



Metropolitan Transportation Authority

Audit Committee Meeting

December 2018

Committee Members

N. Zuckerman, Chair

C. Moerdler

M. Pally

Audit Committee Meeting

MTA Board Room - 20th Floor

2 Broadway

Wednesday, 12/12/2018

8:00 - 9:00 AM ET

1. PUBLIC COMMENTS

2. APPROVAL OF MINUTES

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3. AUDIT COMMITTEE WORK PLAN

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4. INDEPENDENT ACCOUNTANT'S REVIEW REPORT - 2nd QUARTER 2018

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5. REVIEW OF MTA INSPECTOR GENERAL'S OFFICE

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6. APPOINTMENT OF EXTERNAL AUDITORS

PCAOB Report on 2016 Inspection of Deloitte - Page 135

7. AUDIT APPROACH PLAN/COORDINATION WITH EXTERNAL AUDITOR (Materials previously distributed)

8. ANNUAL AUDIT COMMITTEE ACTIVITY REPORT (Materials previously distributed)

**MINUTES OF MEETING
AUDIT COMMITTEE OF THE BOARD
MONDAY, JULY 23, 2018 - 3:30 P.M.
RONAN BOARD ROOM – 20TH FLOOR
2 BROADWAY**

The following were present:

Honorable:

**James Vitiello
Mitchell Pally**

**Neal Zuckerman
Andrew Albert**

**Fernando Ferrer
Susan Meltzer**

**M. Fucilli - MTA
L. Kearse - MTA
S. Gellineau - MTA**

**R. Foran - MTA
P. Kane - MTA
T. Quigley - MTA**

**M. Fritz - Deloitte
J. Strohmeier - Deloitte
G. Koslow - Deloitte
E. Maguire - Deloitte**

1. PUBLIC COMMENTS PERIOD

The following three speakers commented during the public speakers session:

Rachael Fauss, Senior Research Analyst, Reinvent Albany
Sarah Goff, Associate Director, Common Cause
Jaqi Cohen, Campaign Coordinator, Straphanger Campaign

Refer to the video recording of the meeting produced by the MTA and maintained in MTA records for the content of the speakers' statements.

2. APPROVAL OF MINUTES

The minutes of the April 23rd Audit Committee meeting were approved.

3. AUDIT COMMITTEE WORK PLAN

The Auditor General noted that the meeting for November is being moved to December and that the agenda for that meeting will include: the 2nd Quarter 2018 Financial Statements, the Appointment of the External Auditors, the Auditor's Audit Plan, the Review of the MTAOIG Office, Review of Audit Committee Charter and the Annual Audit Committee Report.

4. REVIEW OF 1ST QUARTER 2018 MTA CONSOLIDATED FINANCIAL STATEMENTS

Mike Fritz (Deloitte) first introduced the senior members of the audit team: Jill Strohmeier, Emilia Maguire and Greg Koslow who, respectively, were in charge of the Quarterly Financial Statements, Information Technology and Single Audits. He then reported on their review of the 1st Quarter 2018 financial statements, noting that the financial statements were consistent with the previous quarters' presentation; that there were no changes to the accounting principles and policies; and that no adjustments were required to the financial statements as a result of their review. He mentioned that, as noted in the MDA (Management's Discussion & Analysis) section of the financial statements, this year's NY State subsidy was reported in this first quarter financial statements whereas last year's subsidy was reported in the second quarter of that year. He indicated this was so because the subsidy is recognized in the accounts in the month it is approved.

Member Pally inquired if the said transaction was a timing matter and not a funding issue. Mike Fritz responded that it was and that it had no effect on the year-end financial statements.

A motion was made and seconded to accept the 1st Quarter 2018 financial statements as presented.

5. 2017 SINGLE AUDIT REPORT

Mike Fritz briefed the Committee on the Single Audit report, noting that it consisted of three reports, namely: the basic Financial Statements, the Internal Control and Compliance Report relating to the Financial Statements and the Internal Control and Compliance Report as it related to major grant expenditures. He said that their audit of the financial statements and their review of internal controls relating to financial statements, as previously reported, resulted in a “clean opinion.” He said their review of internal controls and compliance with respect to major programs involved subjecting \$2.8 billion of federal grant expenditures, including supplemental schedules, to audit and compliance tests and there were no findings or questioned costs as a result of their review.

A motion was made and seconded to accept the 2017 Single Audit Report.

6. 2017 INVESTMENT COMPLIANCE REPORT

Mike Fritz reported that their audit found the MTA was in compliance with the requirements of the relevant NY State Public Authorities laws and guidelines governing investment practices.

A motion was made and seconded to accept the 2017 Investment Compliance Report.

7. 2017 MANAGEMENT LETTER

Mike Fritz presented the management letter report, noting the five sections in the report pertained to Information Technology, FMTAC, SIRTOA, TBTA and prior years’ management letter comments. He said the comments were control deficiencies noted during their year-end audit of the 2017 financial statements. He briefly discussed the internal control comments concerning password parameters, access to production and user access (Information Technology); independent review of journal entries and calculation of unearned interest (FMTAC); workers compensation data used by actuaries and construction in progress (SIRTOA); adjustments for cost of bond issuance, depreciation of capital assets and succession planning in the finance area (TBTA). Lastly, he noted that a number of prior years’ management letter comments have been remediated. Member Pally inquired whether the recommendations in the management letter are reviewed and a report on the recommendations implemented or not implemented are reported to the Committee. The Auditor General answered in the affirmative, noting that the recommendations are followed up and that the Chief Compliance Officer provides the Committee with a report on the status of the audit implementations.

8. ERM UPDATE AND ETHICS & COMPLIANCE PROGRAM

Lamond Kearse (MTA Chief Compliance Officer) presented the summary of ERM activities since the last update in July which included, among others: the testing and documenting risk and controls, working on the Annual Internal Controls certification, continuing discussion on significant issues and MTA organizational changes and the ongoing work on the Government & Risk Compliance (GRC) system replacement. He

briefly discussed the “internal driven risk changes” associated with Procurement Consolidation, IT transformation, GRC migration and RM staffing constraints as well as the “external driven risk changes” concerning COSO 2013, COSO and NYS Comptroller Guidelines. He also presented the July 2018 vs. June 2017 changes in total risks and controls and agency corrective action plans with respect to identified material weaknesses. Lastly, Lamond spoke about the top risks facing the MTA and cited cyber security, reputational, safety and security risks and succession planning being in the top agency and enterprise-wide risks. Member Zuckerman expressed concern about the committee coverage on cyber security risk and there were discussions on the need for the committee to be apprised more frequently about it. The Auditor General noted it would be considered for the December meeting and that going forward the work plan will have Cyber Security update in the agenda twice a year.

Lamond Kears then provided the Committee with a “snapshot” of the Ethics & Compliance program performance, citing that during the 2017-18 period: over 2,897 ethic referrals were handled by the Compliance Office; 81% completion rate for mandated training was achieved agency-wide; 48 policies were under review or development with the Compliance Office: and there was increased compliance coordination among agencies. Lamond also discussed the internal and external factors effecting changes in the ethics/compliance program. Member Zuckerman inquired why, if training was mandated, only an 81% and not a 100% completion rate has been achieved. Lamond gave logistic and cost as the reason, particularly for represented employees who worked in the field with no ready access to computers or needed extra time away from work to complete the training. There were discussions about establishing standards, working with HR to formulate rules/penalties for non-compliance and obtaining waivers for certain training categories that do not match employee’s job responsibilities like the training for Business Travel and Expenses.

9. 2018 AUDIT PLAN STATUS

The Auditor General reported that the 2018 Audit Plan presented in the agenda book has been reviewed with the Chairman and the Managing Director and that MTA Audit Services is on track to complete the Audit Plan. He cited its accomplishments to date which included, among others: completing 77 projects and 71 contract audits and making over 189 recommendations to improve controls and identified savings of \$9.3 million from operations audit and \$23.8 million on the capital side. The AG highlighted some of the audits being done during the year which included review of procurement and contracting activities within the Subway Action Plan and Executive Order 168; the M/WBE Program and DBE banking; and Open Road Tolling. The AG also reported the performance of the department’s Superstorm Sandy Recovery Oversight audit, a unit dedicated to audit Sandy-related expenditures to ensure propriety and compliance with FTA grant rules. He cited that from inception to date, the unit has completed 102 audits and made 271 recommendations to strengthen controls and reduce costs, including adjustments to grant cost reimbursements totaling \$60.2 million. He noted that the unit’s findings, in conjunction with the activities and reports of the Sandy Recovery Oversight Committee, have been reported to the FTA. For the balance of the year, the AG said the department will complete the Audit Plan and continue to coordinate its audit activities with the external auditors, the City/State Comptroller’s office, the MTA Chief Compliance Office and the MTA Inspector General Office. Lastly, the AG informed the Committee that towards the latter part of the year, Audit Services will be subjected to a “peer review” to determine compliance with the professional standards and the results of that review will be reported to the Committee in January.

Member Albert, referring to Sandy-related audit activities, inquired if the audit will also be looking at the Canarsie II project management and costs. The AG responded in the affirmative, stating that the project controls and expenditures were being covered in the audits. With regards to Open Road Tolling, Chair Vitiello inquired whether the penalties imposed on toll violators has outpaced the lost revenues and the response was that initial reports seemed to affirm that to be the case. The AG said Audit Services will validate those reports.

10. **EXECUTIVE SESSION**

Chair Vitiello made a motion to move the Committee into executive session, the purpose of which he said was to discuss, at the request of the committee members, an employment matter. Member Ferrer inquired about the employment matter and whether it is within the Committee's jurisdiction to discuss and resolved such a matter. Chair Vitiello explained that the matter is about determining whether the CEO is an employee. After discussions amongst the members, including making reference to the Committee Charter and conferring with General Counsel Thomas Quigley, the motion to move into executive session was seconded.

11. **MOTION TO MOVE INTO REGULAR SESSION**

A motion was made and seconded to return to regular session, at which time Chair Vitiello spoke about the matters discussed in executive session. He said that: (a) with respect to inquiries, suggestions and comments expressed by public interest groups about policy matters, those inquiries, comments and suggestions would be referred to the Corporate Governance Committee; and (b) with regards to the Chairman and CEO employment matter, the Committee agreed to accept the determination rendered by JCOPE (NYS Joint Commission on Public Ethics).

12. **MOTION TO ADJOURN**

A motion was made and seconded to adjourn the meeting.

Respectfully submitted,


Michael J. Fucilli
Auditor General

2019 AUDIT COMMITTEE WORK PLAN

I. RECURRING AGENDA ITEMS

Responsibility

Approval of Minutes	Committee Chair & Members
Audit Work Plan	Committee Chair & Members
Pre-Approval of Audit and Non-Auditing Services	Committee Chair & Members
Follow-Up Items	As Appropriate
Status of Audit Activities	Auditor General/MTA IG/ Chief Compliance Officer/ Chief Financial Officers/ Controllers/External Auditor/As Appropriate
Executive Sessions	As Appropriate

II. SPECIFIC AGENDA ITEMS

January 2019

Quarterly Financial Statements – 3 rd Quarter 2018	External Auditor/CFOs
Pension Audits	External Auditor
MTA Enterprise Risk Management Update and Internal Control Guidelines	Chief Compliance Officer
Compliance with the Requirements of the Internal Control Act	Chief Compliance Officer/Agency ICOs
Information Technology Report	Chief Information Officer
Security of Sensitive Data	Chief Information Officer
2018 Audit Plan Status Report	Auditor General
2019 Audit Plan	Auditor General
DDCR Performance Measures	Chief Diversity Officer

April 2019

Financial Statements and Audit Representation Letters	External Auditor/CFOs/Controllers
Management's Review of Consolidated Financial Statements	Comptroller
Contingent Liabilities/Third Party Lawsuits (Executive Session)	General Counsels/External Auditor

Financial Interest Reports
Open Audit Recommendations
DDCR Performance Measures

Chief Compliance Officer
Agency ICOs/Chief Compliance Officer
Chief Diversity Officer

July 2019

Quarterly Financial Statements – 1st Quarter 2019
Single Audit Report
Investment Compliance Report
Management Letter Reports
Enterprise Risk Management Update
Ethics and Compliance Program
MTAAS Audit Plan Status Report
Security of Sensitive Data (new)

External Auditor/CFOs
External Auditor/CFOs
External Auditor
External Auditor/CFOs/Controllers
Chief Compliance Officer
Chief Compliance Officer
Auditor General

November 2019

Quarterly Financial Statements – 2nd Quarter 2019
Appointment of External Auditors
Audit Approach Plans/Coordination
Review of MTA/IG's Office
Review of Audit Committee Charter
Annual Audit Committee Report

External Auditor/CFOs
Committee Chair & Members
External Auditor
External Auditor/IG
CCO and Committee Chair
Committee Chair

2019 AUDIT COMMITTEE WORK PLAN

Detailed Summary

I. RECURRING AGENDA ITEMS

Approval of Minutes

Approval of the official proceedings of the previous month's Committee meeting.

Audit Work Plan

A monthly update of any edits and/or changes in the work plan.

Pre-Approval of Audit and Non-Auditing Services

As appropriate, all auditing services and non-audit services to be performed by external auditors will be presented to and pre-approved by the Committee.

Follow-Up Items

Communications to the Committee of the current status of selected open issues, concerns or matters previously brought to the Committee's attention or requested by the Committee.

Status of Audit Activities

As appropriate, representatives of MTA's public accounting firm or agency management will discuss with the Committee significant audit findings/issues, the status of on-going audits, and the actions taken by agency management to implement audit recommendations.

Executive Sessions

Executive Sessions will be scheduled to provide direct access to the Committee, as appropriate.

II. SPECIFIC AGENDA ITEMS

Detailed Summary

JANUARY 2019

Quarterly Financial Statements – 3rd Quarter 2018

Representatives of the MTA public accounting firm, in conjunction with appropriate agency management, will discuss the interim financial statement that was prepared for the third quarter of 2018.

Pension Audits

Representatives of the MTA public accounting firms will provide the results of their audits of the pension plans that are managed and controlled by MTA HQ, Long Island Rail Road, Metro-North and NYC Transit.

MTA Enterprise Risk Management Update and Internal Control Guidelines

These MTA-wide guidelines, which were adopted by the Board in 2011 pursuant to Public Authority Law Section 2931, are required to be reviewed by the Committee annually. The MTA Chief Compliance Officer will brief the Committee on the agency compliance with these guidelines and answer any questions and offer additional comments, as appropriate. The MTA Chief Compliance Officer will also brief the Committee on the status of agency compliance with the ERM guidelines and any new or emerging risk.

Compliance with the Requirements of the Internal Control Act

The Committee will be briefed by the MTA Chief Compliance Officer and Agency Internal Control Officers on the results of the All-Agency Internal Control Reports issued to the NYS Division of the Budget as required by the Government Accountability, Audit and Internal Control Act.

Information Technology Report

The MTA Chief Information Officer will brief the Committee on the activities of the MTA IT for the past year, including its accomplishments, strategies and plans for the current year.

Security of Sensitive Data

The MTA Chief Information Officer will make a presentation to the Committee on the security of sensitive data at the MTA.

2018 Audit Plan Status Report

A briefing by Audit Services that will include a status of the work completed, a summary of the more significant audit findings, and a discussion of the other major activities performed by the department.

2019 Audit Plan

A discussion by Audit Services of the areas scheduled to be reviewed in 2019 as well as the guidelines and policies that were used to assess audit risk and their application in the development of the audit work plan.

DDCR Performance Measures

The MTA Chief Diversity Officer will brief the Committee on the status of the performance measures and compliance monitoring used by the Department of Diversity and Civil Rights in tracking critical tasks.

APRIL 2019

Financial Statements and Audit Representation Letters

The agency CFOs/Controllers will be available to the Committee to answer any questions regarding the submission of their audit representation letters to the external audit firm. The MTA public accounting firm will review the results and conclusions of their examination of the 2018 Financial Statements.

Management's Review of MTA Consolidated Financial Statements

The MTA Comptroller will present a management's review of the 2018 MTA consolidated financial statements, including changes in capital, net assets, other assets and operating revenues and expenses.

Contingent Liabilities and Status of Third Party Lawsuits

The General Counsels from each agency, along with representatives from the independent accounting firm, will review in Executive Session the status of major litigation that may have a material effect on the financial position of their agency, or for which a contingency has been or will be established and/or disclosed in a footnote to the financial statements. In addition, the Committee will be briefed on the status of third party lawsuits for which there has been minimal or sporadic case activity.

Financial Interest Reports

The MTA Chief Compliance Officer will brief the Committee on the agencies' compliance with the State Law regarding the filing of Financial Interest Reports (FIRs), including any known conflicts of interest.

Open Audit Recommendations

The MTA Chief Compliance Officer and Agency Internal Control Officers will report to the Committee on the status of audit recommendations previously accepted by their respective agency.

DDCR Performance Measures

The MTA Chief Diversity Officer will brief the Committee on the status of the performance measures and compliance monitoring used by the Department of Diversity and Civil Rights in tracking critical tasks.

JULY 2019

Quarterly Financial Statements – 1st Quarter 2019

Representatives of MTA's public accounting firm, in conjunction with appropriate agency management, will discuss the interim financial statement that was prepared for the first quarter of 2019.

Single Audit Report

Representatives of MTA's public accounting firm will provide the results of their Federal- and State-mandated single audits of MTA and NYC Transit.

Investment Compliance Report

Representatives of the MTA's public accounting firm will provide a review of MTA's compliance with the guidelines governing investment practices.

Management Letter Reports

Reports will be made by the MTA's public accounting firm on the recommendations made in the auditors' Management Letter for improving the accounting and internal control systems of the MTA and its agencies. The report will also include management's response to each Management Letter comment. The response will describe the plan of action and timeframe to address each comment. In addition, the report will contain a follow-up of prior years' open recommendations conducted by the external audit firm.

Enterprise Risk Management Update

The MTA Chief Compliance Officer will brief the Committee on the status of agency compliance with the ERM guidelines and any new or emerging risk.

Ethics and Compliance Program

The MTA Chief Compliance Officer will brief the Committee on selected aspects of the MTA Ethics Program.

MTAAS Audit Plan Status Report

A briefing by Audit Services that will include a status of the work completed as compared to the audits planned for the year, a summary of the more significant audit findings, results of audit follow-up, and a discussion of the other major activities performed by the department.

Security of Sensitive Data (New)

The MTA Chief Information Officer will make a presentation to the Committee on the security of sensitive data at the MTA.

NOVEMBER 2019

Quarterly Financial Statements - 2nd Quarter 2019

Representatives of MTA's public accounting firm, in conjunction with appropriate agency management, will discuss the interim financial statement that was prepared for the second quarter of 2019.

Appointment of External Auditors

The Audit Committee will review the appointment of the independent auditor for MTA HQ and all the agencies. As part of this process, the Auditor General has reviewed and provided to the Committee, and will retain on file, the latest report of the firm's most recent internal quality control review.

Audit Approach Plans/Coordination with External Auditors

Representatives of MTA's public accounting firm will review their audit approach for the 2018 year-end agency financial audits. This review will describe the process used to assess inherent and internal control risks, the extent of the auditor's coverage, the timing and nature of the procedures to be performed, and the types of statements to be issued. In addition, the impact of new or proposed changes in accounting principles, regulations, or financial reporting practices will be discussed.

Review of the MTA Inspector General's Office

Representatives of MTA's public accounting firm will provide the results of their review of the MTA/IG's operation to ensure compliance with applicable office regulations, rules, policies and procedures.

Review of Audit Committee Charter

The Committee Chair will report that the Committee has reviewed and assessed the adequacy of the Audit Committee Charter and, based on that review, will recommend any changes. The review will also show if the Committee's performance in 2019 adequately complied with the roles and responsibilities outlined in its Charter (i.e. monitoring and overseeing the conduct of MTA's financial reporting process; application of accounting principles; engagement of outside auditors; MTA's internal controls; and other matters relative to legal, regulatory and ethical compliance at the MTA).

Annual Audit Committee Report

As a non-agenda information item, the Audit Committee will be provided with a draft report which outlines the Audit Committee's activities for the 12 months ended July 2019. This report is prepared in compliance with the Audit Committee's Charter. After Committee review and approval, the Committee Chair will present the report to the full MTA Board.

Metropolitan Transportation Authority

(A Component Unit of the State of New York)

Independent Auditors' Review Report

Consolidated Interim Financial Statements as of and for the
Six-Month Period Ended June 30, 2018

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INDEPENDENT AUDITORS' REVIEW REPORT

To the Members of the Board of
Metropolitan Transportation Authority

Report on the Consolidated Interim Financial Information

We have reviewed the accompanying consolidated interim statement of net position of the Metropolitan Transportation Authority (the "MTA"), a component unit of the State of New York, as of June 30, 2018, and the related consolidated interim statements of revenues, expenses and changes in net position and consolidated cash flows for the six-month periods ended June 30, 2018 and 2017 (the "consolidated interim financial information").

Management's Responsibility for the Consolidated Interim Financial Information

MTA management is responsible for the preparation and fair presentation of the consolidated interim financial information in accordance with accounting principles generally accepted in the United States of America; this responsibility includes the design, implementation, and maintenance of internal control sufficient to provide a reasonable basis for the preparation and fair presentation of the consolidated interim financial information in accordance with accounting principles generally accepted in the United States of America.

Auditors' Responsibility

Our responsibility is to conduct our reviews in accordance with auditing standards generally accepted in the United States of America applicable to reviews of interim financial information. A review of interim financial information consists principally of applying analytical procedures and making inquiries of persons responsible for financial and accounting matters. It is substantially less in scope than an audit conducted in accordance with auditing standards generally accepted in the United States of America, the objective of which is the expression of an opinion regarding the financial information. Accordingly, we do not express such an opinion.

Conclusion

Based on our reviews, we are not aware of any material modifications that should be made to the consolidated interim financial information referred to above for it to be in accordance with the accounting principles generally accepted in the United States of America.

Emphasis of a Matter

As discussed in the notes to the consolidated interim financial information, the MTA is a component unit of the State of New York. The MTA requires significant subsidies from and has material transactions with the City of New York, the State of New York, and the State of Connecticut, and depends on certain tax revenues that are economically sensitive. The accompanying interim financial information does not include any adjustments that might result from the outcome of this uncertainty.

Other Matters

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the Management's Discussion and Analysis, the Schedule of Changes in the MTA's Net Pension Liability and Related Ratios for the Single Employer Pension Plans, the Schedule of the MTA's Proportionate Share of Net Pension Liabilities of Cost-Sharing Multiple-Employer Pension Plans, the Schedule of the MTA's Contributions for All Pension Plans, and the Schedule of Funding Progress for the MTA Postemployment Benefit Plan, as listed in the table of contents, be presented to supplement the consolidated interim financial information. Such information, although not a part of the consolidated interim financial information, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the consolidated interim financial information in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, applicable to reviews of interim financial information, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the consolidated interim financial information, and other knowledge we obtained during our reviews of the consolidated interim financial information. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Supplementary Information

Our reviews were conducted for the purpose of expressing limited assurance, as described under the Conclusion section above, on the MTA's consolidated interim financial information. The Schedule of Consolidated Reconciliation Between Financial Plan and Financial Statements, Schedule of Consolidated Subsidy Accrual Reconciliation Between Financial Plan and Financial Statements, and Schedule of Financial Plan to Financial Statements Reconciliation are presented for the purposes of additional analysis and are not a required part of the consolidated interim financial information.

The Schedule of Consolidated Reconciliation Between Financial Plan and Financial Statements, Schedule of Consolidated Subsidy Accrual Reconciliation Between Financial Plan and Financial Statements, and Schedule of Financial Plan to Financial Statements Reconciliation are the responsibility of management and were derived from and relate directly to the underlying accounting and other records used to prepare the consolidated interim financial information. Such information has been subjected to the analytical procedures and inquiries applied in the reviews of the basic consolidated interim financial information and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the consolidated interim financial information or to the consolidated interim financial information themselves, and other additional procedures and we are not aware of any material modifications that should be made thereto in order for such information to be in conformity with accounting principles generally accepted in the United States of America when considered in relation to the basic consolidated interim financial information taken as a whole.

Report on Consolidated Statement of Net Position as of December 31, 2017

We have previously audited, in accordance with auditing standards generally accepted in the United States of America, the consolidated statement of net position of the MTA as of December 31, 2017, and the related consolidated statement of revenues, expenses and changes in net position and cash flows for the year then ended (not presented herein); and we expressed an unmodified audit opinion on these audited consolidated financial statements in our report dated April 25, 2018, which contains an explanatory paragraph that the MTA requires significant subsidies from other governmental entities. In our opinion, the accompanying consolidated statement of net position of the MTA as of December 31, 2017, is consistent, in all material respects, with the audited consolidated financial statements from which it has been derived.

