will pay the announced amount.

The Calendar Year 2018 premium of $125.85 was determined similarly, using 28% of the $104.90 hold-harmless and 72% of the $134 rate that was in effect for Calendar Year 2018.

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.

Fiscal Year	Income-related Medicare Part B Increase
2019	5.0%
2020	5.2
2021	5.3
2022	5.4
2023	5.5
2024	5.6
2025	5.8
2026	5.9
2027 and later	6.0

Medicare Part B Premium Reimbursement Assumption .... 90% of Medicare participants are assumed to claim reimbursement; based on historical data.

Health Care Cost Trend Rate (HCCTR) .... Health trend information from various sources was reviewed, including City premium trend experience for HIP HMO and GHI/EBCBS, public sector benchmark survey for other large plan sponsors, The Medicare Trustees' Report, and the SOA Getzen model. Based on the review, no trend changes were made to the Medicare Part B premium and Welfare Fund contributions, but the medical trends were updated for the Fiscal Year 2019 valuation.

Year Ending	Pre-Medicare Plans	Medicare Plans	Medicare Part B Premium	Welfare Fund Contributions
2019	7.00%	5.00%	5.88%[1]	3.50%
2020	7.00	5.00	5.00	3.50
2021	6.75	4.90	5.00	3.50
2022	6.50	4.90	5.00	3.50
2023	6.25	4.80	5.00	3.50
2024	6.00	4.80	5.00	3.50
2025	5.75	4.70	5.00	3.50
2026	5.50	4.70	5.00	3.50
2027	5.25	4.60	5.00	3.50
2028	5.00	4.60	5.00	3.50
2029	4.75	4.50	5.00	3.50
2030 and Later	4.50	4.50	5.00	3.50

(1) Medicare Part B premium trend reflects actual calendar year premium for the first 6 months of FY20 (July 2019 to December 2019) and 5.0% trend for the remaining 6 months.

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

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

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

Children costs were assumed to represent a relative factor of 0.229.

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

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

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 $349.58 out of $741.40 for single coverage, and $928.59 out of $1,947.32 for family coverage for Fiscal Year 2019 rates) and a 3% reduction in the EBCBS portion of the premium (with the EBCBS portion representing the remainder of the premiums) for the estimated margin anticipated to be returned.

Participation . . . . Participation assumptions were updated as part of the Fiscal Year 2017 valuation to reflect recent experience. The OA reviewed recent experience to confirm these assumptions were still reasonable for the Fiscal Year 2019 valuation.

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

For current retirees who appear to be eligible for health coverage but have not made an election (non-filers), the valuation reflects single GHI/EBCBS coverage and Part B premium benefits only, to approximate the obligation if these individuals were to file for coverage. For future retirees, the portion assumed not to file for future benefits, and therefore valued similarly, are as follows. This assumption was used for the first time in the Fiscal Year 2017 valuation.

NYCERS	10%
TRS	6%
BERS	12%
POLICE	1%
FIRE	2%
TIAA	0%

Participants who do not qualify for coverage because they were working less than 20 hours a week at termination are assumed to be reflected in waivers and non-filers.

Detailed assumptions for future Program retirees are presented below.

PLAN PARTICIPATION ASSUMPTIONS

Benefits	NYCERS	TRS	BERS	POLICE	FIRE	TIAA
Pre-Medicare						
–GHI/EBCBS	72%	80%	70%	85%	80%	90%
–HIP HMO	20	8	16	9	12	6
–Other HMO	4	2	2	4	6	4
–Waiver	4	10	12	2	2	—
Medicare						
–GHI	72	90	78	85	80	90
–HIP HMO	20	6	16	9	12	6
–Other HMO	4	2	2	4	6	4
–Waiver	4	2	4	2	2	—
Post-Medicare Migration						
–Other HMO to GHI	—	—	—	—	—	—
–HIP HMO to GHI	—	25	—	—	—	—
–Pre-Med. Waiver						
To GHI @ 65	—	40	67	—	—	—
To HIP @ 65	—	40	—	—	—	—

Dependent Coverage . . . . Non-contributory Basic Medical Coverage and Part B premium reimbursement for dependents are assumed to terminate when an employee or retiree dies, except for Line of Duty survivors. Certain other survivors of POLICE, FIRE, and uniformed members of the Departments of Correction and Sanitation are eligible for a lifetime COBRA continuation benefit. These individuals contribute 102% of the premium but the valuation includes an additional estimated cost above the value of their COBRA contribution. The valuation assumes that 30% of eligible spouses will elect the lifetime continuation benefit.

Dependents . . . . Male retirees were assumed to be four years older than their wives, and female retirees were assumed to be two years younger than their husbands; for POLICE and FIRE employees, husbands are assumed to be two years older than their wives.

Child dependents of current retirees are assumed to receive coverage until age 26.

Children are assumed to be covered for eight years after retirement plus an additional five years for service retirements of POLICE, FIRE, and NYCERS retirees who were eligible to retire based only on service and no minimum age.

Dependent allocation assumptions are shown below. The assumptions were updated as part of the Fiscal Year 2017 valuation. The OA reviewed recent experience to confirm these assumptions were still reasonable for the Fiscal Year 2019 valuation.

Dependent Coverage Assumptions

Group	NYCERS	TRS	BERS	POLICE	FIRE	TIAA
Male						
–Single Coverage	35%	50%	45%	15%	10%	55%
–Spouse	35	30	45	10	20	40
–Child/No Spouse	5	5	2	10	5	2.5
–Spouse and Child	25	15	8	65	65	2.5
Total	100%	100%	100%	100%	100%	100%
Female						
–Single Coverage	70%	60%	60%	45%	10%	55%
–Spouse	20	30	35	10	20	40
–Child/No Spouse	5	5	2.5	25	5	2.5
–Spouse and Child	5	5	2.5	20	65	2.5
Total	100%	100%	100%	100%	100%	100%

Note: For accidental death, 70% of POLICE and 80% of FIRE members are assumed to have family coverage.

Demographic Assumption . . . . The actuarial assumptions used in the Fiscal Year 2019 and the Fiscal Year 2018 OPEB valuations are a combination of those used in the NYCRS pension actuarial valuations and those specific to the OPEB valuations.

For Fiscal Year 2019, the OA conducted a full review of the actuarial assumptions and methods used to fund the NYCRS. These reviews led to formalized recommendations titled "Proposed Changes in Actuarial Assumptions and Methods Used in Determining Employer Contributions for Fiscal Years Beginning on and After July 1, 2018 for [NYCRS]," and were adopted by all five of the NYCRS Boards. These are available on the Reports page of the OA website (www.nyc.gov/actuary).

COBRA Benefits . . . . 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, there is a cost under the experience-rated GHI/EBCBS coverage.

The valuation assumes 15% of employees not eligible for OPEB elect COBRA coverage for 15 months based on experience of other large employers. A lump-sum COBRA cost of $1,100 was assumed for terminations during Fiscal Year 2019. This amount is increased by the Pre-Medicare HCCTR for future years but is not adjusted for age-related morbidity.

Census data was not available for surviving spouses of POLICE, FIRE, Correction, or Sanitation members who are entitled to lifetime COBRA continuation coverage, as this benefit is administered directly by the insurance carriers. The number and obligation for the surviving spouses with lifetime coverage were estimated based on current census of POLICE and FIRE retirees and the projected number of deaths that would have occurred since the inception of this benefit on November 13, 2001 (and on August 31, 2010 for the Departments of Correction and Sanitation).

Cadillac Tax . . . . The OPEB valuation includes an explicit calculation of the high-cost plan excise tax (Cadillac Tax) that will be imposed beginning in 2022 under HCR.

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:

- For Pre-Medicare retirees above the age of 55, the limit will be increased by $1,650 for single coverage; $3,450 for family coverage.
- The dollar limits are increased by chained CPI+1% (e.g. 3.25%) for 2019 and by Chained CPI (e.g. 2.25%) for subsequent years. Indexing of limits starts in 2018; tax first applies in 2022.

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

- The cost for each benefit option without age adjustment (GHI, HIP, or other HMO, combined with the average cost of 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 is assumed to be absorbed by the Welfare Fund or by lower net Welfare Fund contribution amounts.
- Pre-Medicare retirees under age 55 are not assumed to have the higher limits that apply to employees engaged in high-risk professions because the majority of employees included in this valuation are not in such professions.

	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 in proportion to the OPEB liabilities for relevant OPEB benefits.
Active Off Payroll (AOP) Liabilities	40% of the measured liability of the AOP population, which is roughly equivalent to assuming 60% of the AOP members will terminate membership prior to vesting and not receive OPEB.
Stabilization Fund	A 0.4% load is applied on all City GASB 75 obligations to reflect certain benefits paid on behalf of retirees directly from the Stabilization Fund which is unchanged from the Fiscal Year 2018 OPEB valuation based on recent data. The load is not applicable to Component Units.
Educational Construction Fund	The actuarial assumptions used for determining GASB 75 obligations for ECF are shown starting on page 135 of the Fiscal Year 2019 GASB 74/75 Report dated September 13, 2019. The Report is available at the Office of the Comptroller, Bureau of Accountancy-Room 200 South, 1 Centre Street, New York, New York 10007 and on the website of the New York City Office of the Actuary (www.nyc.gov/actuary).
CUNY TIAA	The actuarial assumptions used for determining obligations for CUNY TIAA are shown starting on page 137 of the Fiscal Year 2019 GASB 74/75 Report dated September 13, 2019. The Report is available at the Office of the Comptroller, Bureau of Accountancy-Room 200 South, 1 Centre Street, New York, New York 10007 and on the website of the New York City Office of the Actuary (www.nyc.gov/actuary).