December 10, 2018

DRAFT

(A Component Unit of the State of New York)

**MANAGEMENT'S DISCUSSION AND ANALYSIS
AS OF JUNE 30, 2018 AND DECEMBER 31, 2017 AND
FOR THE SIX-MONTH PERIODS ENDED JUNE 30, 2018 AND 2017**

(\$ In Millions, except as noted)

OVERVIEW OF THE CONSOLIDATED INTERIM FINANCIAL STATEMENTS

Introduction

This report consists of five parts: Management's Discussion and Analysis ("MD&A"), Consolidated Interim Financial Statements, Notes to the Consolidated Interim Financial Statements, Required Supplementary Information, and Supplementary Information.

Management's Discussion and Analysis

This MD&A provides a narrative overview and analysis of the financial activities of the Metropolitan Transportation Authority and its consolidated subsidiaries and affiliates (the "MTA" or "MTA Group") as of June 30, 2018 and December 31, 2017 and for the six-month periods ended June 30, 2018 and 2017. For financial reporting purposes, the subsidiaries and affiliates of the MTA are blended component units. This management discussion and analysis is intended to serve as an introduction to the MTA Group's consolidated interim financial statements. It provides an assessment of how the MTA Group's position has improved or deteriorated and identifies the factors that, in management's view, significantly affected the MTA Group's overall financial position. It may contain opinions, assumptions, or conclusions by the MTA Group's management that must be read in conjunction with, and should not be considered a replacement for, the consolidated interim financial statements.

The Consolidated Interim Financial Statements

The Consolidated Interim Statements of Net Position, which provide information about the nature and amounts of resources with present service capacity that the MTA Group presently controls (assets), consumption of net assets by the MTA Group that is applicable to a future reporting period (deferred outflow of resources), present obligations to sacrifice resources that the MTA Group has little or no discretion to avoid (liabilities), and acquisition of net assets by the MTA Group that is applicable to a future reporting period (deferred inflow of resources) with the difference between assets/deferred outflow of resources and liabilities/deferred inflow of resources being reported as net position.

The Consolidated Interim Statements of Revenues, Expenses and Changes in Net Position, which provide information about the MTA's changes in net position for a period then ended and accounts for all of the period's revenues and expenses, measures the success of the MTA Group's operations during the year and can be used to determine how the MTA has funded its costs.

The Consolidated Interim Statements of Cash Flows, which provide information about the MTA Group's cash receipts, cash payments and net changes in cash resulting from operations, noncapital financing, capital and related financing, and investing activities.

Notes to the Consolidated Interim Financial Statements

The notes provide information that is essential to understanding the consolidated interim financial statements, such as the MTA Group's accounting methods and policies, details of cash and investments, employee benefits, long-term debt, lease transactions, future commitments and contingencies of the MTA Group, and information about other events or developing situations that could materially affect the MTA Group's financial position.

Required Supplementary Information

The required supplementary information provides information about the changes in the net pension liability, employer contributions, actuarial assumptions used to calculate the net pension liability, historical trends, and other required supplementary information related to the MTA Group's cost-sharing multiple-employer and single-employer defined benefit pension plans as required by provisions for pensions under GASB Statement No. 68.

The Schedule of Funding Progress provides information concerning the MTA Group's progress in funding its obligation to provide pension benefits and postemployment benefits to its employees.

Supplementary Information

The supplementary information provides a series of reconciliations between the MTA Group's financial plan and the consolidated interim statements of revenues, expenses and changes in net position.

FINANCIAL REPORTING ENTITY

The Metropolitan Transportation Authority ("MTA" or "MTA Group") was established under the New York Public Authorities Law and is a public benefit corporation and a component unit of the State of New York whose mission is to continue, develop, and improve public transportation and to develop and implement a unified public transportation policy in the New York metropolitan area. The financial reporting entity consists of subsidiaries and affiliates, considered component units of the MTA, because the Board of the MTA serves as the overall governing body of these related entities.

MTA Related Groups

The following entities, listed by their legal names, are subsidiaries (component units) of the MTA:

- Metropolitan Transportation Authority Headquarters ("MTA HQ") provides support in budget, cash management, finance, legal, real estate, treasury, risk and insurance management, and other services to the related groups listed below.
- The Long Island Rail Road Company ("MTA Long Island Rail Road") provides passenger transportation between New York City ("NYC") and Long Island.
- Metro-North Commuter Railroad Company ("MTA Metro-North Railroad") provides passenger transportation between NYC and the suburban communities in Westchester, Dutchess, Putnam, Orange, and Rockland counties in New York State ("NYS") and New Haven and Fairfield counties in Connecticut.
- Staten Island Rapid Transit Operating Authority ("MTA Staten Island Railway") provides passenger transportation on Staten Island.
- First Mutual Transportation Assurance Company ("FMTAC") provides primary insurance coverage for certain losses, some of which are reinsured, and assumes insurance coverage for certain other losses.
- MTA Capital Construction Company ("MTA Capital Construction") provides oversight for the planning, design and construction of current and future major MTA system-wide expansion projects.
- MTA Bus Company ("MTA Bus") operates certain bus routes in areas previously served by private bus operators pursuant to franchises granted by the City of New York.
- MTAHQ, MTA Long Island Rail Road, MTA Metro-North Railroad, MTA Staten Island Railway, FMTAC, MTA Capital Construction, and MTA Bus, collectively are referred to herein as MTA. MTA Long Island Rail Road and MTA Metro-North Railroad are referred to collectively as the Commuter Railroads.

The following entities, listed by their legal names, are affiliates (component units) of the MTA:

- New York City Transit Authority ("MTA New York City Transit") and its subsidiary, Manhattan and Bronx Surface Transit Operating Authority ("MaBSTOA"), provide subway and public bus service within the five boroughs of New York City.
- Triborough Bridge and Tunnel Authority ("MTA Bridges and Tunnels") operates seven toll bridges, two tunnels, and the Battery Parking Garage, all within the five boroughs of New York City.

CONDENSED CONSOLIDATED FINANCIAL INFORMATION AND CONDENSED CONSOLIDATED INTERIM FINANCIAL INFORMATION

The following sections discuss the significant changes in the MTA Group's financial position as of June 30, 2018 and December 31, 2017 and for the six-month periods ended June 30, 2018 and 2017. An analysis of major economic factors and industry trends that have contributed to these changes is provided. It should be noted that for purposes of the MD&A, the information contained within the summaries of the consolidated interim financial statements and the various exhibits presented were derived from the MTA Group's consolidated interim financial statements.

Total Assets and Deferred Outflows of Resources, Distinguishing Between Capital Assets, Other Assets and Deferred Outflows of Resources

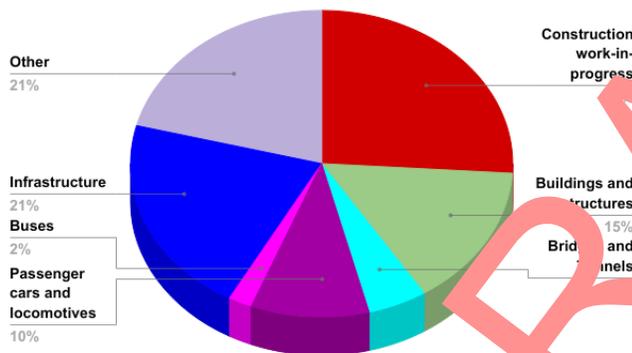
Capital assets include, but are not limited to: bridges, structures, tunnels, construction of buildings and the acquisition of buses, equipment, passenger cars, and locomotives.

Other assets include, but are not limited to: cash, restricted and unrestricted investments, State and regional mass transit taxes receivables, and receivables from New York State.

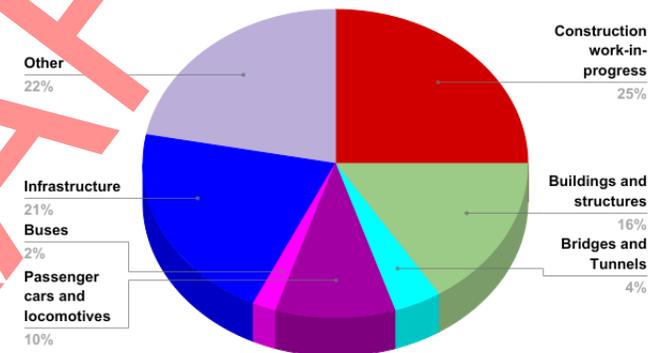
Deferred outflows of resources reflect: changes in fair market values of hedging derivative instruments that are determined to be effective, unamortized loss on refunding, and deferred outflows from pension activities.

(In millions)	June 30, 2018	December 31, 2017	Increase / (Decrease)
	(Unaudited)		
Capital assets — net (see Note 6)	\$ 69,733	\$ 68,060	\$ 1,673
Other assets	10,385	8,533	1,852
Total Assets	80,118	76,593	3,525
Deferred outflows of resources	3,111	3,687	(166)
Total assets and deferred outflows of resources	\$ 83,229	\$ 80,280	\$ 3,359

Capital Assets, Net - June 30, 2018 (Unaudited)



Capital Assets, Net - December 31, 2017



Significant Changes in Assets and Deferred Outflows of Resources Include:

June 30, 2018 versus December 31, 2017

- Net capital assets increased at June 30, 2018 by \$1,673 or 2.5%. There was an increase in construction work-in-progress of \$1,360, an increase in other capital assets of \$499, an increase in infrastructure of \$467, an increase in bridges and tunnels of \$328, an increase in passenger cars and locomotives of \$134, an increase in buildings and structures of \$74, and an increase in buses of \$62. This was offset by a net increase in accumulated depreciation of \$1,251. See Note 6 to the MTA's Consolidated Interim Financial Statements for further information. Some of the more significant projects contributing to the net increase included:
 - Continued progress on the East Side Access, Second Avenue Subway and Number 7 Extension Project.
 - Infrastructure work including:
 - o Repairs and improvements of all MTA Bridge and Tunnels' facilities.
 - o Improvements to MTA Long Island Railroad's road-assets, replacement of signal power lines, various right-of-way enhancements and upgrades of radio communications.
 - o Continued improvements to MTA Metro-North Railroad stations, tracks and structures, power rehabilitation of substations, and security.
 - o Subway and bus real-time customer information and communications systems.
 - o Continued structural rehabilitation and repairs of the ventilation system at various facilities.

- Continued improvements made to the East River Tunnel Fire and Life Safety project for 1st Avenue, Long Island City and construction of three Montauk bridges.
- Continued passenger station rehabilitations for Penn Station and East Side Access Passenger station.
- Ongoing work by MTA New York City Transit to make stations fully accessible and structurally reconfigured in accordance with the Americans with Disability Act (“ADA”) standards.
- Other assets increased by \$1,852 or 21.7%. The major items contributing to this change include:
 - An increase in cash of \$341 from net cash flow activities.
 - An increase in current and non-current receivables of \$1,700 primarily due to an increase from State and regional mass transit tax of \$1,464, an increase in State and local operating assistance of \$158, an increase in Station Maintenance receivable of \$82, an increase in Mortgage Recording tax of \$22, an increase in New York City subsidy to the MTA New York City Transit and MTA Bus of \$43, and an increase in Federal and State grants for capital projects of \$26. This was offset by a net decrease in other receivables of \$95.
 - A decrease in investments of \$232 mainly due to the use of funds for capital and operating purposes.
 - A net increase in various other current and noncurrent assets of \$101.
- Deferred outflows of resources decreased by \$166 or 4.5%. This decrease was primarily due to change in the fair value of derivative instruments of \$95, a decrease in deferred outflows for unamortized losses on refundings of \$50, and a decrease in deferred outflow related to pensions of \$21.

Total Liabilities and Deferred Inflows of Resources, Distinguishing Between Current Liabilities, Non-Current Liabilities and Deferred Inflows of Resources.

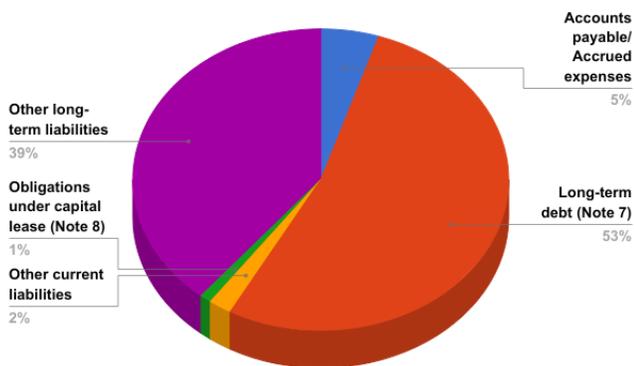
Current liabilities include: accounts payable, accrued expenses, current portions of long-term debt, capital lease obligations, pollution remediation liabilities, unrecorded expenses and taxes, and other current liabilities.

Non-current liabilities include: long-term debt, capital lease obligations, claims for injuries to persons, post-employment benefits and other non-current liabilities.

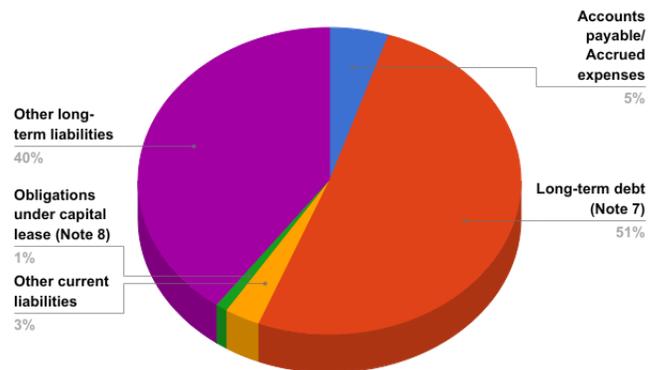
Deferred inflows of resources reflect unamortized gains on refunding and pension related deferred inflows.

(In millions)	June 30, 2018	December 31, 2017	Increase / (Decrease)
	(Unaudited)		
Current liabilities	\$ 5,808	\$ 6,246	\$ (438)
Non-current liabilities	72,067	68,304	3,763
Total liabilities	77,875	74,550	3,325
Deferred inflows of resources	504	506	(2)
Total liabilities and deferred inflows of resources	\$ 78,379	\$ 75,056	\$ 3,323

Total Liabilities - June 30, 2018 (Unaudited)



Total Liabilities - December 31, 2017



Significant Changes in Liabilities and Deferred Inflows of Resources Include:

June 30, 2018 versus December 31, 2017

- Current liabilities decreased by \$438 or 7.0%. The net decrease in current liabilities was primarily due to a decrease in the current portion of long-term debt of \$729 due to the maturity of Bond Anticipation Notes and debt service payments. In addition, there was an increase in accrued expenses of \$278 due to increases in capital accruals of \$103, an increase in employee related accruals of \$28, an increase in interest of \$14, and other accrued expenses of \$133. Accounts payable due to vendors increased by \$9 and unearned revenues increased by \$8, largely due to unused fare cards and school fare subsidies. There was a net decrease in other various current liabilities of \$4.
- Non-current liabilities increased by \$3,763 or 5.5%. This increase was mainly due:
 - An increase in the non-current portion of long-term debt of \$2,924 primarily due to 2018 bond issuances (See Note 7).
 - An increase in postemployment benefits other than pension liability (“OPEB”) of \$743 resulting from estimates of actuarial calculations as required by GASB Statement No. 45 (See Note 5).
 - An increase in estimated liability arising from injuries to persons (Note 10) of \$178 due to revised calculations of the workers’ compensation reserve.
 - A decrease in derivative liabilities of \$90.
 - A net increase in other various non-current liabilities of \$8.
- Deferred inflows of resources decreased by \$2 or 0.0%, primarily due to loss on refunding of debt of \$2.

Total Net Position, Distinguishing Between Net Investment in Capital Assets, Restricted Amounts, and Unrestricted Amounts

(In millions)	June 30, 2018	December 31, 2017	Increase / (Decrease)
	(Unaudited)		
Net investment in capital assets	\$ 28,717	\$ 28,250	\$ 467
Restricted for debt service	865	516	349
Restricted for claims	178	182	(4)
Restricted for other purposes	1,153	983	170
Unrestricted	<u>(25,653)</u>	<u>(24,707)</u>	<u>(946)</u>
Total Net Position	<u>\$ 5,260</u>	<u>\$ 5,224</u>	<u>\$ 36</u>

Significant Changes in Net Position Include:

June 30, 2018 versus December 31, 2017

At June 30, 2018, total net position increased by \$36 or 0.7%, when compared with December 31, 2017. This change is a result of net non-operating revenues of \$3,746 and appropriations, grants and other receipts externally restricted for capital projects of \$754 offset by operating losses of \$4,464.

The net investment in capital assets increased by \$467 or 1.7%. Funds restricted for debt service, claims and other purposes increased by \$515 or 30.6% in the aggregate, mainly due to scheduled debt service payments. Unrestricted net position decreased by \$946 or 3.8%.

Condensed Consolidated Interim Statement of Revenues, Expenses and Changes in Net Position

(In millions)	Six-Month Period Ended		Increase / (Decrease)
	2018	June 30, 2017	
	(Unaudited)	(Unaudited)	
Operating revenues			
Passenger and tolls	\$ 3,988	\$ 3,936	\$ 52
Other	299	309	(10)
Total operating revenues	<u>4,287</u>	<u>4,245</u>	<u>42</u>
Non-operating revenues			
Grants, appropriations and taxes	4,087	3,765	322
Other	387	345	42
Total non-operating revenues	<u>4,474</u>	<u>4,110</u>	<u>364</u>
Total revenues	<u>8,761</u>	<u>8,355</u>	<u>406</u>
Operating expenses			
Salaries and wages	2,104	2,889	215
Retirement and other employee benefits	1,117	1,494	23
Postemployment benefits other than pensions	1,035	1,073	22
Depreciation and amortization	1,336	1,211	125
Other expenses	1,699	1,487	212
Total operating expenses	<u>8,751</u>	<u>8,154</u>	<u>597</u>
Non-operating expenses			
Interest on long-term debt	733	822	(89)
Other net non-operating expenses	(5)	(45)	40
Total non-operating expenses	<u>728</u>	<u>777</u>	<u>(49)</u>
Total expenses	<u>4,479</u>	<u>8,931</u>	<u>548</u>
Loss before appropriations, grants and other receipts			
externally restricted for capital projects	(718)	(576)	(142)
Appropriations, grants and other receipts			
externally restricted for capital projects	754	1,098	(344)
Change in net position	36	522	(486)
Net position, beginning of period	5,224	5,607	(383)
Net position, end of period	<u>\$ 5,260</u>	<u>\$ 6,129</u>	<u>\$ (869)</u>

Revenues and Expenses, by Major Source:
Period ended June 30, 2018 versus 2017

- Total operating revenues increased by \$42 or 1.0%. This increase was mainly due to an increase in fare and toll revenue of \$52 primarily due to an increase in vehicle crossings for the period ended June 30, 2018, when compared to the period ended June 30, 2017. This increase was offset by a decrease in other operating revenues of \$10 due to lower advertising revenues collected on behalf of all agencies.
- Total non-operating revenues increased by \$364 or 8.9%.
 - Total grants, appropriations, and taxes increased by \$322. This was due to an increase in New York State and New York City Subway Action Plan of \$209, an increase in Payroll Mobility Tax of \$27, an increase in Urban Tax of \$65, an increase in Mass Transportation Trust Fund of \$13, an increase in Aid Trust Account from New York State of \$2, an increase in Mass Transportation Operating assistance of \$18, and an increase in Build America subsidy of \$1. The increase was offset by a decrease in Mortgage Recording Tax subsidies of \$11 and a decrease in New York State Service Contract subsidy of \$2.
 - Other non-operating revenues increased by \$42 primarily due to an increase in subsidies from the Connecticut Department of Transportation for the MTA Metro-North Railroad of \$20, an increase in station maintenance, operation and use assessments of \$2, an increase in subsidies from New York City of \$20 for MTA Bus and MTA Staten Island Railway.
- Labor costs increased by \$260 or 4.8%. The major changes within this category are:
 - Salaries, wages and overtime increased by \$215 primarily due to increases in MTA New York City Transit to support the Subway Action Plan and various maintenance and weather-related requirements.
 - Postemployment benefits other than pensions increased by \$22 based on changes in the actuarial estimates.
 - Retirement and employee benefits increased by \$23 primarily due to higher workers' compensation reserve requirements.
- Non-labor operating costs increased by \$337 or 12.5%. The variance was primarily due to:
 - An increase in depreciation of \$125 primarily due to more assets placed in service in the first half of the current year.
 - An increase in maintenance and other contracts by \$33 and professional service contracts of \$86 due to changes in consulting service requirements.
 - An increase in material and supplies by \$29, mainly due to revised maintenance and repairs requirements for transit and commuter systems.
 - An increase in electric power of \$13 and fuel of \$20 due to changes in rates and consumption.
 - An increase in paratransit service contracts of \$24 primarily due to higher paratransit taxi expenses.
 - A net increase in other various expenses of \$24 mainly due to higher operating expenses.
 - A decrease in insurance of \$9 primarily due to a fewer policies added in 2018.
 - A decrease in claims arising from injuries to persons of \$7 based on the most recent actuarial valuations.
- Total net non-operating expenses decreased by \$49 or 6.3% primarily due to decreases in interest on long-term debt of \$89 and an increase in other non-operating expenses of \$40.
- Appropriations, grants and other receipts externally restricted for capital projects decreased by \$344 or 31.3% mainly due to the number and size of capital projects and the related timing of requisitioning for Federal and State grants.

OVERALL FINANCIAL POSITION AND RESULTS OF OPERATIONS AND IMPORTANT ECONOMIC CONDITIONS

Economic Conditions

Metropolitan New York is the most transit-intensive region in the United States, and a financially sound and reliable transportation system is critical to the region's economic well-being. The MTA consists of urban subway and bus systems, suburban rail systems, and bridge and tunnel facilities, all of which are affected by many different economic forces. In order to achieve maximum efficiency and success in its operations, the MTA must identify economic trends and continually implement strategies to adapt to changing economic conditions.

Preliminary MTA system-wide utilization through the second quarter of 2018 decreased relative to 2017, with ridership down by 46.0 million trips (3.5%). The decrease was driven by Subway ridership, which declined by 27.2 million trips (3.1%), and MTA New York City Transit Bus ridership, which declined by 17.4 million trips (5.7%). In addition, MTA Bus ridership declined by 1.0 million trips (1.6%), MTA Long Island Rail Road declined by 253 thousand trips (0.6%) and MTA Metro-North Railroad declined by 93 thousand trips (0.2%), while MTA Staten Island Railway ridership increased by 25 thousand trips (1.1%). The decline in bus ridership is consistent with a trend that began in 2009 and has been observed nationally, while declining subway ridership is a more recent trend, beginning in the third quarter of 2016. Vehicle traffic at MTA Bridge and Tunnels facilities through the second quarter increased by 6.6 million crossings (4.4%) compared with 2017 levels.

Seasonally adjusted non-agricultural employment in New York City for the second quarter was higher in 2018 than in 2017 by 73.3 thousand jobs (1.7%). On a quarter-to-quarter basis, New York City employment has increased in each of the last thirty-one quarters – the last decline occurred in the third quarter of 2010 – and is higher than at any time since 1950, when non-agricultural employment levels for New York City were first recorded by the Bureau of Labor Statistics.

National economic growth, as measured by Real Gross Domestic Product (“RGDP”), expanded at an annualized rate of 4.1% in the second quarter of 2018, according to the most recent advance estimate released by the Bureau of Economic Analysis. The increase in RGDP reflected positive contributions from personal consumption expenditures, exports, nonresidential fixed investment, federal government spending, and state and local government spending. Partially offsetting these favorable impacts were negative contributions from private inventory investment and residential fixed investment. Imports, which are a subtraction in the RGDP calculation, increased. The acceleration in RGDP growth, over the first quarter's revised 2.2% growth rate, reflected accelerations in personal consumption expenditures and in exports, a smaller decrease in residential fixed investment, and accelerations in federal government spending and in state and local spending. These movements were partially offset by a downturn in private inventory investment and a deceleration in nonresidential investment. Imports also decelerated.

The New York City metropolitan area's price inflation, as measured by the Consumer Price Index for All Urban Consumers (“CPI-U”), was lower than the national average in the second quarter of 2018, with the metropolitan area index increasing 2.03% while the national index increased 2.71%, when compared with the second quarter of 2017. Increases in both the regional and national price of energy products (10.61% for the region, and 10.50% nationally) impacted overall inflation; in the metropolitan area, the CPI-U exclusive of energy products increased by 1.45%, while nationally, inflation exclusive of energy prices increased 2.09%. Increasing more steeply than overall energy prices, the spot price for New York Harbor conventional gasoline rose by 33.1%, from an average price of \$1.53 per gallon to an average price of \$2.05 per gallon between the second quarters of 2017 and 2018.

The Federal Open Market Committee (“FOMC”) raised rates three times in 2017, with the target range set at 0.75% to 1% in March, 1% to 1.25% in June and 1.25% to 1.5% in December. During the first half of 2018, the Federal Funds rate was raised twice, to a target level of 1.5% to 1.75% in March 2018, and then to a target level of 1.75% to 2.0% in June 2018. The June increase was in view of continued labor market strength, and growth of household spending and business fixed investment, while inflation and inflation for items other than food and energy have moved close to 2 percent and indicators of longer-term inflation expectations are little changed. Despite raising the target rate twice in 2018, monetary policy continued to be accommodative, supporting the FOMC's efforts to sustain expansion of economic activity, strong labor market conditions and a sustained return to 2 percent inflation. The FOMC expects that the economic expansion will be sustained, labor market conditions will remain strong, and inflation will stabilize around 2 percent over the medium term. Further gradual increases in the Federal Funds rate can be expected, with the FOMC determining the timing and size of future adjustments based on assessments of realized and expected economic conditions relative to maximum employment and symmetric 2 percent inflation objectives. Risks to the economic outlook appear roughly balanced.

The influence of the Federal Reserve monetary policy on the mortgage market is a matter of interest to the MTA, since variability of mortgage rates can affect the number of real estate transactions and thereby impact receipts from the Mortgage Recording Tax (“MRT”) and Urban Tax, two important sources of MTA revenue. Mortgage Recording Tax collections for the second quarter of 2018 were lower than the second quarter of 2017 by \$2.3 (2.1%); receipts in the second quarter of 2018 were \$1.9 (1.8%) higher than receipts from the first quarter of 2018. Despite the gradual overall recovery of MRT receipts that began in 2012, average monthly receipts in the second quarter of 2018 remain \$27.9 (43.9%) lower than the monthly average for 2006, just prior to the steep decline in Mortgage Recording Tax revenues. MTA’s Urban Tax receipts – which are based on commercial real estate transactions and mortgage recording activity within New York City, and can vary significantly from quarter to quarter based on the timing of exceptionally high-priced transactions – were \$46.6 (32.8%) higher than receipts for the second quarter of 2017; receipts in the second quarter of 2018 were \$47.9 (34.0%) higher than receipts from the first quarter of 2018. Average monthly receipts in the second quarter of 2018 were \$18.7 (25.4%) lower than the monthly average for 2007, just prior to the steep decline in Urban Tax revenues.

Results of Operations

MTA Bridges and Tunnels - For the period ended June 30, 2018, operating revenues increased by \$36.7 to \$962.7 as compared to June 30, 2017. Paid traffic for the first half of 2018 totaled 155.4 million crossings, which was 6.6 million, or 4.4% higher than the first half of 2017. The increase is primarily due to improvements in the regional economy and stable gas prices. Toll revenue through June 2018 totaled \$951.1, which was \$34.8, or 4.4% greater than the first half of 2017. The additional revenue was due to the higher traffic and a full year’s impact of the toll increase implemented on March 19, 2017.

The E-ZPass electronic toll collection system experienced year-to-year increases in market share. The total average market share as of June 30, 2018 was 94.5% compared to 88.5% of June 30, 2017. The average weekday market share for passenger and commercial vehicles were 95.2% and 87.0% for the first two quarters of 2018 and 2017, respectively.

MTA New York City Transit - For the period ended June 30, 2018, revenue from fares was \$2,207, a decrease of \$1, or 0.1%, compared to June 30, 2017. For the same comparative period, total operating expenses were higher by \$367.5 or 6.9%, totaling \$5,691.2 for the six months ended June 30, 2018.

MTA Long Island Rail Road – Total operating revenue for the period ended June 30, 2018 was \$379.8, which was lower by \$3.2 or 0.8%, compared to June 30, 2017. For the same comparative period, operating expenses were higher by \$88.9 or 9.8%, totaling \$966.7 for the six months ended June 30, 2018.

MTA Metro-North Railroad – For the six months ended June 30, 2018, operating revenues totaled \$383.9, an increase of \$1.4 or 0.4%, compared to June 30, 2017. During the same period, operating expenses increased by \$17.8 or 2.3% to \$795.0. For the six months ended June 30, 2018, fare revenue increased by 1.2% to \$358.8 compared to June 30, 2017. Passenger fares accounted for 93.5% and 92.7% of operating revenues in 2018 and 2017, respectively. The remaining revenue represents collection of rental income from stores in and around passenger stations and revenue generated from advertising.

The MTA receives the equivalent of four quarters of Metropolitan Mass Transportation Operating Assistance (“MMTOA”) receipts each year, with the State advancing the first quarter of each succeeding calendar year’s receipts in the fourth quarter of the current year. This results in little or no Metropolitan Mass Transportation Operating Assistance receipts being received during the first quarter of each calendar year. The MTA has made other provisions to provide for cash liquidity during this period. During March 2016, the State appropriated \$1.6 billion in MMTOA funds. There has been no change in the timing of the State’s payment of, or MTA’s receipt of, Dedicated Mass Transportation Trust Fund (“MTTF”) receipts, which MTA anticipates will be sufficient to make monthly principal and interest deposits into the Debt Service Fund for the Dedicated Tax Fund Bonds. The total MRT for the period ended June 30, 2018 was \$212 compared to \$223 at June 30, 2017.

Capital Programs

At June 30, 2018, \$16,665 had been committed and \$5,054 had been expended for the combined 2015-2019 MTA Capital Programs and the 2015-2019 MTA Bridges and Tunnels Capital Program, and \$27,022 had been committed and \$21,280 had been expended for the combined 2010-2014 MTA Capital Programs and the 2010-2014 MTA Bridges and Tunnels Capital Program, and \$24,072 had been committed and \$23,611 had been expended for the combined 2005-2009 MTA Capital Programs and the 2005-2009 MTA Bridges and Tunnels Capital Program.

The MTA Group has ongoing capital programs, which except for MTA Bridges and Tunnels are subject to the approval of the Metropolitan Transportation Authority Capital Program Review Board (“CPRB”), and are designed to improve public transportation in the New York Metropolitan area.

2015-2019 Capital Program — Capital programs covering the years 2015-2019 for: (1) the commuter railroad operations of the MTA conducted by MTA Long Island Rail Road and MTA Metro-North Railroad (the “2015–2019 Commuter Capital Program”), (2) the transit system operated by MTA New York City Transit and its subsidiary, MaBSTOA, the MTA Bus Company, and the rail system operated by MTA Staten Island Railway (the “2015–2019 Transit Capital Program”) were originally approved by the MTA Board in September 2014. The capital programs were subsequently submitted to the Capital Program Review Board (“CPRB”) in October 2014. This plan was disapproved by the CPRB, without prejudice, in October 2014. The capital program for the toll bridges and tunnels operated by MTA Bridges and Tunnels (the “2015–2019 MTA Bridges and Tunnels Capital Program”) was approved by the MTA Board in September 2014 and was not subject to CPRB approval.

On April 20, 2016, the MTA Board approved revised capital programs for the years covering 2015-2019. The revised capital programs provided for \$29,456 in capital expenditures. On May 11, 2016, the CPRB deemed approved the revised 2015-2019 Capital Programs for the Transit and Commuter systems as submitted. The revised 2015-2019 MTA Bridges and Tunnels Capital Program, was approved by the MTA Board on April 20, 2016.

On February 23, 2017, the MTA Board approved a revision to the CPRB position of the capital programs for the years covering 2015-2019, adding \$119 transferred from prior capital programs to support additional investment projects. On March 30, 2017, the CPRB deemed approved the revised 2015-2019 Capital Programs for the Transit and Commuter systems as submitted. On May 24, 2017, the MTA Board approved a full amendment to the 2015-2019 Capital Programs to reflect updated project estimates and rebalanced programs to address budgetary and funding needs of priority projects that include Second Avenue Subway Phase 2, MTA Long Island Rail Road regional mobility, station enhancement work, investments at Penn Station, and new Bus Rapid Transit Tolling at MTA Bridges and Tunnels. On July 31, 2017, the CPRB deemed approved the revised 2015-2019 Capital Programs for the Transit and Commuter systems totaling \$29,517, as submitted. The revised 2015-2019 MTA Bridges and Tunnels Capital Program totaling \$2,940, as approved by the MTA Board in May 2017, was not subject to CPRB approval. On December 13, 2017, the MTA Board approved an amendment adding \$349 to the 2015-2019 Capital Program for the Transit system in support of the NYC Subway Action Plan. On April 25, 2018, the MTA Board approved a full amendment to increase the 2015-2019 Capital Programs to \$33,270, including updated project cost estimates, emerging new needs across the agencies, and reallocation of funds within the East Side Access and Regional Investment programs, among others. On June 1, 2018, the CPRB deemed approved the revised 2015-2019 Capital Programs for the Transit and Commuter systems totaling \$30,334, as submitted. The revised 2015-2019 MTA Bridges and Tunnels Capital Program totaling \$2,936, as approved by the MTA Board in May 2018, was not subject to CPRB approval.

By June 30, 2018, the revised 2015-2019 Capital Programs provided \$33,273 in capital expenditures, of which \$16,742 relates to ongoing repairs of, and replacements to, the transit system operated by MTA New York City Transit and MaBSTOA and the rail system operated by MTA Staten Island Railway; \$5,324 relates to ongoing repairs of, and replacements to, the commuter system operated by MTA Long Island Rail Road and MTA Metro-North Railroad; \$7,652 relates to the expansion of existing rail networks for both the transit and commuter systems to be managed by MTA Capital Construction; \$573 relates to Planning and Customer Service; \$376 relates to MTA Bus Company initiatives; and \$2,936 in capital expenditures for ongoing repairs of, and replacements to, MTA Bridges and Tunnels facilities.

The combined funding sources for the revised 2015–2019 MTA Capital Programs and the 2015-2019 MTA Bridges and Tunnels Capital Program, include \$7,968 in MTA Bonds, \$2,936 in MTA Bridges and Tunnels dedicated funds, \$8,640 in funding from the State of New York, \$7,308 in Federal Funds, \$2,666 from City Capital Funds, \$2,145 in pay-as-you-go (“PAYGO”) capital, \$1,018 from asset sale/leases, and \$592 from Other Sources.

2010-2014 Capital Program — Capital programs covering the years 2010-2014 for: (1) the commuter railroad operations of the MTA conducted by MTA Long Island Rail Road and MTA Metro-North Railroad (the “2010–2014 Commuter Capital Program”), (2) the transit system operated by MTA New York City Transit and its subsidiary, MaBSTOA, the MTA Bus Company, and the rail system operated by MTA Staten Island Railway (the “2010–2014 Transit Capital Program”) were originally approved by the MTA Board in September 2009. The capital programs were subsequently submitted to the CPRB in October 2009. This plan was disapproved by the CPRB, without prejudice, in December 2009 allowing the State Legislature to review funding issues in their 2010 session. The capital program for the toll bridges and tunnels operated by MTA Bridges and Tunnels (the “2010–2014 MTA Bridges and Tunnels Capital Program”) was approved by the MTA Board in September 2009 and was not subject to CPRB approval. The MTA Board approved the revised plan for the Transit and Commuter systems on April 28, 2010 and CPRB approval of the five-year program of projects was obtained on June 1, 2010. The approved CPRB program fully funded only

the first two years (2010 and 2011) of the plan, with a commitment to come back to CPRB with a funding proposal for the last three years for the Transit and Commuter Programs. On December 21, 2011, the MTA Board approved an amendment to the 2010-2014 Capital Program for the Transit, Commuter, and Bridges and Tunnels systems that fund the last three years of the program through a combination of self-help (efficiency improvements and real estate initiatives), participation by our funding partners, and innovative and pragmatic financing arrangements. On March 27, 2012, the CPRB deemed approved the amended 2010-2014 Capital Programs for the Transit and Commuter systems as submitted.

On December 19, 2012, the MTA Board approved an amendment to the 2010-2014 Capital Programs for the Transit, Commuter, and Bridges and Tunnels systems to add projects for the repair/restoration of MTA agency assets damaged as a result of Superstorm Sandy, which struck the region on October 29, 2012. On January 22, 2013, the CPRB deemed approved the amended 2010-2014 Capital Programs for the Transit and Commuter systems as submitted. On July 22, 2013, the MTA Board approved a further amendment to the 2010-2014 Capital Programs for the Transit, Commuter, and Bridges and Tunnels systems to include specific revisions to planned projects and to include new resilience/mitigation initiatives in response to Superstorm Sandy. On August 27, 2013, the CPRB deemed approved those amended 2010-2014 Capital Programs for the Transit and Commuter systems as submitted. On July 28, 2014, the MTA Board approved an amendment to select elements of the Disaster Recovery (Sandy) and MTA New York City Transit portions of the 2010-2014 Capital Programs, and a change in the funding plan. On September 3, 2014, the CPRB deemed approved the amended 2010-2014 Capital Programs for the Transit and Commuter systems as submitted.

As last amended by the MTA Board in 2014, the 2010–2014 MTA Capital Programs and the 2010–2014 MTA Bridges and Tunnels Capital Program provided for \$34,801 in capital expenditures. In May 2017, the MTA Board approved an amendment to the 2010-2014 Capital Program to reflect scope transfers and consolidation between the approved capital programs, and to reflect reductions to the MTA Superstorm Sandy capital projects to match current funding assumptions. This amendment, which provided \$1,237 in capital expenditures for the Transit and Commuter systems, was deemed approved by the CPRB as submitted on July 31, 2017. The amended 2010-2014 MTA Bridges and Tunnels Capital Program, which provided \$2,784 in capital expenditures, was not subject to CPRB approval. By June 30, 2018, the 2010-2014 MTA Capital Programs reflected an overall decrease of \$419 attributable to reallocation of funds within the East Side Access and Regional Investment programs. Of the \$31,602 in capital expenditures, \$11,365 relates to ongoing repairs of, and replacements to, the transit system operated by MTA New York City Transit and MaBSTOA and the rail system operated by MTA Staten Island Railway; \$3,882 relates to ongoing repairs of, and replacements to, the commuter system operated by MTA Long Island Rail Road and MTA Metro-North Railroad; \$5,911 relates to the expansion of existing rail networks for both the transit and commuter systems to be managed by MTA Capital Construction; \$337 relates to a multi-faceted security program including MTA Police Department; \$223 relates to MTA Interagency; \$297 relates to MTA Bus Company initiatives; \$2,022 relates to the ongoing repairs of, and replacements to, MTA Bridges and Tunnels facilities; and \$7,565 relates to Superstorm Sandy recovery/mitigation capital expenditures.

The combined funding sources for the CPRB-approved 2010–2014 MTA Capital Programs and 2010–2014 MTA Bridges and Tunnels Capital Program include \$11,483 in MTA Bonds, \$2,025 in MTA Bridges and Tunnels dedicated funds, \$7,584 in Federal Funds, \$132 in MTA Bus Federal and City Match, \$719 from City Capital Funds, and \$1,323 from other sources. Also included is \$170 in State Assistance funds added to re-establish a traditional funding partnership. The funding strategy for Superstorm Sandy repair and restoration assumes the receipt of \$6,343 in insurance and federal reimbursement proceeds (including interim borrowing by MTA to cover delays in the receipt of such proceeds), \$235 in pay-as-you-go capital, supplemented, to the extent necessary, by external borrowing of up to \$988 in additional MTA and MTA Bridges and Tunnels bonds.

2005–2009 Capital Program — Capital programs covering the years 2005-2009 for: (1) the commuter railroad operations of the MTA conducted by MTA Long Island Rail Road and MTA Metro-North Railroad (the “2005–2009 Commuter Capital Program”), (2) the transit system operated by MTA New York City Transit and its subsidiary, MaBSTOA, the MTA Bus Company, and the rail system operated by MTA Staten Island Railway (the “2005–2009 Transit Capital Program”) were originally approved by the MTA Board in April 2005 and subsequently by the CPRB in July 2005. The capital program for the toll bridges and tunnels operated by MTA Bridges and Tunnels (the “2005–2009 MTA Bridges and Tunnels Capital Program”) was approved by the MTA Board in April 2005 and was not subject to CPRB approval. The 2005–2009 amended Commuter Capital Program and the 2005–2009 Transit Capital program (collectively, the “2005–2009 MTA Capital Programs”) were last amended by the MTA Board in July 2008. This latest 2005-2009 MTA Capital Program amendment was resubmitted to the CPRB for approval in July 2008, and was approved in August 2009.

As last amended by the MTA Board, the 2005–2009 MTA Capital Programs and the 2005–2009 MTA Bridges and Tunnels Capital Program, provided for \$23,717 in capital expenditures. By June 30, 2018, the 2005-2009 MTA Capital Programs budget increased by \$684 primarily due to the receipt of new American Recovery and Reinvestment Act (“ARRA”) funds and additional New York City Capital funds for MTA Capital Construction work still underway. Of the \$24,401 now provided in capital expenditures, \$11,519 relates to ongoing repairs of, and replacements to the transit system operated by MTA New York City Transit and MaBSTOA and the rail system operated by MTA Staten Island Railway; \$3,716 relates to ongoing repairs of, and replacements to, the commuter system operated by MTA Long Island Rail Road and MTA Metro-North Railroad; \$168 relates to certain interagency projects; \$7,719 relates generally to the expansion of existing rail networks for both the transit and commuter systems to be managed by the MTA Capital Construction Company (including the East Side Access, Second Avenue Subway and No. 7 subway line) and a security program throughout MTA’s transit network; \$1,127 relates to the ongoing repairs of, and replacements to, bridge and tunnel facilities operated by MTA Bridges and Tunnels; and \$152 relates to capital projects for the MTA Bus.

The combined funding sources for the MTA Board-approved 2005–2009 MTA Capital Programs and 2005–2009 MTA Bridges and Tunnels Capital Program include \$9,698 in MTA and MTA Bridges and Tunnels Bonds (including funds for LaGuardia Airport initiative), \$1,450 in New York State general obligation bonds approved by the voters in the November 2005 election, \$9,093 in Federal Funds, \$2,838 in City Capital Funds, and \$1,322 from other sources.

CURRENTLY KNOWN FACTS, DECISIONS, OR CONDITIONS

The 2017 November Financial Plan

The November Plan, approved by the Board in December 2017, projected small cash balances through 2019, with deficits of \$352 in 2020 and \$643 in 2021. The November Plan projected: \$1.14 billion in lower real estate revenues, an average annual decline of \$229; proposed 4 percent fare and toll increases in 2019 and 2021; annual recurring cost savings targets increasing from \$214 in 2018 to \$418 in 2021; use of some reserves to offset expenses; and a fully funded Subway Action Plan.

The MTA 2018 Adopted Budget and February Financial Plan 2018-2021 (collectively, the “February Plan”) was presented to the MTA Board at its February 20, 2018 meeting. The purpose of the February Plan is to incorporate adjustments approved by the MTA Board that were captured “below-the-line” and on a consolidated basis in the November Plan into MTA agencies’ financial plan baseline budgets and forecasts. The February Plan also reflects certain technical adjustments to MTA and Agency forecasts and captures baseline changes that were not included in the November Plan.

Tropical Storm Sandy Update

The total allocation of emergency relief funding from the FTA to MTA in connection with Superstorm Sandy to date is \$5.83 billion, including \$1.599 billion allocated on September 22, 2014, through a competitive resiliency program. FTA Emergency Relief Grants totaling \$4.245 billion have been executed, including six grants in the amounts of \$194, \$886, \$684, \$344, \$787, and \$1,090.3 respectively for repair/local priority resiliency; eight grants for competitive resiliency totaling \$719.3. As of June 30, 2018, MTA has drawn down a total of \$1.9 billion in grant reimbursement for eligible operating and capital expenses. The balance of funds to be drawn down from all fourteen grants is available to MTA for reimbursement of eligible expenses as requisitions are submitted by MTA and approved by FTA. Additional requisitions are in process. MTA is submitting grant requests for the remaining \$1.5 billion of allocated FTA emergency relief funding in Federal Fiscal Year 2019.

Labor Update

During the second quarter of 2018, certain labor unions representing employees at various MTA agencies reached agreement; and other developments significant to MTA labor relations have occurred. The following summarizes the status of collective bargaining at each MTA agency through the end of the second quarter of 2018.

MTA Long Island Rail Road – As of December 31, 2017, MTA Long Island Rail Road had approximately 7,331 employees. Approximately 6,500 of the MTA Long Island Rail Road employees were represented by 11 different unions in 19 bargaining units. MTA Long Island Rail Road has reached agreement with all of its unions. Significantly, the agreements all contain general wage increases that conform to those present in the pattern-setting TWU Local 100 agreement with New York City Transit; and, consistent with MTA's Financial Plan, they were all designed to result in net going-out costs that match the costs of the TWU agreement.

MTA Metro-North Railroad – Through the second quarter, MTA Metro-North Railroad has reached agreements with six bargaining units covering approximately 25% of its 5,566 represented employees. In May 2018, the railroad also reached a 28.5 month agreement, running the period from January 16, 2017 to May 31, 2019, with the 92 employees represented by the International Brotherhood of Electrical Workers covering supervisors (“IBEW-S”). This, like all of the other agreements reached with MTA Metro-North Railroad's unions, is consistent with the railroad wage pattern established at MTA Long Island Rail Road. MTA Metro-North Railroad's remaining represented population is covered by agreements that, while now considered “amendable” under the Railway Labor Act, remain in effect at this time. The railroad is engaged in collective bargaining with the remaining units and it is expected that settlements will be reached that will also conform to the established railroad wage pattern.

MTA Headquarters – At present, most of MTA Headquarters represented employees have labor agreements that have not yet terminated. One notable exception is the clerical/administrative workforce at MTA Police represented by IBT Local 808: their most recent contract expired on August 31, 2016, and the parties are currently in negotiations for a successor agreement. Meanwhile, collective bargaining agreements are in effect for the 692 MTA Police employees covered by the Police Benevolent Association (“PBA”), and for the 30 commanding officers, represented by the Commanding Officers Association (“COA”). Both contracts are due to expire in October 2018.

MTA Headquarters Business Service Center has 324 employees, approximately 236 of whom are represented by several clerical/administrative unions. The largest such union, representing 207 employees, is the Transportation Communications Union (“TCU”), Local 643 whose contract covers the period from April 1, 2015 through March 31, 2020.

The Information Technology Department, which consolidated all agency IT functions and positions under MTA Headquarters as of January 1, 2014, has 1,135 employees, 626 of whom are represented. The two predominant unions are the TCU, Local 982 (with 332 members), and TCU Local 100 (with 222 members). MTA has a prevailing agreement with the TCU that will expire December 31, 2019, and, in many respects, is similar to the BSC agreement, including 401(k) plan eligibility as opposed to a defined benefit pension plan for new hires. An agreement was reached with TWU local 100 that is consistent with the established bargaining pattern and expires July 13, 2019.

MTA Headquarters' thirty-eight month collective bargaining agreement with TCU employees in the Procurement Department will remain in effect until March 30, 2020. The agreement is similar to those reached with TCU's employees in the IT Department and at the Business Service Center.

Finally, United Transit Leadership Organization (“UTLO”) was certified by the New York State Public Employee Relations Board (“PERB”) on November 6, 2017 as the exclusive bargaining representatives for MTA Headquarters employees in the titles of Assistant General Superintendent and Superintendent who are assigned to the Department of Buses.

MTA New York City Transit Authority/MaBStOA and Bronx Surface Transit Operating Authority – Effective January 16, 2017, MTA New York City Transit and MaBStOA entered into a 28-month labor contract agreement extension with TWU Local 100. This agreement, which has been ratified by the TWU membership and approved by the MTA Board, has an expiration date of May 15, 2019. As of December 31, 2017, there were 35,243 active employees represented by TWU Local 100, of which MTA New York City Transit had 29,643 and MaBStOA had 5,600. Also effective on January 16, 2017, MTA New York City Transit entered into separate 28 month labor contract agreements with Amalgamated Transit Union (“ATU”) Locals 1056 and 726. This agreement, which was ratified by the ATU membership and approved by the MTA Board, also has an expiration of May 15, 2019. The ATU Locals 1056 and 726 represent 3,456 employees. In September 2017, MTA New York City Transit also reached agreement with TWU Local 100 Computer and Telecommunications employees together with Career & Salary Employees who had been formerly represented by TWU Local 106 (“TSO”). Together, 508 hourly employees are represented by these two groups. The agreements are very similar in structure to the earlier TWU Local 100 agreement, and the going-out cost for both groups together match the expectations of the Financial Plan.

MTA Bus Company – As of December 31, 2017, MTA Bus had 4,132 employees (full and part time), 3,784 of whom are represented by five different unions. TWU Local 100, by far the largest of them, with 2,266 represented employees, bargained together with TWU Local 100 at MTA New York City Transit and MaBSTOA to reach an agreement that will be effective through May 15, 2019. This joint bargaining was in accordance with a significant arbitration decision that had been made earlier regarding changes to employee pension benefits. Dated November 17, 2016, the decision awarded increases in the pension/credit multiplier for TWU represented employees from \$105 dollars paid per month per year of creditable service to \$130 dollars per month per year of creditable service. The cost of \$15 dollars of that pension increase had to be funded as part of a consolidated MTA New York City Transit/MaBSTOA/MTA Bus labor contract with the TWU.