5. Pensions

Plan Descriptions

The City sponsors or participates in five pension trusts providing benefits to its employees, the majority of whom are members of one of these pension trusts (collectively referred to as NYCRS). Each of the trusts administers a qualified pension plan (QPP) and one or more variable supplements funds (VSFs) or tax-deferred annuity programs (TDA Programs) that supplement the pension benefits provided by the QPP. The trusts administered by NYCRS function in accordance with existing State statutes and City laws, which are the basis by which benefit terms and employer and member contribution requirements are established. The QPPs combine features of defined benefit pension plans with those of defined contribution pension plans; however, they are considered defined benefit plans for financial reporting purposes. The VSFs are considered defined benefit pension plans and the TDA Programs are considered defined contribution plans for financial reporting purposes. A brief description of each of the NYCRS and the individual plans they administer follows:

1. New York City Employees' Retirement System (NYCERS) administers the NYCERS QPP and five VSFs. The NYCERS QPP is a cost-sharing multiple-employer pension plan that provides pension benefits for employees of the City not covered by one of the other NYCRS, and employees of certain component units of the City and certain other governmental units.

   NYCERS administers the following VSFs, which operate pursuant to the provisions of Title 13, Chapter 1 of the Administrative Code of The City of New York (ACNY):

   - Transit Police Officer's Variable Supplements Fund (TPOVSF), which provides supplemental benefits to NYCERS QPP members who retire from service on or after July 1, 1987 with 20 or more years of service as Transit Police Officers.

   - Transit Police Superior Officers' Variable Supplements Fund (TPSOVSF), which provides supplemental benefits to NYCERS QPP members who retire from service on or after July 1, 1987 as Transit Police Superior Officers with 20 or more years of service.

   - Housing Police Officer's Variable Supplements Fund (HPOVSF), which provides supplemental benefits to NYCERS QPP members who retire from service on or after July 1, 1987 with 20 or more years of service as Housing Police Officers.

- Housing Police Superior Officers' Variable Supplements Fund (HPSOVSF), which provides supplemental benefits to NYCERS QPP members who retire from service on or after July 1, 1987 as Housing Police Superior Officers with 20 or more years of service.
- Correction Officers' Variable Supplements Fund (COVSF), which provides supplemental benefits to NYCERS QPP members who retire for service on or after July 1, 1999 (with 20 or 25 years of service, depending upon the plan) as members of the Uniformed Correction Force.

TPOVSF, TPSOVSF, HPOVSF, and HPSOVSF are closed to new entrants.

2. Teachers' Retirement System of The City of New York (TRS) administers the TRS QPP and the TRS TDA Program. The TRS QPP is a cost-sharing, multiple-employer pension plan for pedagogical employees in the public schools of the City and certain Charter Schools and certain other specified school and CUNY employees. The TRS TDA Program was established and is administered pursuant to Internal Revenue Code Section 403(b) and Chapter 4 of Title 13 of ACNY. The TRS TDA Program provides a means of deferring income tax payments on members' voluntary pre-tax contributions and earnings thereon until the periods after retirement or upon withdrawal of contributions. Members of the TRS QPP have the option to participate in the TRS TDA Program.

3. New York City Board of Education Retirement System (BERS) administers the BERS QPP and the BERS TDA Program. The BERS QPP is a cost-sharing, multiple-employer pension plan for non-pedagogical employees of the Department of Education and certain Charter Schools and certain employees of the School Construction Authority. The BERS TDA Program was established and is administered pursuant to Internal Revenue Code Section 403(b), the New York State Education Law and the BERS Rules and Regulations. The BERS TDA Program provides a means of deferring income tax payments on members' voluntary pre-tax contributions and earnings thereon until the periods after retirement or upon withdrawal of contributions. Members of the BERS QPP have the option to participate in the BERS TDA Program.

4. New York City Police Pension Fund (POLICE) administers the POLICE QPP, along with the Police Officer's Variable Supplements Fund (POVSF) and Police Superior Officers' Variable Supplements Fund (PSOVSF). The POLICE QPP is a single-employer pension plan for all full-time uniformed employees of the New York City Police Department.

   POVSF and PSOVSF operate pursuant to the provisions of Title 13, Chapter 2 of the ACNY. POVSF provides supplemental benefits to POLICE QPP members who retire for service as police officers on or after October 1, 1968 with 20 or more years of service. PSOVSF provides supplemental benefits to POLICE QPP members who retire for service on or after October 1, 1968 as police superior officers with 20 or more years of service.

5. New York City Fire Pension Fund (FIRE) administers the FIRE QPP, along with the Firefighter's Variable Supplements Fund (FFVSF) and the Fire Officers' Variable Supplements Fund (FOVSF). The FIRE QPP is a single-employer pension plan for all full-time uniformed employees of the New York City Fire Department.

   FFVSF and FOVSF operate pursuant to the provisions of Title 13, Chapter 3 of the ACNY. FFVSF provides supplemental benefits to FIRE QPP members who retire for service as firefighters or wipers on or after October 1, 1968 with 20 or more years of service. FOVSF provides supplemental benefits to FIRE QPP members who retire for service on or after October 1, 1968 as fire officers, and all pilots and marine uniformed engineers, with 20 or more years of service.

Except for NYCERS and BERS, permanent, full-time employees are generally required to become members of a NYCRS QPP upon employment. Permanent full-time employees who are eligible to participate in the NYCERS QPP and BERS QPP are generally required to become members within six months of their permanent employment status but may elect to become members earlier. Other employees who are eligible to participate in the NYCERS QPP and BERS QPP may become members at their option.

As of June 30, 2018, June 30, 2017, and June 30, 2016, the dates of the most recent actuarial valuations, system-wide membership data for the QPPs are as follows:

	NYCERS	TRS	BERS	POLICE	FIRE	Total
QPP Membership at June 30, 2018						
Retirees and Beneficiaries Receiving Benefits	154,116	86,295	18,041	50,124	16,593	325,169
Terminated Vested Members Not Yet Receiving Benefits	21,389	16,433	1,937	491	68	40,318
Other Inactives	28,483	9,416	6,006	1,940	35	45,880
Active Members	190,572	121,764	25,864	36,562	11,237	385,999
Total QPP Membership	394,560	233,908	51,848	89,117	27,933	797,366

	NYCERS	TRS	BERS	POLICE	FIRE	Total
QPP Membership at June 30, 2017						
Retirees and Beneficiaries Receiving Benefits	150,419	84,770	17,425	49,799	16,636	319,049
Terminated Vested Members Not Yet Receiving Benefits	8,417	15,279	1,528	502	58	25,784
Other Inactives	19,180	7,997	2,618	1,822	15	31,632
Active Members	189,792	120,826	25,794	36,165	11,091	383,668
Total QPP Membership	367,808	228,872	47,365	88,288	27,800	760,133

	NYCERS	TRS	BERS	POLICE	FIRE	Total
QPP Membership at June 30, 2016						
Retirees and Beneficiaries Receiving Benefits	147,514	84,093	16,937	49,151	16,647	314,342
Terminated Vested Members Not Yet Receiving Benefits	8,895	14,393	851	574	58	24,771
Other Inactives	17,989	7,401	2,629	1,659	21	29,699
Active Members	188,481	118,201	25,864	35,961	10,951	379,458
Total QPP Membership	362,879	224,088	46,281	87,345	27,677	748,270

As of June 30, 2018 and June 30, 2017, the dates of the most recent actuarial valuations, membership data for the NYCERS VSFs are as follows:

	TPOVSF	TPSOVSF	HPOVSF	HPSOVSF	COVSF	Total
Membership at June 30, 2018						
Retirees Receiving or Eligible to Receive Benefits	294	238	149	212	7,971	8,864
Active Members	—	—	—	—	10,384	10,384
Total Membership	294	238	149	212	18,355	19,248

	TPOVSF	TPSOVSF	HPOVSF	HPSOVSF	COVSF	Total
Membership at June 30, 2017						
Retirees Receiving or Eligible to Receive Benefits	315	243	153	215	7,858	8,784
Active Members	—	—	—	—	9,568	9,568
Total Membership	315	243	153	215	17,426	18,352

As of June 30, 2018 and 2017, the dates of the most recent actuarial valuations, membership data for the POLICE and FIRE VSFs are as follows:

	PSOVSF	POVSF	Total POLICE	FOVSF	FFVSF	Total FIRE
Membership at June 30, 2018						
Retirees Receiving Benefits	19,005	12,675	31,680	1,533	3,387	4,920
Active Members	12,721	23,841	36,562	2,610	8,627	11,237
Total Membership	31,726	36,516	68,242	4,143	12,014	16,157

	PSOVSF	POVSF	Total POLICE	FOVSF	FFVSF	Total FIRE
Membership at June 30, 2017						
Retirees Receiving Benefits	18,750	12,602	31,352	1,536	3,474	5,010
Active Members	12,646	23,519	36,165	2,660	8,431	11,091
Total Membership	31,396	36,121	67,517	4,196	11,905	16,101

Summary of Plan Benefits

QPPs

The NYCRS QPPs provide pension benefits to retired employees generally based on salary, length of service, and pension tier. For certain members of the NYCRS QPPs, voluntary member contributions also impact pension benefits provided. The NYCRS also provide automatic Cost-of-Living Adjustments (COLA) and other supplemental pension benefits to certain retirees and beneficiaries. In the event of disability during employment, participants may receive retirement allowances based on satisfaction of certain service requirements and other provisions. The NYCRS QPPs also provide death benefits. Subject to certain conditions, members become fully vested as to benefits upon the completion of 5 or 10 years of service depending on tier. Upon termination of employment before retirement, certain members are entitled to refunds of their own contributions, including accumulated interest, less any outstanding loan balances.