On June 21, 2017 the MTA Board voted to amend the MTA Defined Benefit Pension Plan to provide most MTA Bus non-represented employees with a pension consisting of a flat rate of \$115 dollars per month per year of service up to January 1, 2017, plus a final average salary component with a formula based on job title and date of hire, for years of service commencing January 2, 2017. The final average salary component is similar to that provided to similarly situated MaBSTOA employees.

At the start of the second quarter of 2018, negotiations were continuing over the MTA Bus's contract with approximately 780 employees represented by ATU Local 1179. The contract had expired on May 21, 2012. However, on May 31, 2018 an impasse arbitration award was issued that will cover the period from May 22, 2012 through October 31, 2019 – essentially, the same length of time covered by MTA New York City Transit's current agreement with TWU Local 100 and its previous 5 year agreement with that union. Overall the provisions of the decision are similar to those of the two TWU agreements; however, the impasse award also decided certain outstanding issues regarding ATU 1179's employee pension benefits and their funding. In particular, similar to the arbitration decision for TWU Local 100 MTA Bus employees, effective November 17, 2016, the pension/credit multiplier used to determine benefits will be increased from \$105 dollars to \$130 dollars per month per year of service. Also commencing November 17, 2016, the decision stipulates the conditions under which further increases shall coincide with general wage increases; and it requires increases in weekly employee pension contributions from \$29.06 dollars to \$35.98 dollars (which will increase in the same manner as the pension credit/multiplier). Among the measures necessary to fund this increase, the parties agreed to the consolidation of operations at JFK, Far Rockaway and the Spring Creek depots, as well as additional consolidations.

Subsequent to the May impasse arbitration with ATU Local 1179, MTA Bus Company reached agreement with a second ATU unit—Local 1181—representing approximately 263 hourly employees. As with ATU Local 1179, the 88-month ATU Local 1181 agreement, which expires October 31, 2019, covers an equal length of time as the two most recent labor agreements between MTA New York City Transit and TWU Local 100; and it is consistent with the cost pattern established by those agreements. The agreement also contains essentially the same pension modifications and means of funding these changes that were laid out in the impasse arbitration with ATU Local 1179.

MTA Bridges and Tunnels – As of December 31, 2017, MTA Bridges and Tunnels had 1,589 employees, 1,040 of whom were represented by four different unions. On May 22, 2014 MTA Bridges and Tunnels entered into a Memorandum of Understanding (“DC 37 Local 1931 MOU”) with DC 37 Local 1931 representing 334 maintenance employees. That agreement ran from October 15, 2009 through October 14, 2012 and was consistent with MTA's bargaining pattern as expressed in the 2009-2012 TWU Local 100 collective bargaining agreement. Through the second quarter of 2018, negotiations for a new agreement continued.

On July 17, 2014, an Interest Arbitration Award was issued for the Bridge and Tunnel Officers Benevolent Association representing 513 officers. The term of this award is for the May 18, 2009 through May 17, 2012 bargaining round and was consistent with the TWU Local 100 2009-2012 pattern. Negotiations for a new agreement continued through the second quarter of 2018.

On January 30, 2015, MTA Bridges and Tunnels entered into a Memorandum of Agreement (“MOA”) with the Superior Officers Benevolent Association (“SOBA”) representing 156 supervisory officers. This MOA was ratified by SOBA and was approved by the MTA Board on February 25, 2015. The agreement ran from March 15, 2009 through March 14, 2012 and was consistent with MTA's bargaining pattern as expressed in the 2009-2012 TWU Local 100 collective bargaining agreement. Negotiations for a new agreement continued through the second quarter of 2018.

On March 17, 2015, a seven year and four month agreement, March 3, 2010 through July 2, 2017, was reached with DC 37 Local 1655, which represents approximately 27 clerical employees. The agreement is consistent with the pattern set by the DC 37 Citywide agreement for the same period.

MTA Staten Island Railway - As of December 31, 2017, MTA Staten Island Railway had 343 employees, 315 of whom were represented by four different unions. SIRTOA's contracts with these unions have all expired. Its contract with the Sheet Metal, Air, Rail and Transportation Workers International Association ("SMART") Local 1440 (formerly the United Transportation Union), covering 265 of its represented employees, expired on February 15, 2017; the railway's agreement with the American Train Dispatchers Association ("ADTA") covering 10 represented employees expired on December 16, 2016; the agreement with the TCU, covering 23 represented employees, expired on December 16, 2016; and the agreement with Subway Surface Supervisors Association ("SSSA"), covering 17 represented employees, expired on February 15, 2017. Negotiations for successor agreements were underway throughout the second quarter.

SSSA petitioned to represent MTA Staten Island Railway employees in the title of Supervisor Maintenance, Supervisor Car Equipment (mechanical), Supervisor Electrical Maintenance, Supervisor Electronic Maintenance, Supervisor Power/Signals, Supervisor Timekeeping, and Supervisor Operational Support. PERB has certified SSSA as the exclusive negotiating agent for this unit of 11 employees. An initial collective bargaining agreement was reached on February 25, 2017. Negotiations for a successor agreement are forthcoming.

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(A Component Unit of the State of New York)

**CONSOLIDATED INTERIM STATEMENT OF NET POSITION AS OF JUNE 30, 2018
 AND CONSOLIDATED STATEMENT OF NET POSITION AS OF DECEMBER 31, 2017**

(\$ In millions)

	<u>June 30, 2018</u>	<u>December 31, 2017</u>
	<u>(Unaudited)</u>	
ASSETS AND DEFERRED OUTFLOWS OF RESOURCES		
CURRENT ASSETS:		
Cash (Note 3)	\$ 624	\$ 283
Unrestricted investments (Note 3)	1,868	3,689
Restricted investments (Note 3)	3,374	1,783
Restricted investments held under capital lease obligations (Notes 3 and 8)	4	4
Receivables:		
Station maintenance, operation, and use assessments	201	119
State and regional mass transit taxes	1,604	140
Mortgage Recording Tax receivable	58	36
State and local operating assistance	168	10
Other receivable from New York City and New York State	230	187
Due from Build America Bonds	1	1
Capital project receivable from federal and state government	147	121
Other	395	425
Less allowance for doubtful accounts	(110)	(62)
Total receivables — net	<u>2,694</u>	<u>977</u>
Materials and supplies	653	608
Prepaid expenses and other current assets (Note 2)	164	170
Total current assets	<u>9,381</u>	<u>7,514</u>
NON-CURRENT ASSETS:		
Capital assets (Note 6):		
Land and construction work-in-progress	18,555	17,195
Other capital assets (net of accumulated depreciation)	51,178	50,865
Unrestricted investments (Note 3)	43	55
Restricted investments (Note 3)	490	485
Restricted investments held under capital lease obligations (Notes 3 and 8)	377	372
Other non-current receivables	62	46
Receivable from New York State	10	43
Other non-current assets	22	18
Total non-current assets	<u>70,737</u>	<u>69,079</u>
TOTAL ASSETS	<u>80,118</u>	<u>76,593</u>
DEFERRED OUTFLOWS OF RESOURCES:		
Accumulated decreases in fair value of derivative instruments (Note 7)	313	408
Loss on debt refunding (Note 7)	1,185	1,235
Deferred outflows related to pensions (Note 4)	2,023	2,044
TOTAL DEFERRED OUTFLOWS OF RESOURCES	<u>3,521</u>	<u>3,687</u>
TOTAL ASSETS AND DEFERRED OUTFLOWS OF RESOURCES	<u>\$ 83,639</u>	<u>\$ 80,280</u>

 See Independent Auditors' Review Report and
 notes to the consolidated interim financial statements.

(Continued)

(A Component Unit of the State of New York)

**CONSOLIDATED INTERIM STATEMENT OF NET POSITION AS OF JUNE 30, 2018
 AND CONSOLIDATED STATEMENT OF NET POSITION AS OF DECEMBER 31, 2017
 (\$ In millions)**

	June 30, 2018	December 31, 2017
	(Unaudited)	
LIABILITIES, DEFERRED INFLOWS OF RESOURCES AND NET POSITION		
CURRENT LIABILITIES:		
Accounts payable	\$ 616	\$ 607
Accrued expenses:		
Interest	218	204
Salaries, wages and payroll taxes	295	307
Vacation and sick pay benefits	1,009	988
Current portion — retirement and death benefits	21	14
Current portion — estimated liability from injuries to persons (Note 10)	427	415
Capital accruals	515	412
Other	994	861
Total accrued expenses	<u>3,479</u>	<u>3,201</u>
Current portion — loan payable (Note 7)	10	14
Current portion — long-term debt (Note 7)	1,077	1,806
Current portion — obligations under capital lease (Note 8)	4	4
Current portion — pollution remediation projects (Note 12)	20	20
Unearned revenues	602	594
Total current liabilities	<u>5,808</u>	<u>6,246</u>
NON-CURRENT LIABILITIES:		
Net pension liability (Note 4)	8,105	8,105
Estimated liability arising from injuries to persons (Note 10)	3,614	3,436
Post employment benefits other than pensions (Note 5)	17,474	16,731
Loan payable (Note 7)	97	100
Long-term debt (Note 7)	41,216	38,292
Obligations under capital leases (Note 8)	437	436
Pollution remediation projects (Note 12)	61	59
Contract retainage payable	384	376
Derivative liabilities (Note 7)	332	422
Other long-term liabilities	347	347
Total non-current liabilities	<u>72,067</u>	<u>68,304</u>
TOTAL LIABILITIES	<u>77,875</u>	<u>74,550</u>
DEFERRED INFLOWS OF RESOURCES:		
Gain on debt refunding	24	26
Deferred Inflows related to pensions (Note 4)	480	480
TOTAL DEFERRED INFLOWS OF RESOURCES	<u>504</u>	<u>506</u>
NET POSITION:		
Net investment in capital assets	28,717	28,250
Restricted for debt service	865	516
Restricted for claims	178	182
Restricted for other purposes (Note 2)	1,153	983
Unrestricted	<u>(25,653)</u>	<u>(24,707)</u>
TOTAL NET POSITION	<u>5,260</u>	<u>5,224</u>
TOTAL LIABILITIES, DEFERRED INFLOWS OF RESOURCES AND NET POSITION	<u>\$ 83,639</u>	<u>\$ 80,280</u>

 See Independent Auditors' Review Report and
 notes to the consolidated interim financial statements.

(Concluded)

(A Component Unit of the State of New York)

**CONSOLIDATED INTERIM STATEMENTS OF REVENUES, EXPENSES
 AND CHANGES IN NET POSITION
 SIX-MONTH PERIODS ENDED JUNE 30, 2018 AND 2017**

(\$ In millions)

	June 30, 2018 <u>(Unaudited)</u>	June 30, 2017 <u>(Unaudited)</u>
OPERATING REVENUES:		
Fare revenue	\$ 3,036	\$ 3,026
Vehicle toll revenue	952	910
Rents, freight, and other revenue	299	309
Total operating revenues	<u>4,287</u>	<u>4,245</u>
OPERATING EXPENSES:		
Salaries and wages	3,104	2,889
Retirement and other employee benefits	1,517	1,494
Postemployment benefits other than pensions (Note 5)	1,095	1,073
Electric power	231	218
Fuel	97	77
Insurance	(4)	6
Claims	185	192
Paratransit service contracts	214	190
Maintenance and other operating contracts	303	270
Professional service contracts	243	157
Pollution remediation projects (Note 12)	4	1
Materials and supplies	310	281
Depreciation (Note 2)	1,336	1,211
Other	116	95
Total operating expenses	<u>8,751</u>	<u>8,154</u>
OPERATING LOSS	<u>(4,464)</u>	<u>(3,909)</u>
NON-OPERATING REVENUES (EXPENSES):		
Grants, appropriations and taxes:		
Tax-supported subsidies — Non-Local:		
Mass Transportation Trust Fund subsidies	310	297
Metropolitan Mass Transportation Operating Assistance subsidies	1,686	1,668
Payroll Mobility Tax subsidies	927	900
MTA Aid Trust Account subsidies	147	145
Tax-supported subsidies — NYC and Local:		
Mortgage Recording Tax subsidies	212	223
Urban Tax subsidies	333	268
Other subsidies:		
New York State Service Contract subsidy	1	3
Operating Assistance - 18-B program	217	217
Build America Bond subsidy	45	44
NYS/NYC Subway Action Plan	209	-
Subtotal grants, appropriations and taxes	<u>\$ 4,087</u>	<u>\$ 3,765</u>

 See Independent Auditors' Review Report and
 notes to the consolidated interim financial statements.

(Continued)

(A Component Unit of the State of New York)

**CONSOLIDATED INTERIM STATEMENTS OF REVENUES, EXPENSES
AND CHANGES IN NET POSITION**

SIX-MONTH PERIODS ENDED JUNE 30, 2018 AND 2017

(\$ In millions)

	June 30, 2018	June 30, 2017
	(Unaudited)	(Unaudited)
NON-OPERATING REVENUES (EXPENSES):		
Connecticut Department of Transportation	\$ 71	\$ 51
Subsidies paid to Dutchess, Orange, and Rockland Counties	(3)	(3)
Interest on long-term debt (Note 2)	(733)	(822)
Station maintenance, operation and use assessments	84	82
Operating subsidies recoverable from NYC	232	212
Other net non-operating expenses	<u>8</u>	<u>48</u>
Net non-operating revenues	<u>3,746</u>	<u>3,333</u>
LOSS BEFORE APPROPRIATIONS, GRANTS AND OTHER RECEIPTS EXTERNALLY RESTRICTED FOR CAPITAL PROJECTS	(718)	(576)
APPROPRIATIONS, GRANTS AND OTHER RECEIPTS EXTERNALLY RESTRICTED FOR CAPITAL PROJECTS	<u>754</u>	<u>1,098</u>
CHANGE IN NET POSITION	36	522
NET POSITION— Beginning of period	<u>5,224</u>	<u>5,607</u>
NET POSITION — End of period	<u>\$ 5,260</u>	<u>\$ 6,129</u>
See Independent Auditors' Review Report and notes to the consolidated interim financial statements.		(Concluded)

(A Component Unit of the State of New York)

CONSOLIDATED INTERIM STATEMENTS OF CASH FLOWS
SIX-MONTH PERIODS ENDED JUNE 30, 2018 AND 2017

(\$ In millions)

	June 30, 2018 <u>(Unaudited)</u>	June 30, 2017 <u>(Unaudited)</u>
CASH FLOWS FROM OPERATING ACTIVITIES:		
Passenger receipts/tolls	\$ 4,007	\$ 3,997
Rents and other receipts	353	364
Payroll and related fringe benefits	(4,864)	(4,641)
Other operating expenses	(1,639)	(1,406)
	<u>(2,143)</u>	<u>(1,686)</u>
Net cash used by operating activities	(2,143)	(1,686)
CASH FLOWS FROM NONCAPITAL FINANCING ACTIVITIES:		
Grants, appropriations, and taxes	2,862	2,523
Operating subsidies from CDOT	58	48
Subsidies paid to Dutchess, Orange, and Rockland Counties	(7)	(6)
	<u>2,913</u>	<u>2,565</u>
Net cash provided by noncapital financing activities	2,913	2,565
CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES:		
MTA bond proceeds	529	1,850
MTA Bridges and Tunnels bond proceeds	402	1,427
MTA bonds refunded/reissued	-	(900)
MTA Bridges and Tunnels bonds refunded/reissued	-	(1,081)
MTA anticipation notes proceeds	2,233	1,210
MTA anticipation notes redeemed	(512)	(924)
MTA credit facility proceeds	-	200
MTA credit facility refunded	-	(200)
Capital lease payments and terminations	-	(1)
Grants and appropriations	679	1,192
Payment for capital assets	(2,952)	(2,367)
Debt service payments	(1,137)	(1,056)
	<u>(758)</u>	<u>(650)</u>
Net cash used by capital and related financing activities	(758)	(650)
CASH FLOWS FROM INVESTING ACTIVITIES:		
Purchase of long-term securities	(4,025)	(4,681)
Sales or maturities of long-term securities	3,692	4,648
Net sales (purchases) or maturities of short-term securities	612	(311)
Earnings on investments	50	26
	<u>329</u>	<u>(318)</u>
Net cash provided by (used by) investing activities	329	(318)
NET INCREASE (DECREASE) IN CASH	341	(89)
CASH — Beginning of period	<u>283</u>	<u>732</u>
CASH — End of period	<u>\$ 624</u>	<u>\$ 643</u>

See Independent Auditors' Review Report and notes to the consolidated interim financial statements.

(Continued)

(A Component Unit of the State of New York)

CONSOLIDATED INTERIM STATEMENTS OF CASH FLOWS

SIX-MONTH PERIODS ENDED JUNE 30, 2018 AND 2017

(\$ In millions)

	June 30, 2018	June 30, 2017
	(Unaudited)	(Unaudited)
RECONCILIATION OF OPERATING LOSS TO NET CASH USED BY		
OPERATING ACTIVITIES:		
Operating loss (Note 2)	\$ (4,464)	\$ (3,909)
Adjustments to reconcile to net cash used in operating activities:		
Depreciation and amortization	1,335	1,211
Net increase in payables, accrued expenses, and other liabilities	1,155	806
Net decrease in receivables	(170)	162
Net decrease in materials and supplies and prepaid expenses	1	44
	<u>1</u>	<u>44</u>
NET CASH USED BY OPERATING ACTIVITIES	\$ (2,143)	\$ (1,686)
NONCASH INVESTING, CAPITAL AND RELATED FINANCING ACTIVITIES:		
Noncash investing activities:		
Interest expense includes amortization of net (premium) / discount (Note 2)	\$ 61	\$ 111
Interest expense which was capitalized	23	24
Total Noncash investing activities	<u>84</u>	<u>135</u>
Noncash capital and related financing activities:		
Capital assets related liabilities	515	493
Capital leases related liabilities	441	434
Total Noncash capital and related financing activities	<u>956</u>	<u>927</u>
TOTAL NONCASH INVESTING, CAPITAL AND RELATED FINANCING ACTIVITIES	\$ 1,040	\$ 1,062
See Independent Auditors' Review Report and notes to the consolidated interim financial statements.		(Concluded)

METROPOLITAN TRANSPORTATION AUTHORITY**(A Component Unit of the State of New York)****NOTES TO CONSOLIDATED INTERIM FINANCIAL STATEMENTS
AS OF JUNE 30, 2018 AND DECEMBER 31, 2017 AND
FOR THE SIX-MONTH PERIODS ENDED JUNE 30, 2018 AND 2017****(\$ In millions, except as noted)****1. BASIS OF PRESENTATION**

Reporting Entity — The Metropolitan Transportation Authority (“MTA”) was established in 1965, under Section 1263 of the New York Public Authorities Law, and is a public benefit corporation and a component unit of the State of New York (“NYS”) whose mission is to continue, develop and improve public transportation and to develop and implement a unified public transportation policy in the New York metropolitan area.

These consolidated financial statements are of the Metropolitan Transportation Authority (“MTA”), including its related groups (collectively, the “MTA Group”) as follows:

Metropolitan Transportation Authority and Related Groups (Component Units)

- Metropolitan Transportation Authority Headquarters (“MTAHQ”) provides support in budget, cash management, finance, legal, real estate, treasury, risk and insurance management, and other services to the related groups listed below.
- The Long Island Rail Road Company (“MTA Long Island Rail Road”) provides passenger transportation between New York City (“NYC”) and Long Island.
- Metro-North Commuter Railroad Company (“MTA Metro-North Railroad”) provides passenger transportation between NYC and the suburban communities of Westchester, Dutchess, Putnam, Orange, and Rockland counties in NYS and New Haven and Fairfield counties in Connecticut.
- Staten Island Rapid Transit Operating Authority (“MTA Staten Island Railway”) provides passenger transportation on Staten Island.
- First Mutual Transportation Assurance Company (“FMTAC”) provides primary insurance coverage for certain losses, some of which are reinsured, and assumes reinsurance coverage for certain other losses.
- MTA Capital Construction Company (“MTA Capital Construction”) provides oversight for the planning, design and construction of current and future major MTA system-wide expansion projects.
- MTA Bus Company (“MTA Bus”) operates certain bus routes in areas previously served by private bus operators pursuant to franchises granted by the City of New York.
- MTAHQ, MTA Long Island Rail Road, MTA Metro-North Railroad, MTA Staten Island Railway, FMTAC, MTA Capital Construction and MTA Bus, collectively are referred to herein as MTA. MTA Long Island Rail Road and MTA Metro-North Railroad are referred to collectively as the Commuter Railroads.
- New York City Transit Authority (“MTA New York City Transit”) and its subsidiary, Manhattan and Bronx Surface Transit Operating Authority (“MaBSTOA”), provide subway and public bus service within the five boroughs of New York City.
- Triborough Bridge and Tunnel Authority (“MTA Bridges and Tunnels”) operates seven toll bridges, two tunnels, and the Battery Parking Garage, all within the five boroughs of New York City.

The subsidiaries and affiliates, considered component units of the MTA, are operationally and legally independent of the MTA. These related groups enjoy certain rights typically associated with separate legal status including, in some cases, the ability to issue debt. However, they are included in the MTA’s consolidated financial statements as blended component units because of the MTA’s financial accountability for these entities and they are under the direction of the MTA Board (a reference to “MTA Board” means the board of MTAHQ and/or the boards of the other MTA Group entities that apply in the specific context, all of which are comprised of the same persons). Under accounting principles generally accepted in the United States of America (“GAAP”), the MTA is required to include these related groups in its financial statements. While certain units are separate legal entities, they do have legal capital requirements and the revenues of all of the related groups of the MTA are used to support the organizations as a whole. The components do not constitute a separate accounting entity (fund) since there is no legal requirement to account for the activities of the components as discrete accounting entities. Therefore,

the MTA financial statements are presented on a consolidated basis with segment disclosure for each distinct operating activity. All of the component units publish separate annual financial statements, which are available by writing to the MTA Comptroller, 2 Broadway, 16th Floor, New York, New York 10004.

Although the MTA Group collects fares for the transit and commuter service, they provide and receive revenues from other sources, such as the leasing out of real property assets, and the licensing of advertising. Such revenues, including forecast-increased revenues from fare increases, are not sufficient to cover all operating expenses associated with such services. Therefore, to maintain a balanced budget, the members of the MTA Group providing transit and commuter service rely on operating surpluses transferred from MTA Bridges and Tunnels, operating subsidies provided by NYS and certain local governmental entities in the MTA commuter district, and service reimbursements from certain local governmental entities in the MTA commuter district and from the State of Connecticut. Non-operating subsidies to the MTA Group for transit and commuter service for the period ended June 30, 2018 and 2017 totaled \$4.1 billion and \$3.8 billion, respectively.

2. SIGNIFICANT ACCOUNTING POLICIES

Basis of Accounting — The accompanying consolidated financial statements are prepared on the accrual basis of accounting in accordance with accounting principles generally accepted in the United States of America.

The MTA applies Governmental Accounting Standards Board (“GASB”) Codification of Governmental Accounting and Financial Reporting Standards (“GASB Codification”) Section P80, Proprietary Accounting and Financial Reporting.

New Accounting Standards Adopted

GASB Statement No. 85, *Omnibus 2017*, addresses various practice issues identified during the implementation and application of certain GASB statements. The provisions of this Statement amend and clarify guidance under a variety of topics with the intent to enhance consistency in the application of accounting and reporting requirements. This Statement specifically addresses the following topics:

- **Blending component units:** For a primary governmental unit that is a business-type activity and uses a single column for financial statement presentation of its business-type activities, a component unit may be blended only if it meets the blending criterion described in GASB Statement No. 14, *The Financial Reporting Entity*, as amended.
- **Goodwill:** For acquisitions that occurred prior to the effective date of GASB Statement No. 69, *Government Combinations and Disposals of Government Operations*, (a) GASB Statement No. 69 should be applied for circumstances in which consideration provided exceeded the net position acquired and (b) “negative” goodwill should not be reported.
- **Fair Value Measurement and Application:** (1) Each unit of account of real estate held by insurance entities should be classified as an investment or as a capital asset, based on whether the unit of account meets the definition of an investment as described in GASB Statement No. 72, *Fair Value Measurement and Application*, and (2) Money-market investments and participating interest-earning investment contracts described in GASB Statement No. 72 may be measured at amortized cost.
- **Pensions and Other Postemployment Benefits (“OPEB”):** This standard addresses the following issues related to postemployment benefits: (1) Clarifying the measurement of pension or OPEB liabilities and expenditures recognized in financial statements prepared using the current financial resources measurement focus; (2) Recognition and measurement of on-behalf payments for pensions or OPEB in employer financial statements; (3) Presentation of payroll-related measures in required supplementary information for purposes of reporting by OPEB plans and employers that provide OPEB; (4) Classification of employer-paid member contributions for OPEB; (5) Simplifying certain aspects of the alternative measurement method for OPEB; and (6) Accounting and financial reporting for OPEB provided through certain multiple-employer defined benefit OPEB plans.