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 QPPs 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. The specific membership dates for each tier may vary depending on the respective QPP. The Tier II Plan ended as of June 30, 2009. This affects new hires into the uniformed forces of the New York City Police Department and the New York City Fire Department (new members of the POLICE QPP and FIRE QPP) and District Attorney Investigators who become new members of the NYCERS QPP from July 1, 2009 to March 31, 2012. Chapter 18 of the Laws of 2012 (Chapter 18/12) amended the retirement benefits of public employees who establish membership in one of the NYCRS on or after April 1, 2012. Chapter 18/12 is commonly referred to as Tier VI.

VSFs

The VSFs provide supplemental benefits for their respective eligible members at a maximum annual amount of $12,000. For COVSF prior to Calendar Year 2019, total supplemental benefits paid, although determined in the same manner as for other VSFs, are only paid if the assets of COVSF are sufficient to pay the full amount due to all eligible retirees or if the Actuary determines that the market value of the assets of the COVSF is greater than the actuarial present value of benefits payable through December, 2018. Scheduled benefits to COVSF participants were paid for Calendar Years 2000 to 2005, 2014, 2015, 2017, and 2018. Due to insufficient assets, no benefits were paid to COVSF participants from Calendar Year 2006 to Calendar Year 2013 and for Calendar Year 2016. For Calendar Years 2019 and later, COVSF provides for supplemental benefits to be paid regardless of the sufficiency of assets in the COVSF.

In accordance with ACNY, VSFs are not pension funds or retirement systems. Instead, they provide scheduled supplemental payments, in accordance with applicable statutory provisions. While a portion of these payments are guaranteed by the City, the Legislature has reserved to itself and the State, the right and power to amend, modify, or repeal VSFs and the payments they provide. However, any assets transferred to the VSFs are held in trust solely for the benefit of its members.

TDA Programs

Benefits provided under the TRS and BERS TDA Programs are derived from members' accumulated contributions. No direct contributions are provided by employers; however certain investment options, if selected by members, may indirectly create employer financial obligations or benefits, as discussed below. A participant may withdraw all or part of the balance of his or her account at the time of retirement or termination of employment. Beginning January 1, 1989, the tax laws restricted withdrawals of tax-deferred annuity contributions and accumulated earnings thereon for reasons other than retirement or termination. Contributions made after December 31, 1988, and investment earnings credited after December 31, 1988, may only be withdrawn upon attainment of age 59½ or for reasons of hardship (as defined by Internal Revenue Service regulations). Hardship withdrawals are limited to contributions only.

A member making a hardship withdrawal may not contribute to the TDA Program for a period of six months following the withdrawal.

When a member resigns before attaining vested rights under the respective QPP, he or she may withdraw the value of his or her TDA Program account or leave the account in the TDA Program for a period of up to seven school years after the date of resignation for TRS TDA members or for a period of up to five years after the date of resignation for BERS TDA members. If a member resigns after attaining vested rights under the respective QPP, he or she may leave his or her account in the TDA Program.

Upon retirement, a member may elect to leave his or her entire balance in the plan, elect to withdraw all or a portion of the balance, or choose to take the balance in the form of an annuity that is calculated based on a statutory rate of interest and statutory mortality assumptions, which may differ from the pension funding assumptions.

The TDA Programs have several investment options broadly categorized as fixed return funds and variable return funds. Under the fixed return funds, accounts are credited with a statutory rate of interest, currently 7% for UFT members and 8.25% for all other members (the Statutory Rates). Deposits from members' TDA Program accounts are used by the respective QPP to purchase investments; If earnings on the respective QPP are less than the amount credited to the TDA Program members' accounts, then additional payments by the City to the respective QPP, as determined by the Actuary, may be required. If the earnings are higher, then lower payments by the City to the QPP may be required.

All investment securities held in the fixed return funds are owned and reported by the QPP. A payable due from the QPP equal to the aggregate original principal amounts contributed by TDA Program members to the fixed return funds, plus accrued interest at the statutory rate, less member withdrawals, is owned by the TDA Program. The balance of TDA Program fixed return funds held by the TRS QPP as of June 30, 2019 and 2018 were $25.6 billion and $23.7 billion, respectively, and interest paid on TDA Program fixed return funds by the TRS QPP for the years then ended were $1.7 billion and $1.6 billion, respectively. The balance of TDA Program fixed return funds held by the BERS QPP as of June 30, 2019 and 2018 are $1,756 million and $1,593 million, respectively, and interest paid on TDA Program fixed return funds by the BERS QPP for the years then ended were $141.7 million and $128.0 million, respectively. Under the variable return funds, members' TDA Program accounts are adjusted for actual returns on the underlying investments of the specific fund selected. Members may switch all or a part of their TDA contributions between the fixed and variable return funds on a quarterly basis.

Contributions and Funding Policy

QPPs

The City's funding policy is to contribute statutorily-required contributions (Statutory Contributions). Statutory Contributions for the NYCRS, determined by the Actuary in accordance with State statutes and City laws, are generally funded by the employers within the appropriate Fiscal Year. The Statutory Contributions are 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, 2017 actuarial valuation was used for determining the Fiscal Year 2019 Statutory Contributions. Statutory Contributions are determined annually to be an amount that, together with member contributions and investment income, provides for QPP assets to be sufficient to pay benefits when due. The aggregate Statutory Contributions due to each QPP from all participating employers for Fiscal Years 2019 and 2018 and the amount of the City's Statutory and Actual contribution to each QPP for such fiscal years are as follows (in millions):

QPP	Fiscal Year 2019 Aggregate Statutory Contribution	Fiscal Year 2019 City Statutory/Actual Contribution	Fiscal Year 2018 Aggregate Statutory Contribution	Fiscal Year 2018 City Statutory/Actual Contribution
	(in millions)			
NYCERS	$3,694	$2,049	$3,377	$1,839
TRS	3,697	3,594	3,890	3,780
BERS	270	270	319	319
POLICE	2,558	2,558	2,415	2,415
FIRE	1,399	1,399	1,200	1,200

Member contributions are established by law and vary by QPP. In general, Tier I and Tier II member contribution rates are dependent upon the employee's age at membership and retirement plan election. 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, these members, except for certain Transit Authority employees, are not required to make basic contributions after the 10th anniversary of their membership date or completion of ten years of credited service, whichever is earlier. Effective December 2000, certain Transit Authority Tier III and Tier IV members make basic member contributions of 2.0% of salary in accordance with Chapter 10 of the Laws of 2000. Certain members of the NYCERS QPP, TRS QPP and BERS QPP also make additional member contributions. Tier VI members contribute between 3.0% and 6.0% of salary, depending on salary level.

VSFs

ACNY provides that the POLICE QPP and FIRE QPP transfer to their respective VSFs amounts equal to certain excess earnings on QPP equity investments, generally limited to the unfunded accumulated benefit obligation for each VSF. ACNY also provides that the NYCERS QPP transfer to COVSF a fraction of certain excess earnings on NYCERS QPP equity investments, such fraction reflecting the ratio of Uniformed Correction member salaries to the salaries of all active members of the NYCERS QPP. Any transfer of excess earnings to the COVSF is limited to the unfunded accumulated benefit obligation of the COVSF. In each case, the earnings to be transferred (or the appropriate fraction thereof in the case of COVSF) are the amount by which earnings on equity investments exceed what the earnings would have been had such funds been invested at a yield comparable to that available from fixed income securities, less any cumulative past deficiencies (Excess Earnings).

In addition to the transfer of Excess Earnings, under Chapter 3 of the Laws of 2013, should the assets of the POVSF or the PSOVSF be insufficient to pay annual benefits, the POLICE QPP is required to transfer amounts sufficient to make such benefit payments. Similarly, under Chapter 3 of the Laws of 2013, should the assets of the COVSF be insufficient to pay annual benefits, the NYCERS QPP is required to transfer amounts sufficient to make such benefit payments. Additionally, under Chapter 583 of the Laws of 1989, should the assets of the FFVSF or the FOVSF be insufficient to pay annual benefits, the City is required to transfer amounts sufficient to make such benefit payments. Further, under Chapter 255 of the Laws of 2000, the NYCERS QPP is required to make transfers to TPOVSF, TPSOVSF, HPOVSF and HPSOVSF sufficient to meet their annual benefit payments.

For Fiscal Year 2019, Excess Earnings on equity investments, inclusive of prior year's cumulative deficiencies, exceeded zero, and therefore, transfers of assets from the QPPs to their respective VSFs were required. As of the date of this report, the amount of such transfer due for Fiscal Year 2019 from the NYCERS QPP to COVSF is estimated to be $75 million. The amounts of such transfers due for Fiscal Year 2019 from the POLICE QPP to POVSF and PSOVSF are estimated to be $108 million and $311 million, respectively. The amounts of such transfers due for Fiscal Year 2019 from the FIRE QPP to FFVSF and FOVSF are estimated to be $0. Additionally, in Fiscal Year 2019, the NYCERS QPP made required transfers of $3.4 million, $2.8 million, $1.7 million, and $2.5 million to TPOVSF, TPSOVSF, HPOVSF, and HPSOVSF, respectively, to fund annual benefits.

For Fiscal Year 2018, Excess Earnings on equity investments, inclusive of prior year's cumulative deficiencies, exceeded zero, and therefore, transfers of assets from the QPPs to their respective VSFs were required. As of the date of this report, the amount of such transfer due for Fiscal Year 2018 from the NYCERS QPP to COVSF is estimated to be $205 million. The amounts of such transfers due for Fiscal Year 2018 from the POLICE QPP to POVSF and PSOVSF are estimated to be $130 million and $1,150 million, respectively. The amounts of such transfers due for Fiscal Year 2018 from the FIRE QPP to FFVSF and FOVSF are estimated to be $15 million. There is no transfer estimated to be made to the FOVSF. Additionally, in Fiscal Year 2018, the NYCERS QPP made required transfers of $3.6 million, $2.9 million, $1.8 million, and $2.6 million to TPOVSF, TPSOVSF, HPOVSF, and HPSOVSF, respectively, to fund annual benefits.

TDA Programs

Contributions to the TDA Programs are made by the members only and are voluntary. Active members of the respective QPP are required to submit a salary reduction agreement and an enrollment request to make contributions. A participant may elect to exclude an amount (within the maximum allowed by the Internal Revenue Service) of his or her compensation from current taxable income by contributing it to the TDA Programs. This maximum is determined annually by the IRS for each calendar year. Additionally, members can elect either a fixed or variable investment program for investment of their contributions.

No employer contributions are made to the TDA Programs. However, the TDA Programs offer a fixed return investment option as discussed above which could increase or decrease the City's contribution to the respective QPPs.

Net Pension Liability

The City's net pension liabilities for each of the QPPs reported at June 30, 2019 and 2018 were measured as of those fiscal year end dates. The total pension liabilities used to calculate those net pension liabilities were determined by actuarial valuations as of

June 30, 2018 and June 30, 2016, respectively, and rolled forward to the respective fiscal year-end measurement dates. (Beginning with fiscal year end June 30, 2019, total pension liabilities are rolled forward 1 year to the measurement date.) Information about the fiduciary net position of each QPP and additions to and deductions from each QPP's fiduciary net position has been determined on the same basis as they are reported by the respective QPP. For this purpose, benefits and refunds are recognized when due and payable in accordance with the terms of the respective qualified pension plan and investments are reported at fair value.

Actuarial Assumptions

The total pension liabilities in the June 30, 2018 and June 30, 2016 actuarial valuations were determined using the following actuarial assumptions, applied to all periods included in the measurement:

	June 30, 2018	June 30, 2016
Investment Rate of Return	*7.0% per annum, net of investment expenses (Actual Return for Variable Funds).*	*7.0% per annum, net of investment expenses (Actual Return for Variable Funds).*
Post-Retirement Mortality	*Tables adopted by the respective Boards of Trustees during Fiscal Year 2019.*	*Tables adopted by the respective Boards of Trustees during Fiscal Year 2016.*
Active Service: Withdrawal, Death, Disability, Retirement	*Tables adopted by the respective Boards of Trustees during Fiscal Year 2019.*	*Tables adopted by the respective Boards of Trustees during Fiscal Year 2012.*
Salary Increases[(1)]	*In general, Merit and Promotion increases, plus assumed General Wage Increases of 3.0% per year.*	*In general, Merit and Promotion increases, plus assumed General Wage Increases of 3.0% per year.*
Cost-of-Living Adjustments[1]	*1.5% per annum for Tiers I, II, IV, and certain Tier III and Tier VI retirees. 2.5% per annum for certain Tier III and Tier VI retirees.*	*1.5% per annum for Tiers I, II, IV and certain Tier III and Tier VI retirees. 2.5% per annum for certain Tier III and Tier VI retirees.*

(1) *Developed assuming a long-term Consumer Price Inflation assumption of 2.5% per year.*

Pursuant to Section 96 of the New York City Charter, audits of the actuarial assumptions used to value liabilities of the five actuarially-funded QPPs are conducted by an independent actuarial firm every two years.

In accordance with the ACNY and with appropriate practice, the Boards of Trustees of the five actuarially-funded QPPs are 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 experience studies completed in November 2006 by the Segal Company (Segal) and in December 2011 by The Hay Group (Hay), the Actuary issued reports for the QPPs proposing changes in actuarial assumptions and methods for Fiscal Years beginning on and after July 1, 2011 (February 2012 Reports). Where required, the Boards of Trustees of the NYCRS adopted those changes to actuarial assumptions that require Board approval. The State Legislature 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 investment expenses.

In October 2015 the independent actuarial auditor, Gabriel, Roeder, Smith & Company (GRS), issued a report on their NYC Charter-mandated actuarial experience studies for the four-year and ten-year periods ended June 30, 2013 (the GRS Report).

Based, in part, on the GRS Report, on published studies of mortality improvement, and on input from the City's outside consultants, the Actuary proposed, and the Boards of Trustees of the NYCRS adopted, new post-retirement mortality tables including the application of Mortality Improvement Scale MP-2015 for use in determining employer contributions beginning in Fiscal Year 2016. Scale MP-2015 replaced Mortality Improvement Scale AA.

Finally, in June 2019, Bolton, Inc. issued their actuarial experience study report for the four-year and ten-year periods ended June 30, 2017. Based, in part, on this report, the Actuary proposed and the Boards of Trustees of the NYCRS adopted changes in actuarial assumptions including a change to Mortality Improvement Scale MP-2018 beginning in Fiscal Year 2019.

The long-term expected rate of return for each of the pension funds is 7.0% per annum. This is based upon weighted expected real rates of return (RROR) ranging from 5.5% to 6.2% and a long-term Consumer Price Inflation assumption of 2.5% offset by investment related expenses. The target asset allocation of each of the funds and the expected RROR for each of the asset classes are summarized in the following tables:

	NYCERS	
Asset Class	**Target Asset Allocation**	**Long-Term Expected RROR**
U.S. Public Market Equities	29%	7.0%
International Public Market Equities	13	7.1%
Emerging Public Market Equities	7	9.4%
Private Market Equities	7	10.5%
Fixed Income (Core, TIPS, HY, Opportunistic)	33	2.2%
Alternatives (Real Estate, Infrastructure)	11	5.7%
Total	100%	

	TRS	
Asset Class	**Target Asset Allocation**	**Long-Term Expected RROR**
U.S. Public Market Equities	29%	5.6%
International Public Market Equities	12	7.1%
Emerging Public Market Equities	9	9.9%
Private Market Equities	6	10.3%
Fixed Income (Core, TIPS, HY, Opportunistic)	33	3.4%
Alternatives (Real Estate, Infrastructure)	11	6.3%
Total	100%	

	BERS	
Asset Class	**Target Asset Allocation**	**Long-Term Expected RROR**
U.S. Public Market Equities	30%	6.8%
International Public Market Equities	13	7.4%
Emerging Public Market Equities	7	10.3%
Private Market Equities	9	10.8%
Fixed Income (Core, TIPS, HY)	28	2.4%
Alternatives (Real Estate, Infrastructure)	13	5.6%
Total	100%	

	POLICE	
Asset Class	**Target Asset Allocation**	**Long-Term Expected RROR**
U.S. Public Market Equities	31%	6.5%
International Public Market Equities	9	6.8%
Emerging Public Market Equities	6	8.3%
Private Market Equities	7	11.2%
Fixed Income (Core, TIPS, HY, Opportunistic)	31	2.5%
Alternatives (Real Estate, Infrastructure, Hedge Funds)	16	5.1%
Total	100%	

Asset Class	FIRE Target Asset Allocation	FIRE Long-Term Expected RROR
U.S. Public Market Equities	31%	6.0%
International Public Market Equities	9	6.8%
Emerging Public Market Equities	6	9.7%
Private Market Equities	7	9.5%
Fixed Income (Core, TIPS, HY, Opportunistic)	31	2.6%
Alternatives (Real Estate, Infrastructure, Hedge Funds)	16	4.7%
Total	100%	

Discount Rate

The discount rate used to measure the total pension liability of each QPP as of June 30, 2019 and June 30, 2018 was 7.0%. 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, each QPP's fiduciary net position was projected to be available to make all projected future benefit payments of current active and non-active QPP members. Therefore, the long-term expected rate of return on QPP investments was applied to all periods of projected benefit payments to determine the total pension liability.