The requirements of this Statement are effective for reporting periods beginning after June 15, 2017. The Statement allows for application of the standard by individual topics to the extent that all requirements associated with a single topic are implemented simultaneously. Given the discrete nature of the individual topics addressed in this Statement, the MTA has opted to partially adopt this Statement for the individual topics of blending component units, goodwill and fair value measurement and application. The adoption of these topics had no impact on the MTA’s financial statements. The MTA will implement the OPEB related topic of this Statement simultaneously with the implementation of GASB Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions*, which the MTA is required to adopt at the end of 2018.

GASB Statement No. 86, *Certain Debt Extinguishment Issues*, establishes standards of accounting and financial reporting for in-substance defeasance of debt by providing guidance for transactions in which cash and other monetary assets acquired with only existing resources – resources other than the proceeds of refunding debt – are placed in an irrevocable trust for the sole purpose of extinguishing debt. This Statement also improves accounting and financial reporting for prepaid insurance on debt that is extinguished and notes to the financial statements for debt that is defeased in substance. The requirements of this Statement are effective for reporting periods beginning after June 15, 2017. The adoption of this Statement had no impact on the MTA’s financial statements.

Accounting Standards Issued but Not Yet Adopted

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

GASB Statement No.	GASB Accounting Standard	MTA Required Year of Adoption
75	<i>Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions</i>	2018
83	<i>Certain Asset Retirement Obligations</i>	2019
84	<i>Fiduciary Activities</i>	2019
85	<i>Omnibus 2017 (Pensions and Other Postemployment Benefits topic)</i>	2018
87	<i>Leases</i>	2020
88	<i>Certain Disclosures Related to Debt, including Direct Borrowings and Direct Placements</i>	2019
89	<i>Accounting for Interest Cost Incurred Before the End of a Construction Period</i>	2020
90	<i>Majority Equity Interests: An Amendment of GASB Statements No. 14 and No. 61</i>	2019

Use of Management Estimates — The preparation of the consolidated financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, and disclosure of contingent assets and liabilities at the date of the consolidated financial statements, and the reported amounts of revenues and expenses during the reporting period. Significant estimates include the fair value of investments, allowances for doubtful accounts, valuation of derivative instruments, arbitrage rebate liability, accrued expenses and other liabilities, depreciable lives of capital assets, estimated liability arising from injuries to persons, pension benefits and other postemployment benefits. Actual results could differ significantly from those estimates.

Principles of Consolidation — The consolidated financial statements consist of MTAHQ, MTA Long Island Rail Road, MTA Metro-North Railroad, MTA Staten Island Railway, FMTAC, MTA Bus, MTA Capital Construction, MTA New York City Transit (including its subsidiary MaBSTOA), and MTA Bridges and Tunnels for years presented in the financial statements. All related group transactions have been eliminated for consolidation purposes.

Net Position – Restricted for Other Purposes – This category is classified within net position and includes net investments restricted for capital leases and MTA Bridges and Tunnels necessary reconstruction reserve.

Investments — The MTA Group’s investment policies comply with the New York State Comptroller’s guidelines for such operating and capital policies. Those policies permit investments in, among others, obligations of the U.S. Treasury, its agencies and instrumentalities, and repurchase agreements secured by such obligations. FMTAC’s investment policies comply with New York State Comptroller guidelines and New York State Department of Insurance guidelines.

Investments expected to be utilized within a year of June 30th have been classified as current assets in the consolidated financial statements.

In accordance with the provisions of GASB Statement No. 72, *Fair Value Measurement and Application*, investments are recorded on the consolidated statement of net position at fair value, except for commercial paper, certificates of deposit, and repurchase agreements, which are recorded at amortized cost or contract value. All investment income, including changes in the fair value of investments, is reported as revenue on the consolidated statement of revenues, expenses and changes in net position. Fair values have been determined using quoted market values at June 30, 2018 and December 31, 2017.

Investment derivative contracts are reported at fair value using the income approach.

Materials and Supplies — Materials and supplies are valued principally at the lower of average cost or market value, net of obsolescence reserve at June 30, 2018 and December 31, 2017 of \$169 and \$166, respectively.

Prepaid Expenses and Other Current Assets — Prepaid expenses and other current assets reflect advance payment of insurance premiums as well as farecard media related with ticket machines, WebTickets and AirTrain tickets.

Capital Assets — Properties and equipment are carried at cost and are depreciated on a straight-line basis over their estimated useful lives. Expenses for maintenance and repairs are charged to operations as incurred. Capital assets and improvements include all land, buildings, equipment, and infrastructure of the MTA having a minimum useful life of two years and having a cost of more than \$25 thousand. Capital assets are stated at historical cost, or at estimated historical cost based on appraisals, or on other acceptable methods when historical cost is not available. 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. 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 25 to 50 years for buildings, 2 to 40 years for equipment, and 25 to 100 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.

Pollution remediation projects — Pollution remediation costs have been expensed in accordance with the provisions of GASB Statement No. 49, *Accounting and Financial Reporting for Pollution Remediation Obligations* (See Note 12). An operating expense provision and corresponding liability measured at current value using the expected cash flow method has been recognized for certain pollution remediation obligations, which previously may not have been required to be recognized, have been recognized earlier than in the past or are no longer able to be capitalized as a component of a capital project. Pollution remediation obligations occur when any one of the following obligating events takes place: the MTA is in violation of a pollution prevention-related permit or license; an imminent threat to public health due to pollution exists; the MTA is named by a regulator as a responsible or potentially responsible party to participate in remediation; the MTA voluntarily commences or legally obligates itself to commence remediation efforts; or the MTA is named or there is evidence to indicate that it will be named in a lawsuit that requires its participation in remediation activities.

Operating Revenues — **Passenger Revenue and Tolls** — Revenues from the sale of tickets, tokens, electronic toll collection system, and farecards are recognized as income when tickets or farecards are used. Tickets are assumed to be used in the month of purchase, with the exception of advance purchases of monthly and weekly tickets. When the farecards expire, revenue is recorded for the unused value of the farecards.

MTA Bridges and Tunnel has two toll rebate programs at the Verrazano-Narrows Bridge: the Staten Island Resident (“SIR”) Rebate Program, available for residents of Staten Island participating in the SIR E-ZPass toll discount plan, and the Verrazano-Narrows Bridge Commercial Rebate Program (“VNB Commercial Rebate Program”), available for commercial vehicles making more than ten trips per month using the same New York Customer Service Center (“NYCSC”) E-ZPass account. The VNB Commercial Rebate Program and SIR Rebate Program are funded by the State and MTA.

Capital Financing — The MTA has ongoing programs on behalf of its subsidiaries and affiliates, subject to approval by the New York State Metropolitan Transportation Authority Capital Program Review Board (the “State Review Board”), which are intended to improve public transportation in the New York Metropolitan area.

The federal government has a contingent equity interest in assets acquired by the MTA with federal funds and upon disposal of such assets, the federal government may have a right to its share of the proceeds from the sale. This provision has not been a substantial impediment to the MTA’s operations.

Non-operating Revenues

Operating Assistance — The MTA Group receives, subject to annual appropriation, NYS operating assistance funds that are recognized as revenue after the NYS budget is approved and adopted. Generally, funds received under the NYS operating assistance program are fully matched by contributions from NYC and the seven other counties within the MTA’s service area.

Mortgage Recording Taxes (“MRT”) — Under NYS law, the MTA receives capital and operating assistance through a Mortgage Recording Tax (“MRT-1”). MRT-1 is collected by NYC and the seven other counties within the MTA’s service area, at the rate of 0.25% of the debt secured by certain real estate mortgages. Effective September 2005, the rate was increased from 25 cents per 100 dollars of recorded mortgage to 30 cents per 100 dollars of recorded mortgage. The MTA also receives an additional Mortgage Recording Tax (“MRT-2”) of 0.25% of certain mortgages secured by real estate improved or to be improved by structures containing one to nine dwelling units in the MTA’s service area. MRT-1 and MRT-2 taxes are recognized as revenue based upon reported amounts of taxes collected.

- MRT-1 proceeds are initially used to pay MTAHQ’s operating expenses. Remaining funds, if any, are allocated 55% to certain transit operations and 45% to the commuter railroads operations. The commuter railroad portion is first used to fund the NYS Suburban Highway Transportation Fund in an amount not to exceed \$20 annually (subject to the monies being returned under the conditions set forth in the governing statute if the Commuter Railroads are operating at a deficit).
- The first \$5 of the MRT-2 proceeds is transferred to the MTA Dutchess, Orange, and Rockland (“DOR”) Fund (\$1.5 each for Dutchess and Orange Counties and \$2 for Rockland County). Additionally, the MTA must transfer to each County’s fund an amount equal to the product of (i) the percentage by which each respective County’s mortgage recording tax payments (both MRT-1 and MRT-2) to the MTA increased over such payments in 1989 and (ii) the base amount received by each county as described above. The counties do not receive any portion of the September 2005 increase in MRT-1 from 25 cents per \$100 of recorded mortgage to 30 cents. As of June 30, 2018, the MTA paid to Dutchess, Orange and Rockland Counties the 2016 excess amounts of MRT-1 and MRT-2 totaling \$1.4.
- In addition, MTA New York City Transit receives operating assistance directly from NYC through a mortgage recording tax at the rate of 0.625% of the debt secured by certain real estate mortgages and through a property transfer tax at the rate of one percent of the assessed value (collectively referred to as “Urban Tax Subsidies”) of certain properties.

Mobility Tax — In June of 2009, Chapter 650 of the NYS Laws of 2009 added Article 23, which establishes the Metropolitan Commuter Transportation Mobility Tax (“MCTMT”). The proceeds of this tax, administered by the New York State Tax Department, are to be distributed to the Metropolitan Transportation Authority. This tax is imposed on certain employers and self-employed individuals engaging in business within the metropolitan commuter transportation district which includes New York City, and the counties of Rockland, Nassau, Suffolk, Orange, Putnam, Dutchess, and Westchester. This Tax is imposed on certain employers that have payroll expenses within the Metropolitan Commuter Transportation District, to pay at a rate of 0.34% of an employer’s payroll expenses for all covered employees for each calendar quarter. The employer is prohibited from deducting from wages or compensation of an employee any amount that represents all or any portion of the MCTMT. The effective date of this tax was March 1, 2009 for employers other than public school district; September 1, 2009 for Public school districts and January 1, 2009 for individuals.

Supplemental Aid — In 2009, several amendments to the existing tax law provided the MTA supplemental revenues to be deposited into the AID Trust Account of the Metropolitan Transportation Authority Financial Assistance Fund established pursuant to Section 92 of the State Finance law. These supplemental revenues relate to: 1) supplemental learner permit/license fee in the Metropolitan Commuter Transportation District, 2) supplemental registration fee, 3) supplemental tax on every taxicab owner per taxicab ride on every ride that originated in the City of New York and terminates anywhere within the territorial boundaries of the Metropolitan Commuter Transportation District, and 4) supplemental tax on passenger car rental. This Supplemental Aid Tax is provided to the MTA in conjunction with the Mobility Tax.

Dedicated Taxes — Under NYS law, subject to annual appropriation, the MTA receives operating assistance through a portion of the Dedicated Mass Transportation Trust Fund (“MTTF”) and Metropolitan Mass Transportation Operating Assistance Fund (“MMTOA”). The MTTF receipts consist of a portion of the revenues derived from certain business privilege taxes imposed by the State on petroleum businesses, a portion of the motor fuel tax on gasoline and diesel fuel, and a portion of certain motor vehicle fees, including registration and non-registration fees. Effective October 1, 2005, the State increased the amount of motor vehicle fees

deposited into the MTTF for the benefit of the MTA. MTTF receipts are applied first to meet certain debt service requirements or obligations and second to the Transit System (defined as MTA New York City Transit and MaBSTOA), MTA Staten Island Railway and the Commuter Railroads to pay operating and capital costs. The MMTOA receipts are comprised of 0.375% regional sales tax, regional franchise tax surcharge, a portion of taxes on certain transportation and transmission companies, and an additional portion of the business privilege tax imposed on petroleum businesses. MMTOA receipts, to the extent that MTTF receipts are not sufficient to meet debt service requirements, will also be applied to certain debt service obligations, and secondly to operating and capital costs of the Transit System, and the Commuter Railroads.

The State Legislature enacts in an annual budget bill for each state fiscal year an appropriation to the MTA Dedicated Tax Fund for the then-current state fiscal year and an appropriation of the amounts projected by the Director of the Budget of the State to be deposited in the MTA Dedicated Tax Fund for the next succeeding state fiscal year. The assistance deposited into the MTTF is required by law to be allocated, after provision for debt service on Dedicated Tax Fund Bonds (See Note 7), 85% to certain transit operations (not including MTA Bus) and 15% to the commuter railroads operations. Revenues from this funding source are recognized based upon amounts of tax reported as collected by NYS, to the extent of the appropriation.

Build America Bond Subsidy — The MTA is receiving cash subsidy payments from the United States Treasury equal to 35% of the interest payable on the Series of Bonds issued “Build America Bonds” and authorized by the Recovery Act. The Internal Revenue Code of 1986 imposes requirements that MTA must meet and continue to meet after the issuance in order to receive the cash subsidy payments. The interest on these bonds is fully subject to Federal income taxation to the bondholder.

Operating Subsidies Recoverable from Connecticut Department of Transportation (“CDOT”) — A portion of the deficit from operations relating to MTA Metro-North Railroad’s New Haven line is recoverable from CDOT. Under the terms of a renewed Service Agreement, which began on January 1, 2015, and the 1998 resolution of an arbitration proceeding initiated by the State of Connecticut, CDOT pays 100.0% of the net operating deficit of MTA Metro-North Railroad’s branch lines in Connecticut (New Canaan, Danbury, and Waterbury), 65.0% of the New Haven mainline operating deficit, and 50.0% of the Grand Central Terminal (“GCT”) operating deficit. The New Haven line’s share of the net operating deficit for the use of GCT is comprised of a fixed fee, calculated using several years as a base, with annual increases for inflation, and the actual cost of operating GCT’s North End Access beginning in 1999. The Service Agreement also provides that CDOT pay 100% of the cost of non-movable capital assets located in Connecticut, 100% of movable capital assets to be used primarily on the branch lines and 65% of the cost of other movable capital assets allocated to the New Haven line. Remaining funding for New Haven line capital assets is provided by the MTA. The Service Agreement provides for automatic five-year renewals unless a notice of termination is provided. The Service Agreement has been automatically extended for an additional five years beginning January 1, 2015 subject to the right of CDOT or MTA to terminate the agreement on eighteen month’s written notice. Capital assets completely funded by CDOT are not reflected in these financial statements, as ownership is retained by CDOT. The Service Agreement provides that final billings for each year be subject to audit by CDOT. The audits of 2015 and 2016 billings are still open.

Reimbursement of Expenses — The cost of operating and maintaining the passenger stations of the Commuter Railroads in NYS is assessable by the MTA to NYC and the other counties in which such stations are located for each NYS fiscal year ending December 31, under provisions of the NYS Public Authorities Law. This funding is recognized as revenue based upon a amount, fixed by statute, for the costs to operate and maintain passenger stations and is revised annually by the increase or decrease of the regional Consumer Price Index.

In 1995, New York City ceased reimbursing the Authority for the full costs of the free/reduced fare program for students. Beginning in 1996, the State and New York City each began paying \$45 per annum to MTA New York City Transit toward the cost of the program. In 2009, the State reduced their \$45 reimbursement to \$6.3. Beginning in 2010, the State increased their annual commitment to \$25.3 while New York City’s annual commitment remained at \$45. These commitments have been met by both the State and New York City for both 2016 and 2017.

Prior to April 1995, New York City was obligated to reimburse MTA New York City Transit for the transit police force. As a result of the April 1995 merger of the transit police force into the New York City Police Department, New York City no longer reimburses MTA New York City Transit for the costs of policing the Transit System on an ongoing basis since policing of the Transit System is being carried out by the New York City Police Department at New York City’s expense. MTA New York City Transit continues to be responsible for certain capital costs and support services related to such police activities, a portion of which is reimbursed by New York City. MTA New York City Transit received approximately \$0 in the six months ended June 30, 2018 and \$6.2 in the six months ended June 30, 2017 from New York City for the reimbursement of transit police costs.

MTAHQ bills MTA Metro-North Railroad through its consolidated services for MTA police costs in the New Haven line of which MTA Metro-North Railroad recovers approximately 65% from Connecticut Department of Transportation. The amounts billed for the periods ended June 30, 2018 and 2017 were \$11.3 and \$10.7, respectively. The amounts recovered for the periods ended June 30, 2018 and 2017 were approximately \$7.3 and \$6.9, respectively.

Federal law and regulations require a paratransit system for passengers who are not able to ride the buses and trains because of their disabilities. Pursuant to an agreement between New York City and the MTA, MTA New York City Transit, effective July 1, 1993, assumed operating responsibility for all paratransit service required by the Americans with Disability Act of 1990. Services are provided by private vendors under contract with MTA New York City Transit. New York City reimburses MTA New York City Transit for the lesser of 33% of net paratransit operating expenses defined as labor, transportation, and administrative costs less fare revenues and 6% of gross urban tax proceeds as described above or, an amount that is 20% greater than the amount paid by New York City for the preceding calendar year. Fare revenues and New York City's reimbursement aggregated approximately \$108.6 for the six months ended June 30, 2018 and \$97.5 for the six months ended June 30, 2017.

Grants and Appropriations — Grants and appropriations for capital projects are recorded when requests are submitted to the funding agencies for reimbursement of capital expenditures meeting eligibility requirements. These amounts are reported separately after Net Non-operating Revenues in the Statements of Revenues, Expenses, and Changes in Net Position.

Operating and Non-operating Expenses — Operating and non-operating expenses are recognized in the accounting period in which the liability is incurred. All expenses related to operating the MTA (e.g. salaries, insurance, depreciation, etc.) are reported as operating expenses. All other expenses (e.g. interest on long-term debt, subsidies paid to counties, etc.) are reported as non-operating expenses.

Liability Insurance — FMTAC, an insurance captive subsidiary of MTA, operates a liability insurance program (“ELF”) that insures certain claims in excess of the self-insured retention limits of the agencies on both a retrospective (claims arising from incidents that occurred on or before October 31, 2003) and prospective (claims arising from incidents that occurred on or after October 31, 2003) basis. For claims arising from incidents that occurred on or after November 1, 2006, but before November 1, 2009, the self-insured retention limits are: \$8 for MTA New York City Transit, MaBSTOA, MTA Bus, MTA Long Island Rail Road, and MTA Metro-North Railroad; \$2.3 for MTA Long Island Bus and MTA Staten Island Railway; and \$1.6 for MTAHQ and MTA Bridges and Tunnels. For claims arising from incidents that occurred on or after November 1, 2009, but before November 1, 2012, the self-insured retention limits are: \$9 for MTA New York City Transit, MaBSTOA, MTA Bus, MTA Long Island Rail Road and MTA Metro-North Railroad; \$2.6 for MTA Long Island Bus and MTA Staten Island Railway; and \$1.9 for MTAHQ and MTA Bridges and Tunnels. Effective October 31, 2015, the self-insured retention limits of the ELF were increased to the following amounts: \$11 for MTA New York City Transit, MaBSTOA, MTA Bus, MTA Long Island Rail Road and MTA Metro-North Railroad; \$3.2 for MTA Staten Island Railway, MTAHQ and MTA Bridges and Tunnels. The maximum amount of claims arising out of any one occurrence is the total assets of the program available for claims, but in no event greater than \$50. The retrospective portion contains the same insurance agreements, participant retentions, and limits as existed under the ELF program for occurrences happening on or before October 30, 2003. On a prospective basis, FMTAC issues insurance policies indemnifying the other MTA Group entities above their specifically assigned self-insured retention with a limit of \$50 per occurrence with a \$50 annual aggregate. FMTAC charges appropriate annual premiums based on loss experience and exposure analysis to maintain the fiscal viability of the program. On June 30, 2018, the balance of the assets in this program was \$138.9.

MTA also maintains an All-Agency Excess Liability Insurance Policy that affords the MTA Group additional coverage limits of \$350 for a total limit of \$400 (\$350 excess of \$50). In certain circumstances, when the assets in the program described in the preceding paragraph are exhausted due to payment of claims, the All-Agency Excess Liability Insurance will assume the coverage position of \$50.

On March 1, 2018, the “nonrevenue fleet” automobile liability policy program was renewed. This program provides third-party auto liability insurance protection for the MTA Group with the exception of MTA New York City Transit and MTA Bridges and Tunnels. The policy provides \$11 per occurrence limit with a \$0.5 per occurrence deductible for MTA Long Island Rail Road, MTA Staten Island Railway, MTA Police, MTA Metro-North Railroad, MTA Inspector General and MTA Headquarters. FMTAC renewed its deductible buy back policy, where it assumes the liability of the agencies for their deductible.

On March 1, 2018, the “Access-A-Ride” automobile liability policy program was renewed. This program provides third-party auto liability insurance protection for the MTA New York City Transit’s Access-A-Ride program, including the contracted operators. This policy provides a \$3 per occurrence limit with a \$1 per occurrence deductible.

On December 15, 2017, FMTAC renewed the primary coverage on the Station Liability and Force Account liability policies \$11 per occurrence loss for MTA Metro-North Railroad and MTA Long Island Rail Road.

Property Insurance — Effective May 1, 2018, FMTAC renewed the all-agency property insurance program. For the annual period commencing May 1, 2018, FMTAC directly insures property damage claims of the Related Entities in excess of a \$25 per occurrence deductible, subject to an annual \$75 aggregate deductible. The total program annual limit is \$800 per occurrence and in the annual aggregate for Flood and Earthquake covering property of the Related Entities collectively. FMTAC is reinsured in the domestic, Asian, London, European and Bermuda reinsurance markets for this coverage. Losses occurring after exhaustion of the deductible aggregate are subject to a deductible of \$7.5 per occurrence. The property insurance policy provides replacement cost coverage for all risks (including Earthquake, Flood and Wind) of direct physical loss or damage to all real and personal property, with minor exceptions. The policy also provides extra expense and business interruption coverage.

FMTAC’s property insurance program has been expanded to include \$15 of fully collateralized earthquake coverage for an event of a certain index value and for storm surge coverage for losses from storm surges that surpass specified trigger levels in the New York Harbor or Long Island Sound and are associated with named storms that occur at any point in the three year period from May 23, 2017 to April 30, 2020. The expanded protection is reinsured by MetroCat Re Ltd. 2017-1, a Bermuda special purpose insurer independent from the MTA and formed to provide FMTAC with capital market based property reinsurance. The MetroCat Re Ltd. 2017-1 reinsurance policy is fully collateralized by a Regulation 114 trust invested in U.S. Treasury Money Market Funds. The additional coverage provided is parametric and available for storm surge losses resulting from a storm that causes water levels that reach the specified index values, and also for an earthquake event of a certain index value.

With respect to acts of terrorism, FMTAC provides direct coverage that is reinsured by the United States Government for 82% of “certified” losses in 2018, 81% of “certified” losses in 2019 and 80% of “certified” losses in 2020, as covered by the Terrorism Risk Insurance Program Reauthorization Act (“TRIPRA”) of 2015. The remaining 18% (2018), 19% (2019) and 20% (2020) of the Related Entities’ losses arising from an act of terrorism would be covered under the additional terrorism policy described below. No federal compensation will be paid unless the aggregate industry insured losses exceed a trigger of \$160 in 2018, \$180 in 2019 and \$200 in 2020. The United States government reinsurance is in place through December 31, 2020.

To supplement the reinsurance to FMTAC through the TRIPRA, MTA obtained an additional commercial reinsurance policy with various reinsurance carriers in the domestic, London and European marketplaces. That policy provides coverage for (1) 18% of any “certified” act of terrorism up to a maximum recovery of \$193.5 for any one occurrence and in the annual aggregate during 2018, 19% of any “certified” act of terrorism up to a maximum recovery of \$204.3 for any one occurrence and in the annual aggregate during 2019 and 20% of any “certified” act of terrorism up to a maximum recovery of \$215 for any one occurrence and in the annual aggregate during 2020 (2) the TRIPRA FMTAC captive deductible (per occurrence and on an aggregated basis) that applies when recovering under the “certified” acts of terrorism insurance or (3) 100% of any “certified” terrorism loss which exceeds \$5 and less than the \$160 TRIPRA trigger up to a maximum recovery of \$160 for any occurrence and in the annual aggregate during 2018, or 100% of any “certified” terrorism loss which exceeds \$5 and less than the \$180 TRIPRA trigger up to a maximum recovery of \$180 for any occurrence and in the annual aggregate during 2019 or 100% of any “certified” terrorism loss which exceeds \$5 and less than the \$200 TRIPRA trigger up to a maximum recovery of \$200 for any occurrence and in the annual aggregate during 2020.