Changes in Net Pension Liability-POLICE and FIRE

Changes in the City's net pension liability for POLICE and FIRE for the Fiscal Years ended June 30, 2019 and June 30, 2018 are as follows:

	POLICE			FIRE		
	Total Pension Liability	**Plan Fiduciary Net Position**	**Net Pension Liability**	**Total Pension Liability**	**Plan Fiduciary Net Position**	**Net Pension Liability**
			(in millions)			
Balances at June 30, 2017	$52,353	$39,364	$12,989	$21,314	$12,991	$ 8,323
Changes for the Fiscal Year 2018:						
Service cost	1,386	—	1,386	436	—	436
Interest	3,649	—	3,649	1,485	—	1,485
Changes of Benefit Terms	105	—	105	11	—	11
Differences between expected and actual experience	(144)	—	(144)	125	—	125
Contributions—employer	—	2,415	(2,415)	—	1,200	(1,200)
Contributions—employee	—	267	(267)	—	108	(108)
Net investment income	—	3,964	(3,964)	—	1,250	(1,250)
Benefit payments	(3,193)	(3,193)	—	(1,379)	(1,379)	—
Administrative expenses	—	(21)	21	—	(6)	6
Other changes	—	3	(3)	—	9	(9)
Net changes	1,803	3,435	(1,632)	678	1,182	(504)
Balances at June 30, 2018	$54,156	$42,799	$11,357	$21,992	$14,173	$ 7,819
Changes for the Fiscal Year 2019:						
Service cost	$ 1,499	$ —	$ 1,499	$ 485	$ —	$ 485
Interest	3,782	—	3,782	1,523	—	1,523
Differences between expected and actual experience	(819)	—	(819)	141	—	141
Changes of assumptions	(342)	—	(342)	572	—	572
Contributions—employer	—	2,558	(2,558)	—	1,399	(1,399)
Contributions—employee	—	278	(278)	—	108	(108)
Net investment income	—	2,862	(2,862)	—	982	(982)
Benefit payments	(3,279)	(3,279)	—	(1,446)	(1,446)	—
Administrative expenses	—	(29)	29	—	(10)	10
Other changes	—	4	(4)	—	2	(2)
Net changes	841	2,394	(1,553)	1,275	1,035	240
Balances at June 30, 2019	$54,997	$45,193	$ 9,804	$23,267	$15,208	$ 8,059

The following table presents the City's net pension liability for POLICE and FIRE calculated using the discount rate of 7.0%, as well as what the City's net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (6.0%) or 1-percentage-point higher (8.0%) than the current rate:

	Fiscal Year 2019			Fiscal Year 2018		
	1% Decrease (6.0%)	**Current Discount Rate (7.0%)**	**1% Increase (8.0%)**	**1% Decrease (6.0%)**	**Current Discount Rate (7.0%)**	**1% Increase (8.0%)**
			(in millions)			
POLICE	$16,038	$9,804	$4,615	$17,376	$11,357	$6,370
FIRE	10,635	8,059	5,894	10,021	7,819	5,930

City Proportion of Net Pension Liability-NYCERS, TRS and BERS (Excluding TDAs)

The following table presents the City's proportionate share of the net pension liability of NYCERS, TRS and BERS at June 30, 2019 and June 30, 2018, and the proportion percentage of the aggregate net pension liability allocated to the City:

	June 30, 2019			June 30, 2018		
	NYCERS	TRS	BERS	NYCERS	TRS	BERS
	(in millions, except for %)					
City's proportion of the net pension liability	55.47%	97.22%	99.98%	54.44%	97.19%	99.97%
City's proportionate share of the net pension liability	$10,274	$14,929	$274	$9,898	$18,185	$501

The City's proportion of the respective net pension liability was based on actual required contributions of each of the participating employers.

The following table presents the City's proportionate share of net pension liability for NYCERS, TRS, and BERS calculated using the discount rate of 7.0%, as well as what the City's proportionate share of the respective net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (6.0%) or 1-percentage-point higher (8.0%) than the current rate:

	Fiscal Year 2019			Fiscal Year 2018		
QPPs	1% Decrease (6.0%)	Current Discount Rate (7.0%)	1% Increase (8.0%)	1% Decrease (6.0%)	Current Discount Rate (7.0%)	1% Increase (8.0%)
	(in millions)					
NYCERS	$15,848	$10,274	$5,568	$15,171	$ 9,898	$ 5,448
TRS	22,973	14,929	8,192	26,485	18,185	11,158
BERS	928	274	(275)	1,142	501	(44)

Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions

Pension expense recognized by the City for the Fiscal Years ended June 30, 2019 and June 30, 2018 related to the NYCRS are as follows:

NYCRS	2019	2018
	(in millions)	
NYCERS	$1,736	$1,476
TRS (Excluding TDA)	3,529	3,178
BERS (Excluding TDA)	70	6
POLICE	1,709	1,591
FIRE	1,143	974
TOTAL	$8,187	$7,225

Deferred outflows of resources and deferred inflows of resources by source reported by the City at June 30, 2019 and June 30, 2018 for each NYCRS are as follows:

	Fiscal Year 2019											
	NYCERS		TRS		BERS		POLICE		FIRE		TOTAL	
	Deferred Outflows of Resources	Deferred Inflows of Resources	Deferred Outflows of Resources	Deferred Inflows of Resources	Deferred Outflows of Resources	Deferred Inflows of Resources	Deferred Outflows of Resources	Deferred Inflows of Resources	Deferred Outflows of Resources	Deferred Inflows of Resources	Deferred Outflows of Resources	Deferred Inflows of Resources
	(in thousands)											
Differences between expected and actual experience	$859,134	$ 713,710	$571,767	$2,625,220	$134,804	$108,301	$ —	$ 882,860	$235,994	$ —	$1,801,700	$ 4,330,091
Changes of assumptions	6,563	430,815	—	701,687	—	261,336	—	274,465	467,240	—	473,803	1,668,303
Net difference between projected and actual earnings on pension plan investments	—	637,518	—	4,424,038	—	467,923	—	955,524	—	296,085	—	6,781,088
Changes in proportion and differences between City contributions and proportionate share of contributions (cost-sharing plans)	88,860	(9,626)	12,993	9,050	(23)	(22)	—	—	—	—	101,830	(598)
Total	$954,557	$1,772,417	$584,760	$7,759,995	$134,781	$837,538	$ —	$2,112,849	$703,234	$296,085	$2,377,333	$12,778,884

	Fiscal Year 2018											
	NYCERS		TRS		BERS		POLICE		FIRE		TOTAL	
	Deferred Outflows of Resources	Deferred Inflows of Resources	Deferred Outflows of Resources	Deferred Inflows of Resources	Deferred Outflows of Resources	Deferred Inflows of Resources	Deferred Outflows of Resources	Deferred Inflows of Resources	Deferred Outflows of Resources	Deferred Inflows of Resources	Deferred Outflows of Resources	Deferred Inflows of Resources
	(in thousands)											
Differences between expected and actual experience	$ —	$ 927,456	$ 969,074	$1,894,558	$12,222	$140,934	$ —	$ 424,941	$175,415	$ —	$1,156,711	$3,387,889
Changes of assumptions	146,336	—	517,216	—	10,937	—	—	—	—	—	674,489	—
Net difference between projected and actual earnings on pension plan investments	—	538,573	—	3,628,431	—	557,596	—	985,055	—	263,479	—	5,973,134
Changes in proportion and differences between City contributions and proportionate share of contributions (cost-sharing plans)	(77,526)	(16,529)	2,389	10,356	(227)	(36)	—	—	—	—	(75,364)	(6,209)
Total	$68,810	$1,449,500	$1,488,679	$5,533,345	$22,932	$698,494	$ —	$1,409,996	$175,415	$263,479	$1,755,836	$9,354,814

Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions at June 30, 2019 will be recognized in pension expense as follows:

	NYCERS	TRS	BERS	POLICE	FIRE	TOTAL
			(in thousands)			
Year ending June 30.						
2020	$ (225,380)	$(1,785,332)	$(234,863)	$ (583,271)	$129,583	$ (2,699,263)
2021	(520,373)	(2,152,111)	(248,336)	(848,073)	(4,007)	(3,772,900)
2022	(156,953)	(1,258,931)	(126,535)	(465,518)	87,765	(1,920,172)
2023	(34,159)	(770,706)	(67,805)	(206,770)	132,583	(946,857)
2024	108,080	(508,964)	(25,202)	(9,217)	61,225	(374,078)
Thereafter	10,924	(699,191)	(15)	—	—	(688,282)
Total	$ (817,861)	$ (7,175,235)	$(702,756)	$(2,112,849)	$407,149	$ (10,401,552)


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Comprehensive Annual Financial Report of the Comptroller

Part II-B

REQUIRED SUPPLEMENTARY INFORMATION
(Unaudited)

The pension and other postemployment benefit plan schedules in the required supplementary information are intended to show information for ten years. Additional years' information will be displayed as it becomes available.

Fiscal Year Ended June 30, 2019

A. Schedule of Changes in the City's Net Pension Liability and Related Ratios for POLICE at June 30,

	2019	2018	2017	2016	2015	2014	2013
1. Total Pension Liability							
a. Service Cost	$ 1,498,909,863	$ 1,386,278,934	$ 1,320,416,462	$ 1,340,614,909	$ 1,325,807,839	$ 1,301,753,171	$ 1,263,838,030
b. Interest	3,782,996,761	3,649,115,174	3,524,331,362	3,441,398,429	3,245,225,246	3,117,317,330	2,998,478,091
c. Changes of Benefit Terms	—	104,671,094	—	—	—	—	—
d. Differences b/t Expected and Actual Experience	(818,966,821)	(144,119,939)	(645,248,116)	233,461,664	(215,417,691)	—	—
e. Change of Assumptions	(342,401,789)	—	—	794,679,950	—	—	—
f. Benefit Payments	(3,278,745,000)	(3,193,553,000)	(2,987,000,000)	(2,878,451,000)	(2,746,784,000)	(2,682,223,000)	(2,525,475,000)
g. Net Changes	841,793,014	1,802,392,263	1,212,499,708	2,931,703,952	1,608,831,394	1,736,847,501	1,736,841,121
2. Total Pension Liability—Beginning	54,155,638,365	52,353,246,102	51,140,746,394	48,209,042,442	46,600,211,048	44,549,855,738	42,813,014,617
3. Total Pension Liability—Ending	54,997,431,379	54,155,638,365	52,353,246,102	51,140,746,394	48,209,042,442	46,286,703,239	44,549,855,738
4. Plan Fiduciary Net Position							
a. Contributions—Employer	2,558,256,000	2,415,153,000	2,293,840,000	2,393,940,000	2,309,619,000	2,320,910,000	2,424,690,000
b. Contributions—Employee	278,087,000	267,031,000	276,301,000	249,921,000	241,102,000	228,783,000	229,675,000
c. Net Investment Income	2,861,544,000	3,964,010,000	4,286,894,000	403,534,000	1,098,220,000	5,147,483,000	3,101,564,000
d. Benefit Payments	(3,278,745,000)	(3,193,553,000)	(2,987,000,000)	(2,878,451,000)	(2,746,784,000)	(2,682,223,000)	(2,525,475,000)
e. Administrative Expenses	(29,005,000)	(21,146,000)	(18,917,000)	(18,478,000)	(17,903,000)	(17,450,000)	(17,548,000)
f. Other Changes	4,183,000	3,465,000	10,507,000	6,756,000	4,616,000	6,911,000	6,118,000
g. Net Changes	2,394,320,000	3,434,960,000	3,861,625,000	157,222,000	888,870,000	5,004,414,000	3,219,024,000
5. Plan Fiduciary Net Position—Beginning	42,798,859,000	39,363,899,000	35,502,274,000	35,345,052,000	34,456,182,000	29,451,768,000	26,232,744,000
6. Plan Fiduciary Net Position—Ending	45,193,179,000	42,798,859,000	39,363,899,000	35,502,274,000	35,345,052,000	34,456,182,000	29,451,768,000
7. POLICE Net Pension Liability	$ 9,804,252,379	$11,356,779,365	$12,989,347,102	$15,638,472,394	$12,863,990,442	$11,830,521,239	$15,098,087,738
8. Plan Fiduciary Net Position as a Percentage of Total Pension Liability	82.2%	79.0%	75.2%	69.4%	73.3%	74.4%	66.1%
9. Covered Payroll[1]	$ 4,047,772,414	$ 3,673,054,287	$ 3,509,985,075	$ 3,540,326,198	$ 3,512,777,844	$ 3,420,312,390	$ 3,459,871,779
10. POLICE Net Pension Liability as a Percentage of Covered Payroll	242.2%	309.2%	370.1%	441.7%	366.2%	345.9%	436.4%

[1] Projected employee pay roll at time 1.0 under previous roll-forward methodology through 2018. Actual employee payroll at valuation date (time = 0) beginning in 2019.

B. Schedule of Changes in the City's Net Pension Liability and Related Ratios for FIRE at June 30,

	2019	2018	2017	2016	2015	2014	2013
1. Total Pension Liability							
a. Service Cost	$ 484,827,782	$ 436,368,702	$ 432,482,302	$ 431,267,723	$ 419,575,546	$ 412,911,205	$ 400,884,665
b. Interest	1,523,611,014	1,484,608,815	1,438,804,602	1,395,735,250	1,312,813,977	1,215,276,517	1,184,217,313
c. Changes of Benefit Terms	—	11,602,422	—	—	—	—	—
d. Differences b/t Expected and Actual Experience	140,780,365	124,635,710	134,478,099	323,609,267	171,347,136	—	—
e. Change of Assumptions	571,767,848	—	—	405,497,988	—	—	—
f. Benefit Payments	(1,446,114,000)	(1,379,533,000)	(1,335,343,000)	(1,359,095,000)	(1,220,441,000)	(1,171,998,000)	(1,135,469,000)
g. Net Changes	1,274,873,009	677,682,649	670,422,003	1,197,015,228	683,295,659	456,189,722	449,632,978
2. Total Pension Liability—Beginning	21,991,912,180	21,314,229,531	20,643,807,528	19,446,792,300	18,763,496,641	17,524,302,616	17,074,669,638
3. Total Pension Liability—Ending	23,266,785,189	21,991,912,180	21,314,229,531	20,643,807,528	19,446,792,300	17,980,492,338	17,524,302,616
4. Plan Fiduciary Net Position							
a. Contributions—Employer	1,398,565,000	1,200,417,000	1,061,170,000	1,054,478,000	988,784,000	969,956,000	962,173,000
b. Contributions—Employee	108,015,000	108,338,000	108,368,000	116,619,000	108,582,000	108,859,000	104,816,000
c. Net Investment Income	982,348,000	1,249,731,000	1,371,721,000	203,104,000	302,567,000	1,689,485,000	1,042,431,000
d. Benefit Payments	(1,446,114,000)	(1,379,533,000)	(1,335,343,000)	(1,359,095,000)	(1,220,441,000)	(1,171,998,000)	(1,135,469,000)
e. Administrative Expenses	(9,861,000)	(6,412,000)	—	—	—	—	—
f. Other Changes	2,057,000	9,411,000	47,284,000	43,673,000	41,201,000	39,980,000	38,965,000
g. Net Changes	1,035,010,000	1,181,952,000	1,253,200,000	58,779,000	220,693,000	1,636,282,000	1,012,916,000
5. Plan Fiduciary Net Position—Beginning	14,173,262,000	12,991,310,000	11,738,110,000	11,679,331,000	11,458,638,000	9,822,356,000	8,809,440,000
6. Plan Fiduciary Net Position—Ending	15,208,272,000	14,173,262,000	12,991,310,000	11,738,110,000	11,679,331,000	11,458,638,000	9,822,356,000
7. FIRE Net Pension Liability	$ 8,058,513,189	$ 7,818,650,180	$ 8,322,919,531	$ 8,905,697,528	$ 7,767,461,300	$ 6,521,854,338	$ 7,701,946,616
8. Plan Fiduciary Net Position as a Percentage of Total Pension Liability	65.4%	64.4%	61.0%	56.9%	60.1%	63.7%	56.0%
9. Covered Payroll[1]	$ 1,302,871,992	$ 1,164,528,195	$ 1,145,919,396	$ 1,129,469,957	$ 1,111,744,091	$ 1,102,396,453	$ 1,129,926,037
10. FIRE Net Pension Liability as a Percentage of Covered Payroll	618.5%	671.4%	726.3%	788.5%	698.7%	591.6%	681.6%

[1] Projected employee payroll at time 1.0 under previous roll-forward methodology through 2018. Actual employee pay roll at valuation date (time = 0) beginning in 2019.

C. Schedule of the City's Proportionate Share of the Net Pension Liabilities of Cost-Sharing Multiple-Employer Pensions Plans at June 30,

	2019	2018	2017	2016	2015	2014	2013
1. NYCERS							
a. City's proportion of the net pension liability	55.47%	54.44%	54.33%	54.77%	55.64%	55.54%	55.54%
b. City's proportionate share of the net pension liability	$10,274.3	$ 9,898.5	$11,281.7	$13,307.9	$11,262.0	$10,008.2	$12,815.3
c. City's covered payroll	$ 7,833.4	$ 6,729.9	$ 6,556.7	$ 6,462.2	$ 6,500.5	$ 6,506.4	$ 6,322.1
d. City's proportionate share of the net pension liability as a percentage of its covered payroll	131.16%	147.08%	172.06%	205.93%	173.25%	153.83%	202.71%
e. Plan fiduciary net position as a percentage of the total pension liability	78.84%	78.32%	74.80%	69.57%	73.13%	75.32%	67.18%
2. TRS							
a. City's proportion of the net pension liability	97.22%	97.19%	97.62%	97.07%	97.27%	97.28%	97.28%
b. City's proportionate share of the net pension liability	$14,929.0	$18,184.9	$22,674.0	$25,599.9	$20,219.1	$17,331.1	$23,010.2
c. City's covered payroll	$10,107.6	$ 8,961.5	$ 8,612.8	$ 8,039.3	$ 7,869.8	$ 7,772.8	$ 7,683.5
d. City's proportionate share of the net pension liability as a percentage of its covered payroll	147.70%	202.92%	263.26%	318.43%	256.92%	222.97%	299.48%
e. Plan fiduciary net position as a percentage of the total pension liability	79.06%	74.45%	68.32%	62.33%	68.04%	71.79%	61.01%
3. BERS							
a. City's proportion of the net pension liability	99.98%	99.97%	99.96%	99.99%	99.98%	99.99%	99.99%
b. City's proportionate share of the net pension liability	$ 274.2	$ 501.2	$ 973.4	$ 1,384.1	$ 1,006.1	$ 906.5	$ 1,315.6
c. City's covered payroll	$ 1,263.5	$ 1,101.6	$ 1,051.6	$ 1,007.5	$ 1,016.8	$ 988.8	$ 885.5
d. City's proportionate share of the net pension liability as a percentage of its covered payroll	21.70%	45.50%	92.56%	137.38%	98.95%	91.68%	148.57%
e. Plan fiduciary net position as a percentage of the total pension liability	94.79%	90.31%	80.81%	71.17%	75.33%	78.60%	66.95%