Additionally, MTA purchases coverage for acts of terrorism which are not certified under TRIPRA to a maximum of \$193.5 in 2018, \$204.3 in 2019 and \$215 in 2020. Recovery under the terrorism policy is subject to a deductible of \$25 per occurrence and \$75 in the annual aggregate in the event of multiple losses during the policy year. Should the Related Entities’ deductible in any one year exceed \$75 future losses in that policy year are subject to a deductible of \$7.5. The terrorism coverages expire at midnight on May 1, 2020.

Pension Plans — In accordance with the provisions of GASB Statement No. 68, *Accounting and Financial Reporting for Pensions*, the MTA 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, or the MTA’s proportionate share thereof in the case of a cost-sharing multiple-employer plan, measured as of the measurement date of each of the qualified pension plans. Changes in the net pension liability during the year 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 year 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 in the respective qualified pension plan and recorded as a component of pension expense beginning with the year in which they are incurred. 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 year in which the difference occurred.

The GASB has not issued guidance on how to account for pension liabilities and related deferrals for interim financial reporting. The MTA has elected to record as pension expense the applicable first six months of 2017 employer contributions made to the pension plans subsequent to the measurement of the net pension liability, which were recorded as deferred outflows for the year-end of December 31, 2017. In turn, any contributions made in the first six months of 2018 were recorded as deferred outflows.

Postemployment Benefits Other Than Pensions — In June 2005, GASB issued Statement No. 45, *Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions*. This Statement established standards for the measurement, recognition, and display of OPEB expense/expenditures and related liabilities (assets), note disclosures, and if applicable, required supplementary information (“RSI”) in the financial reports of state and local governmental employers. In June 2005, GASB issued Statement No. 47, *Accounting for Termination Benefits*. This statement established accounting standards for termination benefits. For termination benefits provided through an existing defined benefit OPEB plan, the provisions of this Statement should be implemented simultaneously with the requirements of GASB Statement No. 45. The MTA has adopted these standards for its Postemployment Benefits Other Than Pensions.

Premium Discount Amortization — During 2017, MTA Bridges and Tunnels changed its method of amortizing bond premiums and discounts to the constant yield method, which is a more preferable accounting principle than the principle used in previous years. The constant yield method of amortization is commonly used by state and local governments and public authorities and is the suggested method of amortization under GASB Codification 130, *Interest Costs-Imputation*. This change in method is accounted for on a prospective basis.

3. CASH AND INVESTMENTS

Cash - The Bank balances are insured up to \$250 thousand in the aggregate by the Federal Deposit Insurance Corporation (“FDIC”) for each bank in which funds are deposited. Cash, including deposits in transit, consists of the following at June 30, 2018 and December 31, 2017 (in millions):

	June 30, 2018		December 31, 2017	
	Carrying Amount	Bank Balance	Carrying Amount	Bank Balance
	(Unaudited)			
FDIC insured or collateralized deposits	\$ 105	\$ 51	\$ 88	\$ 87
Uninsured and not collateralized	519	400	195	143
Total Balance	\$ 624	\$ 451	\$ 283	\$ 230

All collateralized deposits are held by the MTA or its agent in the MTA’s name.

The MTA, on behalf of itself, its affiliates and subsidiaries, invests funds which are not immediately required for the MTA's operations in securities permitted by the New York State Public Authorities Law, including repurchase agreements collateralized by U.S. Treasury securities, U.S. Treasury notes, and U.S. Treasury zero coupon bonds.

Custodial credit risk for deposits is the risk that, in the event of the failure of a depository financial institution, the MTA will not be able to recover the value of its deposits. While the MTA does not have a formal deposit policy for custodial credit risk, New York State statutes govern the MTA's investment policies. The MTA's uninsured and uncollateralized deposits are primarily held by commercial banks in the metropolitan New York area and are subject to the credit risks of those institutions.

Investments - MTA holds most of its investments at a custodian bank. The custodian must meet certain banking institution criteria enumerated in MTA's Investment Guidelines. The Investment Guidelines also require the Treasury Division to hold at least \$100 of its portfolio with a separate emergency custodian bank. The purpose of this deposit is in the event that the MTA's main custodian cannot execute transactions due to an emergency outside of the custodian's control, the MTA has an immediate alternate source of liquidity.

The MTA 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 the fair value of the asset. Level 1 inputs are quoted prices in active markets for identical assets; Level 2 inputs are significant other observable inputs; Level 3 inputs are significant unobservable inputs.

The MTA had the following recurring fair value measurements as of June 30, 2018 and December 31, 2017 (in millions):

Investments by fair value level	June 30,	Fair Value Measurements		December	Fair Value Measurements		
	2018	Level 1	Level 2	31,	Level 1	Level 2	
	(Unaudited)	(Unaudited)		2017			
Debt Securities:							
U.S. treasury securities	\$ 4,305	\$ 3,957	\$ 353	\$ 4,333	\$ 4,053	\$ 280	
U.S. government agency	364	174	170	387	144	243	
Commercial paper	777	-	777	877	-	877	
Asset-backed securities	30	-	30	39	-	39	
Commercial mortgage-backed securities	54	-	54	30	-	30	
Foreign bonds	1	4	-	9	9	-	
Corporate bonds	18	118	-	149	149	-	
Tax Benefit Lease Investments:							
U.S. treasury securities	175	175	-	177	177	-	
U.S. government agency	109	-	109	114	-	114	
Repurchase agreements	93	93	-	122	122	-	
Money Market Funds	6	-	6	6	-	6	
Total debt securities	6,035	4,536	1,499	6,243	4,654	1,589	
Equity securities	-	-	-	25	25	-	
Total investments by fair value level	6,035	\$ 4,536	\$ 1,499	6,268	\$ 4,679	\$ 1,589	
Other	121			120			
Total Investments	\$ 6,156			\$ 6,388			

Investments classified as Level 1 of the fair value hierarchy, totaling \$4,536 and \$4,679 as of June 30, 2018 and December 31, 2017, respectively, are valued using quoted prices in active markets. Fair values include accrued interest to the extent that interest is included in the carrying amounts. Accrued interest on investments other than Treasury bills and coupons is included in other receivables on the statement of net position. The MTA's investment policy states that securities underlying repurchase agreements must have a fair value at least equal to the cost of the investment.

U.S. Government agency securities totaling \$279 and \$357, U.S. treasury securities totaling \$353 and \$280, commercial paper totaling \$777 and \$877, asset-backed securities totaling \$30 and \$39, commercial mortgage-backed securities totaling \$54 and \$30, and money market instruments totaling \$6 and \$6, as of June 30, 2018 and December 31, 2017, respectively, classified in Level 2 of the fair value hierarchy, are valued using matrix pricing techniques maintained by a third party pricing service. Matrix pricing is used to value securities based on the securities' relationship to benchmark quoted prices and indices. Fair value is defined as the quoted market value on the last trading day of the period. These prices are obtained from a third party pricing service or our custodian bank.

In connection with certain lease transactions described in Note 8, the MTA has purchased securities or entered into payment undertaking, letter of credit, or similar type agreements or instruments (guaranteed investment contracts) with financial institutions, which generate sufficient proceeds to make basic rent and purchase option payments under the terms of the leases. If the obligors do not perform, the MTA may have an obligation to make the related rent payments.

All investments, other than the investments restricted for capital lease obligations, are either insured or registered and held by the MTA or its agent in the MTA's name. Investments restricted for capital lease obligations are either held by MTA or its agent in the MTA's name or held by a custodian as collateral for MTA's obligation to make rent payments under capital lease obligations. Investments had weighted average yields of 1.83% and 1.18% for the six months ended June 30, 2018 and year ended December 31, 2017, respectively.

Credit Risk — At June 30, 2018 and December 31, 2017, the following credit quality rating has been assigned to MTA investments by a nationally recognized rating organization (in millions):

Quality Rating Standard & Poor's	June 2018 (Unaudited)	Percent of Portfolio	December 31, 2017	Percent of Portfolio
A-1+	\$ 664	4%	\$ 336	5%
A-1	778	13%	869	14%
AAA	184	3%	101	2%
AA+	50	1%	53	1%
AA	9	0%	24	1%
A	71	1%	91	1%
BB	-	-	1	-
BBB	41	1%	43	1%
Not rated	99	2%	154	2%
U.S. Government	4,539	75%	4,571	73%
Total	6,035	100%	6,243	100%
Equities and capital leases	121		145	
Total investment	\$ 6,156		\$ 6,388	

Interest Rate Risk — Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of the investment. Duration is a measure of interest rate risk. The greater the duration of a bond or portfolio of bonds, the greater its price volatility will be in response to a change in interest rate risk and vice versa. Duration is an indicator of bond price's sensitivity to a 100 basis point change in interest rates.

(In millions)	June 30, 2018 (Unaudited)		December 31, 2017	
	Fair Value	Duration (in years)	Fair Value	Duration (in years)
U.S. Treasuries	\$ 4,305	2.82	\$ 4,333	2.19
Federal Agencies	364	5.26	387	4.15
Tax benefits lease investments	284	8.49	291	9.12
Repurchase agreement	93	-	122	-
Certificate of deposits	6	-	6	-
Commercial paper	777	-	877	0.04
Asset-backed securities ⁽¹⁾	30	1.67	39	1.08
Commercial mortgage-backed securities ⁽¹⁾	54	5.33	30	5.63
Foreign bonds ⁽¹⁾	4	6.64	9	-
Corporates ⁽¹⁾	118	4.44	149	5.27
Total fair value	6,051		6,243	
Modified duration		2.87		2.37
Equities ⁽¹⁾			25	
Total	6,051		6,268	
Investments with no duration reported	121		120	
Total investments	\$ 6,156		\$ 6,388	

⁽¹⁾These securities are only included in the FMTAC portfolio.

MTA is a public benefit corporation established under the New York Public Authorities Law. MTA's Treasury Division is responsible for the investment management of the funds of the component units. The investment activity covers all operating and capital funds, including bond proceeds, and the activity is governed by State statutes, bond resolutions and the Board-adopted investment guidelines (the "Investment Guidelines"). The MTA Act currently permits the Related Entities to invest in the following general types of obligations:

- obligations of the State or the United States Government;
- obligations of which the principal and interest are guaranteed by the State or the United States government;
- obligations issued or guaranteed by certain Federal agencies;
- repurchase agreements fully collateralized by the obligations of the foregoing United States Government and Federal agencies;
- certain certificates of deposit of banks or trust companies in the State;
- certain banker's acceptances with a maturity of 90 days or less;
- certain commercial paper;
- certain municipal obligations, and
- certain mutual funds up to \$10 in the aggregate.

MTA adopted NYS Statutory Requirements with respect to credit risk of its investments, which include, but are not limited to the following sections:

- i. Public Authorities Law Sections 1265(4) (MTA), 1204(19) (MTA New York City Transit Authority) and 553(21) (MTA Bridges and Tunnels);
- ii. Public Authorities Law Section 2925 Investment of funds by public authorities and public benefit corporations; general provisions; and
- iii. State Finance Law Article 15 – EXCELSIOR LINKED DEPOSIT ACT.

MTA Investment Guidelines limit the dollar amount invested in banker acceptances, commercial paper, and obligations issued or guaranteed by certain Federal agencies to \$250 at cost. There are no dollar limits on the purchase of obligations of the United States government, the State or obligations the principal and interest of which are guaranteed by the State or the United States government. Investments in collateralized repurchase agreements are limited by dealer or bank's capital. MTA can invest no greater than \$300 with a bank or dealer rated in Tier 1 (i.e. \$1 billion or more of capital).

FMTAC is created as a MTA subsidiary and is licensed as a captive direct insurer and reinsurer by the New York State Department of Insurance. As such, FMTAC is responsible for the investment management of its funds. The investment activity is governed by State statutes and the FMTAC Board adopted investment guidelines. The minimum surplus to policyholders and reserve instruments are invested in the following investments:

- obligations of the United States or any agency thereof provided such agency obligations are guaranteed as to principal and interest by the United States;
- direct obligations of the State or of any county, district or municipality thereof;
- any state, territory, possession or any other governmental unit of the United States;
- certain bonds of agencies or instrumentalities of any state, territory, possession or any other governmental unit of the United States;
- the obligations of a solvent American institution which are rated investment grade or higher (or the equivalent thereto) by a securities rating agency; and
- certain mortgage backed securities in amounts no greater than five percent of FMTAC's admitted assets.

FMTAC may also invest non-reserve instruments in a broader range of investments including the following general types of obligations:

- certain equities; and
- certain mutual funds.

FMTAC is prohibited from making the following investments:

- investment in an insolvent entity;
- any investment as a general partner; and
- any investment found to be against public policy.

FMTAC investment guidelines do include other investments, but FMTAC has limited itself to the above permissible investments at this time.

4. EMPLOYEE BENEFITS

Pensions — The MTA Related Groups sponsor and participate in several defined benefit pension plans for their employees, the Long Island Rail Road Company Plan for Additional Pensions (the “Additional Plan”), the Manhattan and Bronx Surface Transit Operating Authority Pension Plan (the “MaBSTOA Plan”), the Metro-North Commuter Railroad Company Cash Balance Plan (the “MNR Cash Balance Plan”), the Metropolitan Transportation Authority Defined Benefit Plan (the “MTA Defined Benefit Plan”), the New York City Employees’ Retirement System (“NYCERS”), and the New York State and Local Employees’ Retirement System (“NYSLERS”). A brief description of each of these pension plans follows:

Plan Descriptions

1. Additional Plan —

The Additional Plan is a single-employer defined benefit pension plan that provides retirement, disability and survivor benefits to members and beneficiaries. The Additional Plan covers MTA Long Island Rail Road employees hired effective July 1, 1971 and prior to January 1, 1988. The Additional Plan’s activities, including establishing and amending contributions and benefits are administered by the Board of Managers of Pensions. The Additional Plan is a governmental plan and accordingly, is not subject to the funding and other requirements of the Employee Retirement Income Security Act of 1974 (“ERISA”). The Additional Plan is a closed plan.

The Board of Managers of Pensions is comprised of the Chairman of the MTA, MTA Chief Financial Officer, MTA Director of Labor Relations and the agency head of each participating Employer or the designee of a member of the Board of Managers. The Additional Plan for Additional Pensions may be amended by action of the MTA Board.

The pension plan has a separately issued financial statement that is publicly available and contains required descriptions and supplemental information regarding the employee benefit plan. The financial statements may be obtained at www.mta.info or by writing to, Long Island Rail Road, Controller, 93-02 Sutphin Boulevard – mail code 1421, Jamaica, New York 11435.

2. MaBSTOA Plan —

The MaBSTOA Plan is a single-employer defined benefit governmental retirement plan administered by MTA New York City Transit covering MaBSTOA employees, who are specifically excluded from NYCERS. The Plan provides retirement as well as death, accident and disability benefits. Effective January 1, 1999, in order to afford managerial and non-represented MaBSTOA employees the same pension rights as like title employees in MTA New York City Transit Authority, membership in the MaBSTOA Plan is optional.

The Board of Administration, established in 1963, determines the eligibility of employees and beneficiaries for retirement and death benefits. The MaBSTOA Plan assigns authority to the MaBSTOA Board to modify, amend or restrict the MaBSTOA Plan or to discontinue it altogether, subject, however, to the obligations under its collective bargaining agreements. The Board is composed of five members: two representatives from the Transport Workers Union, Local 100 (“TWU”) and three employer representatives.

The pension plan issues a publicly available financial report that includes financial statements and required supplementary information. This report may be obtained by writing to MTA Comptroller, 2 Broadway, 16th Floor, New York, New York, 10004 or at www.mta.info.

3. MNR Cash Balance Plan —

The MNR Cash Balance Plan is a single employer defined benefit pension plan administered by MTA Metro-North Railroad. The MNR Cash Balance Plan covers non-collectively bargained employees, formerly employed by Conrail, who joined MTA Metro-North Railroad as management employees between January 1 and June 30, 1983, and were still employed as of December 31, 1988. Effective January 1, 1989, these management employees became covered under the Metro-North Commuter Railroad Defined Contribution Plan for Management Employees (the “Management Plan”) and the MNR Cash Balance Plan was closed to new participants. The assets of the Management Plan were merged with the Metropolitan Transportation Authority Defined Benefit Plan for Non-represented Employees (now titled as the Metropolitan Transportation Authority Defined Benefit Pension Plan) as of the asset transfer date of July 14, 1995. The MNR Cash Balance Plan is designed to satisfy the applicable requirements for governmental plans under Section 401(a) and 501(a) of the Internal Revenue Code. Accordingly, the MNR Cash Balance Plan is tax-exempt and is not subject to the provisions of ERISA.

The MTA Board of Trustees appoints a Board of Managers of Pensions consisting of five individuals who may, but need not, be officers or employees of the company. The Board of Managers control and manage the operation and administration of the MNR Cash Balance Plan’s activities, including establishing and amending contributions and benefits.

Further information about the MNR Cash Balance Plan is more fully described in the separately issued financial statements that can be obtained by writing to MTA Comptroller, 2 Broadway, 16th Floor, New York, New York, 10004. These statements are also available at www.mta.info.

4. MTA Defined Benefit Plan —

The MTA Defined Benefit Pension Plan (the “MTA Plan” or the “Plan”) is a cost sharing, multiple-employer defined benefit pension plan. The Plan covers certain MTA Long Island Rail Road non-represented employees hired after December 31, 1987, MTA Metro-North Railroad non-represented employees, certain employees of the former MTA Long Island Bus hired prior to January 23, 1983, MTA Police, MTA Long Island Rail Road represented employees hired after December 31, 1987, certain MTA Metro-North Railroad represented employees, MTA Staten Island Railway represented and non-represented employees and certain employees of the MTA Bus Company (“MTA Bus”). The MTA, MTA Long Island Rail Road, MTA Metro-North Railroad, MTA Staten Island Railway and MTA Bus contribute to the MTA Plan, which offers distinct retirement, disability retirement, and death benefit programs for their covered employees and beneficiaries.

The MTA Defined Benefit Plan is administered by the Board of Managers of Pensions. The MTA Plan, including benefits and contributions, may be amended by action of the MTA Board.

The pension plan issues a publicly available financial report that includes financial statements and required supplementary information. This report may be obtained by writing to the MTA Comptroller, 2 Broadway, 16th Floor, New York, New York, 10004 or at www.mta.info.

5. NYCERS —

NYCERS is a cost-sharing, multiple-employer retirement system for employees of The City of New York (“The City”) and certain other governmental units whose employees are not otherwise members of The City’s four other pension systems. NYCERS administers the New York City Employees Retirement System qualified pension plan.

NYCERS was established by an act of the Legislature of the State of New York under Chapter 427 of the Laws of 1920. NYCERS functions in accordance with the governing statutes contained in the New York State Retirement and Social Security Law (“RSSL”), and the Administrative Code of the City of New York (“ACNY”), which are the basis by which benefit terms and employer and member contribution requirements are established and amended. The head of the retirement system is the Board of Trustees.

NYCERS issues a publicly available comprehensive annual financial report. This report may be obtained by writing to the New York City Employees’ Retirement System at 75 Adams Street, Suite 2300, Brooklyn, NY 11201-3724 or at www.nycers.org.

All employees of the Related Group holding permanent civil service positions in the competitive or labor class are required to become members of NYCERS six months after their date of appointment, but may voluntarily elect to join NYCERS prior to their mandatory membership date. All other eligible employees have the option of joining NYCERS upon appointment anytime thereafter. NYCERS members are assigned to a “tier” depending on the date of their membership.

- Tier 1 All members who joined prior to July 1, 1973.
- Tier 2 All members who joined on or after July 1, 1973 and before July 27, 1976.
- Tier 3 Only certain members who joined on or after July 27, 1976 and prior to April 1, 2012
- Tier 4 All members (with certain member exceptions) who joined on or after July 27, 1976 but prior to April 1, 2012. Members who joined on or after July 27, 1976 but prior to September 1, 1983 retain all rights and benefits of Tier 3 membership.
- Tier 6 Members who joined on or after April 1, 2012

6. NYSLERS —

NYSLERS is a cost-sharing, multiple-employer defined benefit retirement system. The New York State Comptroller’s Office administers the NYSLERS. The net position of NYSLERS is held in the New York State Common Retirement Fund (the “Fund”), which was established to hold all assets and record changes in fiduciary net position allocated to the plan. The Comptroller of the State of New York serves as the trustee of the Fund and is the administrative head of NYSLERS. NYSLERS’ benefits are established under the provisions of the New York State RSSL. Once a public employer elects to participate in NYSLERS, the election is irrevocable. The New York State Constitution provides that pension membership is a contractual relationship and plan benefits cannot be diminished or impaired. Benefits can be changed for future members only by enactment of a State statute.

NYSLERS is included in New York State’s financial report as a pension trust fund. This report may be found at www.osc.state.ny.us/retire/publications/index.php or obtained by writing to the New York State and Local Retirement System, 110 State Street, Albany, NY 12244.

Pension legislation enacted in 1973, 1976, 1983, 2009 and 2012 established distinct classes of tier membership.

Tier 1	All members who joined prior to July 1, 1973.
Tier 2	All members who joined on or after July 1, 1973 and before July 27, 1976.
Tier 3	Generally, certain members who joined on or after July 27, 1976 but before January 1, 2010 and all other members who joined on or after July 27, 1976, but before September 1, 1983.
Tier 4	Generally, members (with certain member exceptions) who joined on or after September 1, 1983, but before January 1, 2010.
Tier 5	Members who joined on or after January 1, 2010, but before April 1, 2012.
Tier 6	Members who joined on or after April 1, 2012.

Benefits Provided

1. Additional Plan —

Pension Benefits — An employee who retires under the Additional Plan either: (a) after completing at least 20 years of credited service, or (b) after both attaining age 65 while in service and completing at least five years of credited service, or in the case of those who were active employees on January 1, 1988, after completing at least 10 years of credited service, is entitled to an annual retirement benefit, payable monthly for life. Payments commence to an employee referred to in (a) only after attaining age 50, or (b) only after attaining age 65.

Benefit and contribution provisions, which are based on the point in time at which participants last entered qualifying service and their length of credited service, are established by, and may only be amended by the MTA Long Island Rail Road, subject to the obligations of the MTA Long Island Rail Road under its collective bargaining agreements.

The Additional Plan has both contributory and non-contributory requirements, with retirement ages varying from 50 to 65 depending upon a participant's length of credited service. Pension benefits payable to age 65, where eligible, are calculated as 2% of an employee's applicable final average earnings for each year of qualifying service up to 25 years, plus 1.5% of applicable final average earnings for each year of qualifying service in excess of 25 years. For pension benefits payable at and after age 65, regardless of whether benefits commenced before or after an employee attained age 65, benefits are calculated in the same manner as pension benefits payable prior to age 65 except that the amount so determined is reduced by a percentage of the employee's annual (not including any supplemental annuity) value at age 65 under the Federal Railroad Retirement Act.

Participants who entered qualifying service before July 1, 1978 are not required to contribute. Participants who entered qualifying service on or after July 1, 1978, are required to contribute 3% of their wages. The MTA Long Island Rail Road contributes additional amounts based on actuarially determined amounts that are designed to accumulate sufficient assets to pay benefits when due.

Death and Disability Benefits — Participants who become disabled after accumulating 10 years of credited service and who meet the requirements as described in the Additional Plan receive a disability benefit. Disability pension benefits are calculated based on the participant's qualifying service and a percentage of final average compensation reduced by the full amount of benefit under the Federal Railroad Retirement Act. Survivorship benefits are paid to the participant's spouse when a survivorship option is elected or when an active participant has not divested his or her spouse of benefits. The survivorship benefit is payable at the time of death or when the vested participant would have attained an eligible age. The amount payable is in the form of an annuity. A lump sum death benefit no greater than five thousand dollars is payable upon death on behalf of a non-vested participant or vested participant whose pension rights were waived.

Retirement benefits establishment and changes for representative employees are collectively bargained and must be ratified by the respective union and the MTA Board. For non represented employees, amendments must be approved by the MTA Board.

2. MaBSTOA Plan —

The MaBSTOA Plan provides retirement as well as death, accident, and disability benefits. The benefits provided by the MaBSTOA Plan are generally similar to the benefits provided to MTA New York City Transit participants in NYCERS. Benefits vest after either 5, 10, or 20 years of credited service, depending on the date of membership.

In 2008, NYCERS had determined that Tier 4 employees are and have been eligible for a post retirement death benefit retroactive to 1986. In June 2012, the MTA Board approved an amendment to the MaBSTOA Plan to provide for incorporation of this benefit.

Tier 1 —

Eligibility and Benefit Calculation: Tier 1 members must be at least age 50 with the completion of 20 years of service to be eligible to collect a service retirement benefit. Generally, the benefit is 1.50% for service before March 1, 1962, plus 2.0% for service from March 1, 1962 to June 30, 1970, plus 2.5% for service after June 30, 1970. The accumulated percentage, up to a maximum of 50%, is multiplied by the member's compensation, which is the greater of earned salary during the year prior to retirement. Once the accumulated reaches 50%, the percentage for each further year of service goes back to 1.5%. The percentage in excess of 50% is multiplied by the final compensation, which is the highest average earnings over five consecutive years.

Ordinary Disability Benefits — Generally, ordinary disability benefits, are provided to eligible Tier 1 members after ten years of service with the benefit equal to the greater of the service retirement percentages or 25% multiplied by final compensation.

Accidental Disability Benefits — The accidental disability benefit to eligible Tier 1 members is equal to 75% of final compensation reduced by 100% of any worker's compensation payments.

Ordinary Death Benefits — For Tier 1 members the amount of the death benefit is a lump sum equal to six months' pay for members with less than 10 years of service, a lump sum equal to a 12 months of pay for members with more than 10 but less than 20 years of service, and a lump sum equal to two times 12 months of pay for members with more than 20 years of service.

Tier 2 —

Eligibility and Benefit Calculation: Tier 2 members must be at least age 55 with the completion of 25 years of service to be eligible to collect a service retirement benefit. Generally, the benefit equals 50% of final 3-year average compensation, defined as the highest average earnings over three consecutive years, plus 1% of final 5-year average compensation, defined as the highest average earnings over five consecutive years, per year of credited service in excess of 20 years. For early retirement, members must be at least age 50 with the completion of at least 20 years of service. The benefit is determined in the same manner as the service retirement but not greater than 2.0% of final 3-year average compensation per year of service.

Ordinary Disability Benefits — Generally, ordinary disability benefits, are provided to eligible Tier 2 members after ten years of service with the benefit equal to the greater of the service retirement percentages or 25% multiplied by the final 5-year average compensation.

Accidental Disability Benefits — The accidental disability benefit to eligible Tier 2 members is equal to 75% of the final 5-year average compensation reduced by any worker's compensation payments.

Ordinary Death Benefits — Tier 2 members require the completion of 90 days of service to receive a lump sum equal to 3 times salary, raised to the next multiple of \$1,000 dollars.

Tiers 3, 4 —

Eligibility and Benefit Calculation: Tier 3 and 4 members in the Regular 62 and 5 Plan must be at least age 62 with the completion of at least 5 years of service to be eligible to collect a service retirement benefit. Generally, the benefit for members with at least 20 years of service, is equal to 2.0% of Final Average Compensation ("FAC") for the first 30 years of service plus 1.5% of FAC for years of service in excess of 30. FAC is defined as the highest average earnings over three consecutive years, of which earnings in a year cannot exceed 110% of the average of the two preceding years. If the member completes less than 20 years of credited service, the benefit equals 1- 2/3% of FAC multiplied by years of service. For early retirement, members must be at least age 55 with the completion of at least 5 years of service. The benefit equals the service retirement benefit reduced by 6% for each of the first two years prior to age 62, and by 3% for years prior to age 60.

Tier 3 and 4 members in the basic 55/25 Plan must be at least age 55 with the completion of at least 25 years of service, or be at least age 62 with the completion of at least 5 years of service, to be eligible to collect a service retirement benefit. Generally, the benefit for members with at least 25 years of service, is equal to 2.0% of FAC for the first 30 years of service plus 1.5% of FAC for years of service in excess of 30. If the member completes less than 25 years of credited service, the benefit equals 1- 2/3% of FAC multiplied by years of service.

Tier 4 members in the 57/5 Plan must be at least age 57 with the completion of at least 5 years of service to be eligible to collect a service retirement benefit. Generally, the benefit for members with at least 20 years of service, is equal to 2.0% of FAC for the first 30 years of service plus 1.5% of FAC for years of service in excess of 30. If the member completes less than 20 years of credited service, the benefit equals 1- 2/3% of FAC multiplied by years of service.

Ordinary and Accidental Disability Benefits — For eligible members of the Regular 62/5 Plan, 57/25 Plan and 57/5 Plan, ordinary and accidental disability benefits, are provided after 10 years of service for ordinary and no service required for accidental disability benefit. The benefit equals the greater of 1-2/3% of FAC per year of service and 1/3 of FAC.

Ordinary Death Benefits — For eligible members of the Regular 62/5 Plan, 55/25 Plan, 57/5 Plan, the pre-retirement ordinary death benefit is equal to a lump sum of annual salary times the lesser of completed years of service and 3. After age 60, the benefit is reduced 5% per year, to a maximum reduction of 50%. Accumulated regular member contributions with interest and one-half of accumulated additional member contributions with interest are also payable. Upon retirement, the post-retirement benefit is reduced by 50% and reduced an additional 25% after completion of one year of retirement. After completion of two years of retirement, the benefit equals 10% of the pre-retirement benefit in force at age 60.

Tier 6 —

Eligibility and Benefit Calculation: Tier 6 members in the 55/25 Special Plan must be at least age 55 with the completion of at least 25 years, or at least age 63 with the completion of at least 10 years of service, to be eligible to collect a service retirement benefit. Generally, the benefit for members with at least 25 years of service, is equal to 2.0% of Final Average Salary (FAS) for the first 30 years of service plus 1.5% of FAS for years of service in excess of 30. If the member completes less than 20 years of credited service, the benefit equals 1- 2/3% of FAS multiplied by years of service. FAS is defined as the highest average pensionable compensation over five consecutive years.

Tier 6 members in the Basic 62/10 Plan must be at least age 63 with the completion of at least 10 years to be eligible to collect a service retirement benefit. Generally, the benefit for members with at least 20 years of service, is equal to 35% of FAS plus 2.0% of FAS for years of service in excess of 20. If the member completes less than 20 years of credited service, the benefit equals 1-2/3% of FAS multiplied by years of service. FAS is defined as the highest average pensionable earnings over five consecutive years. For early retirement, members must be at least age 55 with the completion of at least 10 years of service. The benefit equals the service retirement benefit reduced by 6.5% for each year early retirement precedes age 63.

Ordinary and Accidental Disability Benefits — For eligible members of the 55/25 Special Plan and the Basic 63/10 Plan, ordinary and accidental disability benefits, are provided after 10 years of credited service for ordinary disability benefit. There is no service requirement for accidental disability benefit. The benefit equals the greater of 1-2/3% of FAS per year of service and 1/3 of FAS.

Ordinary Death Benefits — For eligible members of the 55/25 Special Plan and the Basic 63/10 Plan, the pre-retirement ordinary death benefit is equal to a lump sum of annual salary times the lesser of completed years of service and 3. After age 60, the benefit is reduced 5% per year, to a maximum reduction of 50%. Accumulated regular member contributions with interest and one-half of accumulated additional member contributions with interest are also payable. Upon retirement, the post-retirement benefit is reduced by 50% and reduced an additional 25% after completion of one year of retirement. After completion of two years of retirement, the benefit equals 10% of the pre-retirement benefit in force at age 60.

3. MNR Cash Balance Plan —

Pension Benefits — Participants of the MNR Cash Balance Plan are vested in their benefit upon the earlier of (a) the completion of 5 years of service with MTA Metro-North Railroad or (b) the attainment of age 62. The accrued benefit is a participant’s Initial Account Balance increased each month by the benefit escalator. The benefit escalator is defined as the Pension Benefit Guaranty Corporation (“PBGC”) immediate annuity rate in effect for December of the year preceding the year for which the determination is being made) divided by 180. The accrued benefit is paid as an escalating annuity. Vested participants are entitled to receive pension

benefits commencing at age sixty-five. Participants may elect to receive the value of their accumulated plan benefits as a lump-sum distribution upon retirement or they may elect a monthly life annuity. Participants may elect to receive their pension in the form of a joint and survivor annuity.

Participants of the MNR Cash Balance Plan are eligible for early retirement benefits upon termination of employment, the attainment of age 62, or age 60 and completion of 15 years of service, or age 55 and the completion of 30 years of service. The early retirement benefits paid is the normal retirement pension deferred to age 65 or an immediate pension equal to the life annuity actuarial equivalent of a participant's escalating annuity at normal retirement date indexed by the Initial Benefit Escalator from early retirement date to normal retirement date and reduced by 5/9 of 1% for each month retirement precedes age 65 up to 60 months and 5/18 of 1% for each month after 60 months.

For members with cash balances who are currently members of the Metropolitan Transportation Authority Defined Benefit Pension Plan, an additional benefit is provided equal to the amount needed to bring their total benefits (i.e., Railroad Retirement Tier I and II benefits, Conrail Plan benefits, Cash Balance Plan benefits, and MTA Defined Benefit Pension Plan benefits) up to a minimum of 65% of their 3-year final average pay under the MTA Defined Benefit Plan. In no event will the Additional Benefit exceed 2% of 3-year final average pay multiplied by the Conrail Management Service prior to July 1, 1983. This benefit is payable as a life annuity and is reduced for commencement prior to age 65 in the same manner as the regular cash balance benefit. This additional benefit is payable in the form of a life annuity or 100% or 50% contingent annuity.

Death Benefits — Benefits are paid to vested participant beneficiaries in the event of a participant's death. The amount of benefits payable is the participant's account balance at the date of his or her death. Pre-retirement death benefits paid for a participant's death after 55 is equal to the amount the spouse would have received had the participant elected retirement under the normal form of payment on the day preceding his death. Pre-retirement death benefits paid for a participant's death before 55 is equal to the amount the spouse would have received had the participant survived to age 55 and retired under the normal form of payment on that date. The benefit is based on service to the participant's date of death and is payable beginning on the date the participant would have attained age 55.

In lieu of the above benefit, the surviving spouse may elect to receive the participant's account balance in a single lump sum payment immediately. If the participant was not married, the participant's beneficiary is entitled to receive the participant's account balance as of the participant's date of death in a single lump sum payment.

4. MTA Defined Benefit Plan

Pension Benefits — Retirement benefits are paid from the Plan to covered MTA Metro-North Railroad, MTA Staten Island Railway and post-1987 MTA Long Island Rail Road employees as service retirement allowances or early retirement allowances. A participant is eligible for a service retirement allowance upon termination if the participant satisfies both age and service requirement. A participant is eligible for a service retirement allowance upon termination if the participant satisfied both age and service requirements. A participant is eligible for an early retirement allowance upon termination if the participant has attained age 55 and completed at least 10 years of credited service. Terminated participants with 5 or more years of credited service are eligible for a deferred vested benefit. Deferred vested benefits are payable on an unreduced basis on the first day of the month following the participant's 62nd birthday.

Certain represented employees of the MTA Long Island Rail Road and the MTA Metro-North Railroad continue to make contributions to the Plan for 15 years. Certain represented employees of the MTA Long Island Rail Road and the MTA Metro-North Railroad are eligible for an early retirement allowance upon termination if the participant has attained age 60 and completed at least 5 years of credited service, or has attained age 55 and completed at least 30 years of credited service. The early retirement allowance is reduced one-quarter of 1% per month for each full month that retirement predates age 60 for certain represented employees of the MTA Long Island Rail Road and the MTA Metro-North Railroad.

Effective in 2007, members and certain former members who become (or became) employed by another MTA agency which does not participate in the Plan continue to accrue service credit based on such other employment. Upon retirement, the member's vested retirement benefit from the Plan will be calculated on the final average salary of the subsequent MTA agency, if higher. Moreover, the Plan benefit will be reduced by the benefit, if any, payable by the other plan based on such MTA agency employment. Such member's disability and ordinary death benefit will be determined in the same way.

Retirement benefits are paid from the Plan under the MTA 20-Year Police Retirement Program. A participant is eligible for service retirement at the earlier of completing twenty years of credited Police service or

attainment of age 62. Terminated participants with five years of credited police service, who are not eligible for retirement, are eligible for a deferred benefit. Deferred vested benefits are payable on the first of the month following the participant's attainment of age 55.

Retirement benefits paid from the Plan to covered represented MTA Bus employees include service retirement allowances or early retirement allowances. Under the programs covering all represented employees at Baisley Park, Eastchester, LaGuardia, Spring Creek, and Yonkers Depots and the represented employees at College Point Depot, JFK, Far Rockaway a participant is eligible for a service retirement allowance upon termination if the participant has attained age sixty-five and completed at least five years of credited service or if the participant has attained age 57 and completed at least 20 years of credited service. A participant hired prior to June 2009 from Baisley Park, College Point, and La Guardia Depots is eligible for an early retirement allowance if the participant has attained age 55 and completed 20 years of credited service. Terminated participants with five or more years of credited service who are not eligible to receive a service retirement allowance or early retirement allowance are eligible for a deferred vested benefit. Deferred vested benefits are payable on an unreduced basis on or after the participant attains age 65.

At Baisley Park, Far Rockaway, JFK, LaGuardia and Spring Creek Depots, a participant who is a non-represented employee is eligible for an early retirement allowance upon termination if the participant has attained age 55 and completed 15 years of service. Terminated participants with five or more years of credited service who are not eligible to receive a service retirement allowance or early retirement allowance are eligible for a deferred vested benefit. Deferred vested benefits are payable on an unreduced basis on or after the participant attains age 62.

The MTA Bus retirement programs covering represented and non-represented employees at Eastchester and Yonkers and covering the represented employees at Baisley Park, College Point, Far Rockaway, JFK, LaGuardia and Spring Creek are fixed dollar plans, with the benefits are a product of credited service and a specific dollar amount.

The retirement benefits for certain non-represented employees at Baisley Park, Far Rockaway, JFK, LaGuardia and Spring Creek are based on final average salary. Certain participants may elect to receive the retirement benefit as a single life annuity or in the form of an unreduced 75% joint and survivor benefit.

Pre-1988 MTA Long Island Rail Road participants are eligible for a service retirement allowance upon termination if the participants has either (a) attained age sixty-five and completed at least five years of credited service, or if an employee on January 1, 1988 completed at least 10 years of credited service, or (b) attained age fifty and has completed at least 20 years of credited service. Terminated participants who were not employees on January 1, 1988 with five or more years of credited service are eligible for a deferred vested benefit. Pension benefits payable to age 65, where eligible, are calculated as 2% of the employee's applicable final average earnings for each year of qualifying service up to 25 years plus 1.5% of applicable final average earning of each year of qualifying service in excess of 25 years. For pension benefits payable at and after age 65 regardless of whether benefits commenced before or after the employee attained age 65, benefits are calculated in the same manner as pension benefits payable prior to age 65 except that the amount so determined is reduced by a percentage of the employee's annuity (not including supplemental annuity) value at age 65 under the Federal Railroad Retirement Act. The reduction of pension benefits for amounts payable under the Federal Railroad Retirement Act is 50%.

Death and Disability Benefits - In addition to service retirement benefits, participants of the Plan are eligible to receive disability retirement allowances and death benefits. Participants who become disabled may be eligible to receive disability retirement allowances after 10 years of covered MTA Bus service; 10 years of credited service for covered MTA Metro-North Railroad and MTA Long Island Rail Road management and represented employees, covered MTA Staten Island Railway employees and covered MTA police participants.

The disability retirement allowance for covered MTA Metro-North Railroad and MTA Long Island Rail Road management and represented covered MTA Staten Island Railway employees is calculated based on the participant's credited service and final average salary ("FAS") but not less than 1/3 of FAS. Under the MTA 20 Year Police Retirement Program, a disabled participant may be eligible for one of three forms of disability retirement: (a) ordinary disability which is payable if a participant has ten years of credited Police service and is calculated based on the participant's credited Police service and FAS but not less than 1/3 of FAS; (b) performance of duty, which is payable if a participant is disabled in the performance of duty and is 1/2 of FAS, and (c) accidental disability, which is payable if a participant is disabled as the result of an on-the-job accidental injury and is 3/4 of FAS subject to an offset of Workers' Compensation benefits. Pursuant to the MTA Bus programs, the disability benefit is the same as the service retirement benefit.

Pre -1988 MTA Long Island Rail Road participants who become disabled after accumulating 10 years of credited service and who meet the requirements as described in the Plan may be eligible to receive a disability benefit. Disability pension benefits are based on the participant's qualified service and a percentage of final average compensation reduced by the full amount of the disability benefit under the Federal Railroad Retirement Act. Survivorship benefits for pre-1988 MTA Long Island Rail Road participants are paid to the spouse when a survivorship option is elected or when an active participant has not divested their spouse of benefits.

The survivorship benefit is payable at the time of death or when the vested participant would have attained an eligible age. The amount payable is in the form of an annuity. A lump sum death benefit no greater than \$5,000 (whole dollars) is payable upon death on behalf of a non-vested participant or vested participant whose pension rights were waived.

Death benefits are paid to the participant's beneficiary in the event of the death of a covered MTA Metro-North Railroad, post-1987 MTA Long Island Rail Road or MTA Staten Island Railway employee after completion of one year of credited service. The death benefit payable is calculated based on a multiple of a participant's salary based on years of credited service up to three years and is reduced beginning at age 61. There is also a post-retirement death benefit which, in the 1st year of retirement, is equal to 50% of the pre-retirement death benefit amount, whichever is greater, 25% the 2nd year and 10% of the death benefit payable at age 60 for the 3rd and later years. For the Police Officers Retirement Program, the death benefit is payable after ninety days of credited MTA Police service, and is equal to three times their salary. For non-Police groups, this death benefit is payable in a lump sum distribution while for Police, the member or the beneficiary can elect to have it paid as an annuity. The MTA Police do not have a post retirement benefit.

In the MSBA Employees' Pension Plan, there are special spousal benefits payable upon the death of a participant who is eligible for an early retirement benefit or a normal service retirement benefit, or who is a vested participant or vested former participant. If eligible, the spouse and participant must have been married at least one year at the time of death. Where the participant was eligible for an early service retirement benefit or was a vested participant or former participant, the benefit is a pension equal to 40% of the benefit payable to the participant as if the participant retired on the date of death. Where the participant was eligible for a normal service retirement benefit, the eligible spouse can elect either the benefit payable as a pension, as described in the prior sentence, or a lump sum payment based on an actuarially determined pension reserve. If there is no eligible spouse for this pension reserve benefit, a benefit is payable to the participant's beneficiary or estate.

Moreover, an accidental death benefit is payable for the death of a participant who is a covered MTA Metro-North Railroad or post-1987 MTA Long Island Rail Road employee, a covered MTA Staten Island Railway employee or a covered MTA Police member and dies as the result of an on-the-job accidental injury. This death benefit is paid as a pension equal to 50% of the participant's salary and is payable to the spouse for life, or, if none, to children until the age of eighteen (or twenty-three, if a student), or if none, to a dependent parent.

For MTA Bus employees, there is a vested death benefit coverage under the Plan. For all represented and non-represented MTA Bus employees at Eastchester and Yonkers Depots and represented MTA Bus employees at Baisley Park, College Point, Far Rockaway, JFK, Laguardia and Spring Creek Depots, if a participant dies prior to being eligible for a retirement benefit, the participant's beneficiary may elect to receive a refund of the participant's contributions plus interest.

Moreover, the spouses of the above employees who are vested are entitled to a presumed retirement survivor annuity which is based on a 50% Joint and Survivor annuity. The date as of which such annuity is determined and on which it commences varies among the different programs depending on whether the participants are eligible for retirement and for payment of retirement benefits.

In addition, the spouse of a non-represented MTA Bus employee at Spring Creek, JFK, Laguardia, Baisley Park and Far Rockaway, if such employee is age 55 and has 15 years of service and is a terminated member with a vested benefit which is not yet payable, may elect the presumed retirement survivor annuity or 1/2 the participant's accrued benefit paid monthly and terminating on the 60th payment or the spouse's death. The spouse of a non-represented MTA Bus employee at Yonkers Depot may also receive a pre-retirement survivor annuity from the supplemental plan. If there is no such spouse, the actuarial equivalent of such annuity is payable.

Dependent children of MTA Bus employees are also entitled to an annuity based on the spouse's pre-retirement survivor annuity (1/2 of the spouse's annuity is payable to each child, but no more than 100% of the spouse's annuity is payable). In addition, the dependent children of retirees who were MTA Bus employees at these Depots are entitled to an annuity based on the presumed retirement survivor's annuity

(25% of the spouse's annuity; but no more than 50% of the spouse's annuity is payable).

Retirement benefits establishment and changes for represented employees are collectively bargained and must be ratified by the respective union and the MTA Board. For non represented employees, retirement benefits establishment and changes are presented to the MTA Board and must be accepted and approved by the MTA Board.

5. NYCERS —

NYCERS provides three main types of retirement benefits: Service Retirements, Ordinary Disability Retirements (non-job-related disabilities) and Accident Disability Retirements (job-related disabilities) to participants generally based on salary, length of service, and member Tiers.

The Service Retirement benefits provided to Tier 1 participants fall into four categories according to the level of benefits provided and the years of service required. Three of the four categories provide annual benefits of 50% to 55% of final salary after 20 or 25 years of service, with additional benefits equal to a specified percentage per year of service (currently 1.2% to 1.7%) of final salary. The fourth category has no minimum service requirement and instead provides an annual benefit for each year of service equal to a specified percentage (currently 0.7% to 1.53%) of final salary.

Tier 2 participants have provisions similar to Tier 1, except that the eligibility for retirement and the salary base for benefits are different and there is a limitation on the maximum benefit.

Tier 3 participants were later mandated into Tier 4, but could retain their Tier 3 rights. The benefits for Tier 3 participants are reduced by one half of the primary Social Security benefit attributable to service, and provides for an automatic annual cost-of-living escalator in pension benefits of not more than 3.0%.

Tier 4 participants upon satisfying applicable eligibility requirements may be mandated or elected, as applicable, into the Basic 62/5 Retirement Plan, the 57/5 Plan, the 55/25 Plan, the Transit 55/25 Plan, the MTA Triborough Bridge and Tunnel Authority 50/20 Plan, and the Automotive Member 25/50 Plan. These plans provide annual benefits of 40% to 50% of final salary after 20 or 25 years of service, with additional benefits equal to a specified percentage per year of service (currently 1.5% to 2%) of final salary.

Chapter 18 of the Laws of 2012 created Tier 5. These changes increase the retirement age to 63, require member contributions for all years of service, institute progressive member contributions, and lengthen the final average salary period from 3 to 5 years.

NYCERS also provides automatic Cost-of-Living Adjustments ("COLA") for certain retirees and beneficiaries, death benefits, and certain retirees also receive supplemental benefits. Subject to certain conditions, members generally become fully vested as to benefits upon the completion of 5 years of service.

6. NYSLERS —

NYSLERS provides retirement benefits as well as death and disability benefits. Members who joined prior to January 1, 2010 need 5 years of service to be fully vested. Members who joined on or after January 1, 2010 need 10 years of service to be fully vested.

Tiers 1 and 2 —

Eligibility: Tier 1 members generally must be at least age 55 to be eligible for a retirement benefit. There is no minimum service requirement for Tier 1 members. Generally, Tier 2 members must have 5 years of service and be at least age 55 to be eligible for a retirement benefit. The age at which full benefits may be collected for Tier 1 is 55, and the full benefit age for Tier 2 is 62.

Benefit Calculation: Generally, the benefit is 1.67% of final average salary for each year of service if the member retires with less than 20 years. If the member retires with 20 or more years of service, the benefit is 2 percent of final average salary for each year of service. Tier 2 members with five or more years of service can retire as early as age 55 with reduced benefits. Tier 2 members age 55 or older with 30 or more years of service can retire with no reduction in benefits. As a result of Article 19 of the RSSL, Tier 1 and Tier 2 members who worked continuously from April 1, 1999 through October 1, 2000 received an additional month of service credit for each year of credited service they have at retirement, up to a maximum of 24 additional months. Final average salary is the average of the wages earned in the three highest consecutive years of employment. For Tier 1 members who joined on or after June 17, 1971, each year's compensation used in the final average salary calculation is limited to no more than 20 percent greater than the previous year. For Tier 2 members, each year of final average salary is limited to no more than 20 percent greater than the average of the previous two years.

Tiers 3, 4, and 5 —

Eligibility: Most Tier 3 and 4 members must have 5 years of service and be at least age 55 to be eligible for a retirement benefit. Tier 5 members, must have 10 years of service and be at least age 55 to be eligible to collect a retirement benefit. The full benefit age for Tiers 3, 4 and 5 is 62.