D. Schedule of City Contributions for All Pension Plans for the Fiscal Years ended June 30,

	2019	2018	2017	2016	2015	2014	2013	*2012	*2011	*2010
					(in thousands except %)					
NYCERS										
Contractually required contribution	$ 2,049,222	$1,838,554	$1,808,067	$1,843,323	$1,758,378	$1,729,616	$1,692,278	$ 3,017,004	$ 2,387,216	$ 2,197,717
Contributions in relation to the contractually required contributions	$ 2,049,222	$1,838,554	$1,808,067	$1,843,323	$1,758,378	$1,729,616	$1,692,278	$ 3,017,004	$ 2,387,216	$ 2,197,717
Contribution deficiency (excess)	—	—	—	—	—	—	—	—	—	—
Covered payroll	$ 7,833,362	$6,729,880	$6,556,720	$6,462,231	$6,500,475	$6,506,353	$6,322,125	$11,812,858	$11,465,975	$10,977,607
Contributions as a percentage of covered payroll	26.160%	27.319%	27.576%	28.524%	27.050%	26.583%	26.768%	25.540%	20.820%	20.020%
TRS										
Contractually required contribution	$ 3,593,742	$3,779,638	$3,795,657	$3,594,301	$3,180,865	$2,917,129	$2,777,966	$ 2,673,078	$ 2,468,973	$ 2,484,074
Contributions in relation to the contractually required contributions	$ 3,593,742	$3,779,638	$3,795,657	$3,594,301	$3,180,865	$2,917,129	$2,777,966	$ 2,673,078	$ 2,468,973	$ 2,484,074
Contribution deficiency (excess)	—	—	—	—	—	—	—	—	—	—
Covered payroll	$10,107,561	$8,961,509	$8,612,809	$8,039,326	$7,869,774	$7,772,827	$7,683,465	$ 7,920,935	$ 7,935,248	$ 7,859,999
Contributions as a percentage of covered payroll	35.555%	42.176%	44.070%	44.709%	40.419%	37.530%	36.155%	33.747%	31.114%	31.604%
BERS										
Contractually required contribution	$ 269,594	$318,540	$ 288,116	$ 265,497	$ 258,055	$ 214,574	$ 196,231	$ 213,651	$ 180,191	$ 147,349
Contributions in relation to the contractually required contributions	$ 269,594	$318,540	$ 288,116	$ 265,497	$ 258,055	$ 214,574	$ 196,231	$ 213,651	$ 180,191	$ 147,349
Contribution deficiency (excess)	—	—	—	—	—	—	—	—	—	—
Covered payroll	$ 1,263,450	$1,101,553	$1,051,567	$1,007,499	$1,016,277	$ 988,757	$ 885,491	$ 879,476	$ 880,656	$ 826,782
Contributions as a percentage of covered payroll	21.338%	28.917%	27.399%	26.352%	25.392%	21.701%	22.161%	24.293%	20.461%	17.822%
POLICE										
Contractually required contribution	$ 2,558,256	$2,415,153	$2,293,840	$2,393,940	$2,309,619	$2,320,910	$2,424,690	$ 2,385,731	$ 2,083,633	$ 1,980,996
Contributions in relation to the contractually required contributions	$ 2,558,256	$2,415,153	$2,293,840	$2,393,940	$2,309,619	$2,320,910	$2,424,690	$ 2,385,731	$ 2,083,633	$ 1,980,996
Contribution deficiency (excess)	—	—	—	—	—	—	—	—	—	—
Covered payroll	$ 4,047,772	$3,673,054	$3,509,985	$3,540,326	$3,512,778	$3,420,312	$3,459,889	$ 3,448,784	$ 3,252,729	$ 3,097,484
Contributions as a percentage of covered payroll	63.202%	65.753%	65.352%	67.619%	65.749%	67.857%	70.080%	69.176%	64.058%	63.955%
FIRE										
Contractually required contribution	$ 1,398,565	$1,200,417	$1,061,170	$1,054,478	$ 988,784	$ 969,956	$ 962,173	$ 976,895	$ 890,706	$ 874,331
Contributions in relation to the contractually required contributions	$ 1,398,565	$1,200,417	$1,061,170	$1,054,478	$ 988,784	$ 969,956	$ 962,173	$ 976,895	$ 890,706	$ 874,331
Contribution deficiency (excess)	—	—	—	—	—	—	—	—	—	—
Covered payroll	$ 1,302,872	$1,164,528	$1,145,919	$1,129,470	$1,111,744	$1,102,396	$1,129,921	$ 1,149,423	$ 1,057,243	$ 1,059,911
Contributions as a percentage of covered payroll	107.345%	103.082%	92.604%	93.360%	88.940%	87.986%	85.154%	84.990%	84.248%	82.491%

* For City Fiscal Years 2012, 2011 and 2010, reported contributions and covered payroll amounts are those of each retirement system as a whole (i.e., the sums for all participating employers.) City-only covered payroll is not readily available for years prior to 2013; and due to methodological changes during the periods 2005 through 2012, the City-only employer contributions are not comparable over the ten year period.

Notes to Schedule D:

The above actuarially determined and contractually required contributions were developed using a One-Year Lag Methodology, under which the actuarial valuation determines the employer contribution for the second following fiscal year (e.g. Fiscal Year 2020 contributions were determined using an actuarial valuation as of June 30, 2018). The methods and assumptions used to determine the actuarially determined and contractually required contributions are as follows:

Fiscal Year	2020	2019	2018	2017	2016	2015	2014
Valuation Dates	June 30, 2018 (Lag)	June 30, 2017 (Lag)	June 30, 2016 (Lag)	June 30, 2015 (Lag)	June 30, 2014 (Lag)	June 30, 2013 (Lag)	June 30, 2012 (Lag)
Actuarial cost method	Entry Age[3]	Entry Age[3]	Entry Age[3]	Entry Age[3]	Entry Age[3]	Entry Age[3]	Entry Age[3]
Amortization method for Unfunded Accrued Liabilities (UAL):							
Initial 2010 UAL	Increasing Dollar Payments	Increasing Dollar Payments	Increasing Dollar Payments	Increasing Dollar Payments	Increasing Dollar Payments	Increasing Dollar Payments	Increasing Dollar Payments
Post-2010 UALs	Level Dollar Payments	Level Dollar Payments	Level Dollar Payments	Level Dollar Payments	Level Dollar Payments	Level Dollar Payments	Level Dollar Payments
Remaining amortization period:							
Initial 2010 UAL	14 Years (Closed)	15 Years (Closed)	16 Years (Closed)	17 Years (Closed)	18 Years (Closed)	19 Years (Closed)	20 Years (Closed)
2010 ERI	0 Year (Closed)	0 Year (Closed)	0 Year (Closed)	1 Year (Closed)	2 Years (Closed)	3 Years (Closed)	4 Years (Closed)
2011 (G)/L	8 Years (Closed)	9 Years (Closed)	10 Years (Closed)	11 Years (Closed)	12 Years (Closed)	13 Years (Closed)	14 Years (Closed)
2012 (G)/L	9 Years (Closed)	10 Years (Closed)	11 Years (Closed)	12 Years (Closed)	13 Years (Closed)	14 Years (Closed)	15 Years (Closed)
2013 (G)/L	10 Years (Closed)	11 Years (Closed)	12 Years (Closed)	13 Years (Closed)	14 Years (Closed)	15 Years (Closed)	NA
2013 Transit Refunds	0 Years (Closed)	1 Years (Closed)	2 Years (Closed)	3 Years (Closed)	4 Years (Closed)	5 Years (Closed)	NA
2014 (G)/L	11 years (Closed)	12 years (Closed)	13 years (Closed)	14 years (Closed)	15 years (Closed)	NA	NA
2014 Assumption Change	16 Years (Closed)	17 Years (Closed)	18 Years (Closed)	19 Years (Closed)	20 Years (Closed)	NA	NA
2014 Method Change	16 Years (Closed)	17 Years (Closed)	18 Years (Closed)	19 Years (Closed)	20 Years (Closed)	NA	NA
2015 (G)/L	12 Years (Closed)	13 Years (Closed)	14 Years (Closed)	15 Years (Closed)	NA	NA	NA
2016 (G)/L	13 Years (Closed)	14 Years (Closed)	15 Years (Closed)	NA	NA	NA	NA
2017 (G)/L	14 Years (Closed)	15 Years (Closed)	NA	NA	NA	NA	NA
2017 Assumptions Change	19 Years (Closed)	20 Years (Closed)	NA	NA	NA	NA	NA
2018 (G)/L	15 Years (Closed)	NA	NA	NA	NA	NA	NA
Actuarial Asset Valuation Method	6-year moving average of Market Value[4]	6-year moving average of Market Value[4]	6-year moving average of Market Value[4]	6-year moving average of Market Value[4]	6-year moving average of Market Value[4]	6-year moving average of Market Value[4]	6-year moving average of Market Value[4]
Actuarial assumptions:							
Assumed rate of return	7.0% per annum, net of investment expenses (4.0% per annum for benefits payable under the variable annuity programs of TRS and BERS)	7.0% per annum, net of investment expenses (4.0% per annum for benefits payable under the variable annuity programs of TRS and BERS)	7.0% per annum, net of investment expenses (4.0% per annum for benefits payable under the variable annuity programs of TRS and BERS)	7.0% per annum, net of investment expenses (4.0% per annum for benefits payable under the variable annuity programs of TRS and BERS)	7.0% per annum, net of investment expenses (4.0% per annum for benefits payable under the variable annuity programs of TRS and BERS)	7.0% per annum, net of investment expenses (4.0% per annum for benefits payable under the variable annuity programs of TRS and BERS)	7.0% per annum, net of investment expenses (4.0% per annum for benefits payable under the variable annuity programs of TRS and BERS)
Post-retirement mortality	Tables adopted by Boards of Trustees during Fiscal Year 2019	Tables adopted by Boards of Trustees during Fiscal Year 2019	Tables adopted by Boards of Trustees during Fiscal Year 2016	Tables adopted by Boards of Trustees during Fiscal Year 2016	Tables adopted by Boards of Trustees during Fiscal Year 2016	Tables adopted by Boards of Trustees during Fiscal Year 2012	Tables adopted by Boards of Trustees during Fiscal Year 2012
Active service: withdrawal, death, disability, service retirement	Tables adopted by Boards of Trustees during Fiscal Year 2019	Tables adopted by Boards of Trustees during Fiscal Year 2019	Tables adopted by Boards of Trustees during Fiscal Year 2012	Tables adopted by Boards of Trustees during Fiscal Year 2012	Tables adopted by Boards of Trustees during Fiscal Year 2012	Tables adopted by Boards of Trustees during Fiscal Year 2012	Tables adopted by Boards of Trustees during Fiscal Year 2012

Notes to Schedule D:

Fiscal Year	2020	2019	2018	2017	2016	2015	2014
Salary Increases	In general, Merit and Promotion Increases plus assumed General Wage Increases of 3.0% per year[2]	In general, Merit and Promotion Increases plus assumed General Wage Increases of 3.0% per year[2]	In general, Merit and Promotion Increases plus assumed General Wage Increases of 3.0% per year[2]	In general, Merit and Promotion Increases plus assumed General Wage Increases of 3.0% per year[2]	In general, Merit and Promotion Increases plus assumed General Wage Increases of 3.0% per year[2]	In general, Merit and Promotion Increases plus assumed General Wage Increases of 3.0% per year[2]	In general, Merit and Promotion Increases plus assumed General Wage Increases of 3.0% per year[2]
Cost-of-Living Adjustments[2]	1.5% per annum for Auto Cola 2.5% per annum for Escalation	1.5% per annum for Auto Cola 2.5% per annum for Escalation	1.5% per annum for Auto Cola 2.5% per annum for Escalation	1.5% per annum for Auto Cola 2.5% per annum for Escalation	1.5% per annum for Auto Cola 2.5% per annum for Escalation	1.5% per annum for Auto Cola 2.5% per annum for Escalation	1.5% per annum for Auto Cola 2.5% per annum for Escalation

Fiscal Year	2013	2012	2011
Valuation Dates	June 30, 2011 (Lag)	June 30, 2010 (Lag)	June 30, 2009 (Lag)
Actuarial cost method	Entry Age[3]	Entry Age[3]	Frozen Initial Liability[1]
Amortization method for Unfunded Accrued Liabilities (UAL):			
Initial 2010 UAL	Increasing Dollar Payments	Increasing Dollar Payments	NA
Post-2010 UALs	Level Dollar Payments	Level Dollar Payments	NA
Remaining amortization period:			
Initial 2010 UAL	21 Years (Closed)	22 Years (Closed)	NA
2010 ERI	5 Years (Closed)	6 Years (Closed)	NA
2011 (G)/L	15 Years (Closed)	NA	NA

Notes to Schedule D:

Fiscal Year	2013	2012	2011
Actuarial Asset:			
Valuation Method	6-year moving average of Market Value	6-year moving average of Market Value	6-year moving average of Market Value
Actuarial assumptions:			
Assumed rate of return	7.0% per annum, net of investment expenses (4.0% per annum for benefits payable under the variable annuity programs of TRS and BERS)	8.0% per annum, gross of investment expenses (4.0% per annum for benefits payable under the variable annuity programs of TRS and BERS)	8.0% per annum, gross of investment expenses (4.0% per annum for benefits payable under the variable annuity programs of TRS and BERS)
Post-retirement mortality	Tables adopted by Boards of Trustees during Fiscal Year 2012	Tables adopted by Boards of Trustees during Fiscal Year 2012	Tables adopted by Boards of Trustees during Fiscal Year 2006
Active service: withdrawal, death disability, service retirement	Tables adopted by Boards of Trustees during Fiscal Year 2012	Tables adopted by Boards of Trustees during Fiscal Year 2012	Tables adopted by Boards of Trustees during Fiscal Year 2006
Salary Increases	In general, Merit and Promotion Increases plus assumed General Wage Increases of 3.0% per year[2]	In general, Merit and Promotion Increases plus assumed General Wage Increases of 3.0% per year[2]	In general, Merit and Promotion Increases plus assumed General Wage Increases of 3.0% per year[2]
Cost-of-Living Adjustments[2]	1.5% per annum for AutoCOLA 2.5% per annum for Escalation	1.5% per annum for AutoCOLA 2.5% per annum for Escalation	1.3% per annum

1 Under the Frozen Initial Liability Actuarial Cost Method, the excess of the Actuarial Present Value (APV) of projected benefits of the membership as of the valuation date, over the sum of the Actuarial Value of Assets plus the UAAL, if any, and the APV of future employee contributions is allocated on a level basis over the future earnings of members who are on the payroll of the valuation date. The Initial Liability was reestablished by the Entry Age Actuarial Cost Method as of June 30, 1999 but with the UAAL not less than $0. Actuarial gains and losses are reflected in the employer normal contribution rate.

2 Developed assuming a long-term Consumer Price Inflation assumption of 2.5% per year.

3 Beginning with the June 30, 2010 (Lag) actuarial valuation under the 2012 A&M, the Entry Age Normal Cost Method (EAN) of funding is utilized by the Actuary to calculate the contributions required of the Employer. Under this method, the Actuarial Present Value (APV) of Benefits (APVB) of each individual included in the actuarial valuation is allocated on a level basis over the earnings (or service) of the individual between entry age and assumed exit ages. The employer portion of this APV allocated to a valuation year is the Normal Cost. The portion of this APV not provided for at a valuation date by the APV of Future Normal Costs or future member contributions is the Accrued Liability (AL). The excess, if any, of the AL over the Actuarial Value of Assets (AVA) is the Unfunded Accrued Liability (UAL). Under this method, actuarial gains (losses), as they occur, reduce (increase) the UAL and are explicitly identified and amortized. Increases (decreases) in obligations due to benefit changes, actuarial assumption changes and/or actuarial method changes are also explicitly identified and amortized.

4 Market Value Restart as of June 30, 2011. The June 30, 2010 AVA is derived as equal to the June 30, 2011 Market Value of Assets, discounted by the Actuarial Interest Rate assumption (adjusted for cash flow) to June 30, 2010. Beginning with June 30, 2014, the AVA is constrained to be no more than 20% from the Market Value of Assets.

E. Schedule of the Net OPEB Liability at June 30,

	2019	2018	2017	2016
1. Total OPEB Liability				
a. Service Cost	$ 5,726,465,371	$ 4,861,692,657	$ 4,522,135,121	$ 5,113,884,783
b. Interest	3,238,121,016	3,131,933,077	2,899,170,607	2,669,589,440
c. Changes of Benefit Terms	—	—	—	—
d. Difference b/t Expected and Actual Experience	9,363,503,239	2,295,728,531	520,672,737	(120,159,155)
e. Changes of Assumptions	(6,280,596,177)	2,513,755,510	(10,978,714,816)	—
f. Benefit Payments	(2,839,899,082)	(2,617,669,829)	(2,425,375,364)	(2,278,055,136)
g. Net Changes in Total OPEB Liability	**9,207,594,367**	**10,185,439,946**	**(5,462,111,715)**	**5,385,259,932**
2. Total OPEB Liability – Beginning	**103,262,015,433**	**93,076,575,487**	**98,538,687,202**	**93,153,427,270**
3. Total OPEB Liability – Ending	**112,469,609,800**	**103,262,015,433**	**93,076,575,487**	**98,538,687,202**
4. Plan Fiduciary Net Position				
a. Contributions – Employer	2,653,131,741	2,681,645,593	3,021,551,454	2,897,668,434
b. Contributions – Employee	—	—	—	—
c. Net Investment Income	100,740,410	48,093,613	21,515,588	20,565,435
d. Benefit Payments	(2,839,899,082)	(2,617,669,829)	(2,425,375,364)	(2,278,055,136)
e. Administrative Expenses	(46,110)	(43,105)	(41,100)	(40,000)
f. Other Changes	(175,000)	(130,323)	(78,516)	(331,067)
g. Net Changes in Plan Fiduciary Net Position	**(86,248,041)**	**111,895,949**	**617,572,062**	**639,807,666**
5. Plan Fiduciary Net Position – Beginning	**4,765,799,215**	**4,653,903,266**	**4,036,331,204**	**3,396,523,538**
6. Plan Fiduciary Net Position – Ending	**4,679,551,174**	**4,765,799,215**	**4,653,903,266**	**4,036,331,204**
7. Net OPEB Liability	**$107,790,058,626**	**$ 98,496,216,218**	**$ 88,422,672,221**	**$94,502,355,998**
8. Plan Fiduciary Net Position as a Percentage of Total OPEB Liability	**4.2%**	**4.6%**	**5.0%**	**4.1%**
9. Covered Employee Payroll	**$ 27,760,352,747**	**$ 26,303,995,573**	**$ 25,180,497,465**	**$24,266,021,759**
10. Net OPEB Liability as a Percentage of Covered Employee Payroll	**388.3%**	**374.5%**	**351.2%**	**389.4%**