Benefit Calculation: Generally, the benefit is 1.67% of final average salary for each year of service if the member retires with less than 20 years. If a member retires with between 20 and 30 years of service, the benefit is 2 percent of final average salary for each year of service. If a member retires with more than 30 years of service, an additional benefit of 1.5% of final average salary is applied for each year of service over 30 years. Tier 3 and 4 members with five or more years of service and Tier 5 members with 10 or more years of service can retire as early as age 55 with reduced benefits. Tier 3 and 4 members age 55 or older with 30 or more years of service can retire with no reduction in benefits. Final average salary is the average of the wages earned in the three highest consecutive years of employment. For Tier 3, 4 and 5 members, each year's compensation used in the final average salary calculation is limited to no more than 10% greater than the average of the previous two years.

Tier 6 —

Eligibility: Generally, Tier 6 members must have 10 years of service and be at least age 55 to be eligible to collect a retirement benefit. The full benefit age for Tier 6 is 63.

Benefit Calculation: Generally, the benefit is 1.67% of final average salary for each year of service if the member retires with less than 20 years. If a member retires with 20 years of service, the benefit is 1.75% of final average salary for each year of service. If a member retires with more than 20 years of service, an additional benefit of 2% of final average salary is applied for each year of service over 20 years. Tier 6 members with 10 or more years of service can retire as early as age 55 with reduced benefits. Final average salary is the average of the wages earned in the five highest consecutive years of employment. For Tier 6 members, each year's compensation used in the final average salary calculation is limited to no more than 10% greater than the average of the previous four years.

Disability Benefits— Generally, disability retirement benefits are available to members unable to perform their job duties because of permanent physical or mental incapacity. There are three general types of disability benefits: ordinary, performance of duty, and accidental disability benefits. Eligibility, benefit amounts, and other rules such as any offsets of other benefits depend on a member's tier, years of service, and plan. Ordinary disability benefits, usually one-third of salary, are provided to eligible members after ten years of service; in some cases they are provided after five years of service. For all eligible Tier 1 and Tier 2 members, the accidental disability benefit is a pension of 75 percent of final average salary, with an offset for any Workers' Compensation benefits received. The benefit for eligible Tier 3, 4, 5 and 6 members is the ordinary disability benefit with the years-of-service eligibility requirement dropped.

Ordinary Death Benefits — Death benefits are payable upon the death, before retirement, of a member who meets eligibility requirements as set forth by law. The first \$50,000 (whole dollars) of an ordinary death benefit is paid in the form of group term life insurance. The benefit is generally three times the member's annual salary. For most members there is also a reduced post-retirement ordinary death benefit available.

Post-Retirement Benefit Increases — A cost-of-living adjustment is provided annually to: (i) all pensioners who have attained age 62 and have been retired for five years; (ii) all pensioners who have attained age 55 and have been retired for ten years; (iii) all disability pensioners, regardless of age, who have been retired for five years; (iv) recipients of an accidental death benefit, regardless of age, who have been receiving such benefit for five years and (v) the spouse of a deceased retiree receiving a lifetime benefit under an option elected by the retiree at retirement. An eligible spouse is entitled to one-half the cost-of-living adjustment amount that would have been paid to the retiree when the retiree would have met the eligibility criteria. This cost-of-living adjustment is a percentage of the annual retirement benefit of the eligible member as computed on a base benefit amount not to exceed \$18,000 (whole dollars) of the annual retirement benefit. The cost-of-living percentage shall be 50 percent of the annual Consumer Price Index as published by the U.S. Bureau of Labor, but cannot be less than 1 percent or exceed 3 percent.

Membership

As of January 1, 2017, January 1, 2016 and January 1, 2015, the dates of the most recent actuarial valuations, membership data for the following pension plans are as follows:

Membership at:	January 1, 2017	January 1, 2016			TOTAL
	MNR Cash Balance Plan	Additional Plan	MaBSTOA Plan	MTA Defined Benefit Plan	
Active Plan Members	4	216	8,617	17,670	26,507
Retirees and beneficiaries receiving benefits	27	5,900	5,468	10,701	22,096
Vested formerly active members not yet receiving benefits	13		998	1,439	2,488
Total	44	6,116	15,083	29,810	51,091

Membership at:	January 1, 2016	January 1, 2015			TOTAL
	MNR Cash Balance Plan	Additional Plan	MaBSTOA Plan	MTA Defined Benefit Plan	
Active Plan Members		282	8,122	17,156	25,567
Retirees and beneficiaries receiving benefits	27	5,985	5,394	11,382	22,788
Vested formerly active members not yet receiving benefits		53	1,054	1,417	2,538
Total	44	6,320	14,570	29,955	50,893

Contributions and Funding Policy

1. Additional Plan —

Employer contributions are actuarially determined on an annual basis and are recognized when due. The Additional Plan is a defined benefit plan administered by the Board of Pension Managers and is a governmental plan and accordingly, is not subject to the funding and other requirements of ERISA.

Upon termination of employment before retirement, vested participants who have been required to contribute must choose to: (1) receive a refund of their own contributions, including accumulated interest at rates established by the MTA Long Island Rail Road's Board of Managers of Pensions (1.5% in 2016 and 2015), or (2) leave their contributions in the Additional Plan until they retire and become entitled to the pension benefits. Non-vested participants who have been required to contribute will receive a refund of their own contributions, including accumulated interest at rates established by the MTA Long Island Rail Road's Board of Managers of Pensions (1.5% in 2016 and 2015).

Funding for the Additional Plan by the MTA Long Island Rail Road is provided by MTA. Certain funding by MTA is made to the MTA Long Island Rail Road on a discretionary basis. The continuance of the MTA Long Island Rail Road's funding for the Additional Plan has been, and will continue to be, dependent upon the receipt of adequate funds.

2. MaBSTOA Plan —

The contribution requirements of MaBSTOA Plan members are established and may be amended only by the MaBSTOA Board in accordance with Article 10.01 of the MaBSTOA Plan. MaBSTOA's funding policy for periodic employer contributions is to provide for actuarially determined amounts that are designed to accumulate sufficient assets to pay benefits when due. It is MaBSTOA's policy to fund, at a minimum, the current year's normal pension cost plus amortization of the unfunded actuarial accrued liability.

The MaBSTOA Pension Plan includes the following plans, including the 2000 amendments which are all under the same terms and conditions as NYCERS:

- i. Tier 1 and 2 - Basic Plans;
- ii. Tier 3 and 4 - 55 and 25 Plan;
- iii. Tier 3 and 4 - Regular 62 and 5 Plan;
- iv. Tier 4 - 57 and 5 Plan
- v. Tier 6 - 55 and 25 Special Plan
- vi. Tier 6 - Basic 63 and 10 Plan

For employees, the MaBSTOA Plan has both contributory and noncontributory requirements depending on the date of entry into service. Employees entering qualifying service on or before July 26, 1976, are non contributing (Tiers 1 and 2). Certain employees entering qualifying service on or after July 27, 1976, are required to contribute 3% of their salary (Tiers 3 and 4).

In March 2012, pursuant to Chapter 18 of the Laws of 2012, individuals joining NYCERS or the MaBSTOA Pension Plan on or after April 1, 2012 are subject to the provisions of Tier 6. The highlights of Tier 6 include:

- Increases in employee contribution rates. The rate varies depending on salary, ranging from 3% to 6% of gross wages. Contributions are made until retirement or separation from service.
- The retirement age increases to 63 and includes early retirement penalties, which reduce pension allowances by 6.5 percent for each year of retirement prior to age 63.
- Vesting after 10 years of credited service; increased from 5 years of credited service under Tier 3 and Tier 4.
- Adjustments of the Pension Multiplier for calculating pension benefits (excluding Transit Operating Employees): the multiplier will be 1.75% for the first 20 years of service, and 2% starting in the 21st year; for an employee who works 30 years, the pension will be 55% of Final Average Salary under Tier 4, instead of 60% percent under Tier 3.
- Adjustments to the Final Average Salary Calculation; the computation changed from an average of the final 3 years to an average of the final 5 years. Reasonable overtime will be capped at \$15,000 dollars per year plus an inflation factor.
- Pension buyback in Tier 6 will be at a rate of 6% of the wages earned during the period of buyback, plus 5% compounded annually from the date of service until date of payment.

Pursuant to Section 7.03 of the MaBSTOA Plan, active plan members are permitted to borrow up to 75% of their contributions with interest. The total contributions and interest remain intact and interest continues to accrue on the full balance. The participant's accumulated contribution account is used as collateral against the loan.

3. MNR Cash Balance Plan

Funding for the MNR Cash Balance Plan is provided by MTA Metro-North Railroad, a public benefit corporation that receives funding for its operations and capital needs from the MTA and the Connecticut Department of Transportation ("CDOT"). Certain funding by MTA is made to the MTA Metro-North Railroad on a discretionary basis. The continuance of funding for the MNR Cash Balance Plan has been, and will continue to be, dependent upon the receipt of adequate funds.

MTA Metro-North Railroad's funding policy with respect to the MNR Cash Balance Plan was to contribute the full amount of the pension benefit obligation ("PBO") of approximately \$2,977 to the trust fund in 1989. As participants retire, the Trustee has made distributions from the MNR Cash Balance Plan. MTA Metro-North Railroad anticipated that no further contributions would be made to the MNR Cash Balance Plan. However, due to changes in actuarial assumptions and market performance, additional contributions were made to the MNR Cash Balance Plan in several subsequent years.

4. MTA Defined Benefit Plan —

Employer contributions are actuarially determined on an annual basis. Amounts recognized as receivables for contributions include only those due pursuant to legal requirements. Employee contributions to the MTA Defined Benefit Plan are recognized in the period in which the contributions are due. There are no contributions required under the Metropolitan Suburban Bus Authority Employee's Pension Plan.

The following summarizes the employee contributions made to the MTA Defined Benefit Plan:

Effective January 1, 1994, covered MTA Metro-North Railroad and MTA Long Island Rail Road non-represented employees are required to contribute to the MTA Plan to the extent that their Railroad Retirement Tier II employee contribution is less than the pre-tax cost of the 3% employee contributions. Effective October 1, 2000, employee contributions, if any, were eliminated after ten years of making contributions to the MTA Plan. MTA Metro-North Railroad employees may purchase prior service from January 1, 1983 through December 31, 1993 and MTA Long Island Rail Road employees may purchase prior service from January 1, 1988 through December 31, 1993 by paying the contributions that would have been required of that employee for the years in question, calculated as described in the first sentence, had the MTA Plan been in effect for those years.

Police Officers who become participants of the MTA Police Program prior to January 9, 2010 contribute to that program at various rates. Police Officers who become participants on or after January 9, 2010, but before April 1, 2012 contribute 3% up to the completion of 30 years of service, the maximum amount of service credit allowed. Police Officers who become participants on or after April 1, 2012 contribute 3%, with additional new rates starting April 2013, ranging from 3%, 4.5%, 5.75%, to 6%, depending on salary level, for their remaining years of service.

Covered MTA Metro-North Railroad represented employees and MTA Long Island Rail Road represented employees who first became eligible to be MTA Plan participants prior to January 30, 2008 contribute 3% of salary. MTA Staten Island Railway employees contribute 3% of salary except for represented employees hired on or after June 1, 2010 who contribute 4%. MTA Long Island Rail Road represented employees who became participants after January 30, 2008 contribute 4% of salary. For the MTA Staten Island Railway employees, contributions are not required after the completion of ten years of credited service. MTA Long Island Rail Road represented employees are required to make the employee contributions for ten years, or fifteen years if hired after certain dates in 2014 as per collective bargaining agreements. Certain Metro-North represented employees, depending on their collective bargaining agreements, are required to make the employee contributions until January 1, 2014, January 1, 2017, June 30, 2017, or the completion of required years of credited service as per the relevant collective bargaining agreements.

Covered MTA Bus represented employees and certain non-represented employees are required to contribute a fixed dollar amount which varies by depot. Currently, non-represented employees at certain Depots, contribute \$21.50 (whole dollars) per week. Non-represented employees at Eastchester hired prior to 2007 contribute \$25 (whole dollars) per week. Represented employees at Baisley Park, College Point, Eastchester, Far Rockaway, JFK, LaGuardia and Yonkers Depots contribute \$29.06 (whole dollars) per week; Spring Creek represented employees contribute \$32.00 (whole dollars) per week. Certain limited number of represented employees promoted prior to the resolution of a bargaining impasse continue to participate in the MTA Defined Benefit Plan that was in effect before their promotion. Certain MTA Bus non-represented employees who are formerly employed by the private bus companies (Jamaica, Green, Triboro and Command) at Baisley Park, Far Rockaway, JFK, LaGuardia and Spring Creek Depots who are in the pension program covering only such employees make no contributions to the program. (Note: the dollar figures in this paragraph are in dollars, not in millions of dollars).

MTA Bus is required to make significant annual contributions to the MTA Plan on a current basis. Pursuant to the January 1, 2014 and January 1, 2013 actuarial valuations for the MTA Plan, which included amounts for actuarial assets and liabilities relating to both active and retired members for most portions of the former private plans (excepting, for example, members of the Transport Workers Union—New York City Private Bus Lines Pension Trust who were working on school bus routes which did not become part of MTA Bus service), MTA Bus recorded pension expense equal to the valuation annual required contribution of \$44.3 and \$45.9 for the years ended December 31, 2016 and 2015, respectively. Both of these employer contributions were paid to the MTA Plan in their respective years.

5. NYCERS —

NYCERS funding policy is to contribute statutorily-required contributions (“Statutory Contributions”), determined by the Chief Actuary for the New York City Retirement Systems, in accordance with State statutes and City laws, and are generally funded by 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. Statutory Contributions are determined annually to be an amount that, together with member contributions and investment income, provides for NYCERS’ assets to be sufficient to pay benefits when due.

Member contributions are established by law. NYCERS has both contributory and noncontributory requirements, with retirement age varying from 55 to 70 depending upon when an employee last entered qualifying service.

In general, Tier 1 and Tier 2 member contribution rates are dependent upon the employee’s age at membership and retirement plan election. In general, Tier 3 and Tier 4 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 enrolled in the Transit 20-Year Plan, are not required to make basic contributions until their 10th anniversary of their membership date or completion of ten years of credited service, whichever is earlier. In addition, members who meet certain eligibility requirements will receive one month’s additional service credit for each completed year of service up to a maximum of two additional years of service credit. Effective December 2000, certain Transit Authority Tier 3 and Tier 4 members make basic member contributions of 2.0% of salary, in accordance with Chapter 10 of the Laws of 2000. Certain Tier 2, Tier 3 and Tier 4 members who are participants in special retirement plans are required to make additional member contributions of 1.85%, in addition to their base membership contribution. Tier 6 members are mandated to contribute between 3.0% and 6.0% of salary, depending on salary level, until they separate from City service or until they retire.

NYCERS established a “special program” for employees hired on or after July 26, 1976. A plan for employees, who have worked 20 years, and reached age 55 is provided to Bridge and Tunnel Officers, Sergeants and Lieutenants and Maintainers. Also, an age 57 retirement plan is available for all other such MTA Bridges and Tunnels employees. Both of the programs require increased employee contributions.

Certain retirees also receive supplemental benefits from MTA Bridges and Tunnels. Certain participants are permitted to borrow up to 75% of their own contributions including accumulated interest. These loans are accounted for as reductions in each participants’ contribution accounts. Upon termination of employment before retirement, certain members are entitled to refunds of their own contributions, including accumulated interest, less any outstanding loan balances.

MTA New York City Transit and MTA Bridges and Tunnels are required to contribute at an actuarially determined rate. The contribution requirements of plans members, MTA New York City Transit and MTA Bridges and Tunnels are established and amended by law.

6. NYSLERS —

Employer Contributions - Under the authority of the RSSL, the Comptroller annually certifies the actuarially determined rates expressly used in computing the employers’ contributions based on salaries paid during the NYSLERS fiscal year ending June 30.

Member Contributions - NYSLERS is noncontributory except for employers who joined the plan after July 27, 1976. Generally, Tier 3, 4, and 5 members must contribute 3% of their salary to NYSLERS. As a result of Article 19 of the RSSL, eligible Tier 3 and 4 employees, with a membership date on or after July 27, 1976, who have ten or more years of membership or credited service with NYSLERS, are not required to contribute. Members cannot be required to begin making contributions or to make increased contributions beyond what was required when membership began. For Tier 6 members, the contribution rate varies from 3% to 6% depending on salary. Generally, Tier 5 and 6 members are required to contribute for all years of service.

MTAHQ, MTA Capital Construction and MTA Long Island Bus are required to contribute at an actuarially determined rate.

A summary of the aggregate actual contributions made to each pension plan and the respective contribution rates as a percent of covered payroll for the years ended December 31, 2017 and 2016 are as follows:

Year-ended December 31, (\$ in millions)	2017		2016	
	Actual Employer Contributions	Contributions as a percentage of covered payroll	Actual Employer Contributions	Contributions as a percentage of covered payroll
Additional Plan	\$ 221.5	1080.62%	\$ 151.1	515.49%
MaBSTOA Plan	202.7	27.04%	220.7	30.80%
MNR Cash Balance Plan	- *	0.00%	- *	2.68%
MTA Defined Benefit Plan	321.9	17.33%	280.8	15.73%
NYCERS	800.9	21.25%	797.9	22.64%
NYSLERS	14.0	13.46%	13.0	13.69%
Total	<u>\$ 1,561.0</u>		<u>\$ 1,463.5</u>	

*MNR Cash Balance Plan's actual employer contribution for the years ended December 31, 2017 and 2016 was \$0 thousand and \$23 thousand, respectively.

Net Pension Liability

The MTA's net pension liabilities for each of the pension plans reported at December 31, 2017 and 2016 were measured as of the fiscal year-end dates for each respective pension plan. The total pension liabilities used to calculate those net pension liabilities were determined by actuarial valuations as of each pension plan's valuation date, and rolled forward to the respective year-ends for each pension plan. Information about the fiduciary net position of each qualified pension plan's fiduciary net position has been determined on the same basis as reported by each respective qualified pension plan. 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. The following table provides the measurement and valuation dates used by each pension plan to calculate the MTA's aggregate net pension liability.

Year-ended December 31, Pension Plan	2017		2016	
	Plan Measurement Date	Plan Valuation Date	Plan Measurement Date	Plan Valuation Date
Additional Plan	December 31, 2016	January 1, 2016	December 31, 2015	January 1, 2015
MaBSTOA Plan	December 31, 2016	January 1, 2016	December 31, 2015	January 1, 2015
MNR Cash Balance Plan	December 31, 2016	January 1, 2017	December 31, 2015	January 1, 2016
MTA Defined Benefit Plan	December 31, 2016	January 1, 2016	December 31, 2015	January 1, 2015
NYCERS	June 30, 2017	June 30, 2015	June 30, 2016	June 30, 2014
NYSLERS	March 31, 2017	April 1, 2016	March 31, 2016	April 1, 2015

Pension Plan Fiduciary Net Position

Detailed information about the fiduciary net position of the Additional Plan, MaBSTOA Plan, MNR Cash Balance Plan, MTA Defined Benefit Plan, NYCERS plan and the NYSLERS plan is available in the separately issued pension plan financial reports for each respective plan.

Actuarial Assumptions

The total pension liabilities in each pension plan's actuarial valuation dates were determined using the following actuarial assumptions for each pension plan, applied to all periods included in the measurement date:

Valuation Date:	Additional Plan		MaBSTOA Plan		MNR Cash Balance Plan	
	January 1, 2016	January 1, 2015	January 1, 2016	January 1, 2015	January 1, 2017	January 1, 2016
Investment Rate of Return	7.00% per annum, net of investment expenses.	7.00% per annum, net of investment expenses.	7.00% per annum, net of investment expenses.	7.00% per annum, net of investment expenses.	4.00% per annum, net of investment expenses.	4.00% per annum, net of investment expenses.
Salary Increases	3.00%	3.00%	Reflecting general wage, merit and promotion increases of 3.5% for operating employees and 4.0% for non-operating employees per year. Lower increases are assumed in the first 5 years of a member's career.	In general, merit and promotion increases plus assumed general wage increases of 3.5% to 15.0% for operating employees and 4.0% to 7.0% for non-operating employees per year, depending on years of service.	Not applicable	Not applicable
Inflation	2.50%; 3.50% for Railroad Retirement Wage Base.	2.50%; 3.50% for Railroad Retirement Wage Base.	2.50%.	2.50%.	2.30%	2.30%
Cost-of-Living Adjustments	Not applicable	Not applicable	1.375% per annum.	1.375% per annum.	Not applicable	Not applicable
Valuation Date:	MTA Defined Benefit Plan		NYCERS		NYSLERS	
	January 1, 2016	January 1, 2015	June 30, 2015	June 30, 2014	April 1, 2016	April 1, 2015
Investment Rate of Return	7.00% per annum, net of investment expenses.	7.00% per annum, net of investment expenses.	7.00% per annum, net of investment expenses.	7.00% per annum, net of investment expenses.	7.00% per annum, including inflation, net of investment expenses.	7.50% per annum, including inflation, net of investment expenses.
Salary Increases	Varies by years of employment, and employee group; 3.0% General Wage Increases for TWU MTA Bus hourly employees.	Varies by years of employment, and employee group; 3.5% for MTA Bus hourly employees.	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.	3.80% in ERS, 4.5% in PFRS	3.8% in ERS, 4.5% in PFRS
Inflation	2.50%; 3.50% for Railroad Retirement Wage Base.	2.50%; 3.00% for Railroad Retirement Wage Base.	2.50%	2.50%	2.50%	2.50%
Cost-of-Living Adjustments	55% of inflation assumption or 1.375%, if applicable.	55% of inflation assumption or 1.375%, if applicable.	1.5% per annum for Tiers 1, 2, 4 and certain Tier 3 and Tier 6 retirees. 2.5% per annum for certain Tier 3 and Tier 6 retirees.	1.5% per annum for Tiers 1, 2, 4 and certain Tier 3 and Tier 6 retirees. 2.5% per annum for certain Tier 3 and Tier 6 retirees.	1.30% per annum.	1.30% per annum.

Mortality

Additional Plan / MaBSTOA Plan/ MNR Cash Balance Plan and MTA Defined Benefit Plan:

The actuarial assumptions used in the January 1, 2017, 2016, and 2015 valuations for the MTA plans are based on January 1, 2006 through December 31, 2011 experience study dated June 5, 2014. Mortality assumption is based on a 2012 experience study for all MTA plans. The pre-retirement and post-retirement healthy annuitant rates are projected on a generational basis using Scale AA, as recommended by the Society of Actuaries Retirement Plans Experience Committee. As generational tables, they reflect mortality improvements both before and after the measurement date.

Pre-retirement: The MTA plans utilized RP-2000 Employee Mortality Table for Males and Females with Blue collar adjustments.

Post-retirement Healthy Lives: Assumption utilized 95% of RP-2000 Healthy Annuitant mortality table for males with Blue Collar adjustments and 116% of the rates from the RP-2000 Healthy Annuitant mortality table for females.

Post-retirement Disabled Lives: Assumption utilized 75% of the rates from the RP-2000 Disabled Annuitant mortality table for males and females. At age 85 and later for males and age 77 and later for females, the disability rates are set to the male and female healthy rates, respectively. This assumption was not applicable for the Additional Plan and the MNR Cash Balance Plan.

NYCERS:

Pursuant to Section 96 of the New York City Charter, an independent actuarial firm conducts studies of the actuarial assumptions used to value liabilities of the NYCERS pension plan every two years. In accordance with the Administrative Code of the City of New York (“ACNY”), the Board of Trustees of NYCERS are to periodically review and adopt actuarial assumptions as proposed by the Actuary for use in the determination of Employer Contributions.

Mortality tables for service and disability pensioners were developed from experience studies of the NYCERS Plan. The mortality tables for beneficiaries were developed from an experience review.

The actuarial assumptions used in the June 30, 2017 and June 30, 2014 valuations are based, in part, on the GRS report, on published studies of mortality improvement, and on input from the NYC’s outside consultants and auditors, the Actuary proposals, and the Board of Trustees of NYCERS adopted, new post-retirement mortality tables for use in determining employer contributions beginning in Fiscal Year 2016. The new tables of post-retirement are based primarily on the experience of NYCERS and the application of the Mortality Improvement Scale MP-2015, published by the Society of Actuaries in October 2015. Scale MP-2015 replaced Mortality Improvement Scale AA.

NYSLERS:

The actuarial assumptions used in the April 1, 2016 and April 1, 2015 valuations are based on the results of an actuarial experience study for the period April 1, 2010 through March 31, 2015. The annuitant mortality rates are based on the results of the 2015 experience study of the period April 1, 2010 through March 31, 2015, with adjustments for mortality improvement based on the Society of Actuaries’ Scale MP-2014.

Expected Rate of Return on Investments

The long-term expected rate of return on pension plan investments for each pension plan is presented in the following table.

Pension Plan	Plan Measurement Date	Rate
Additional Plan	December 31, 2016	7.00%
MaBSTOA Plan	December 31, 2016	7.00%
MNR Cash Balance Plan	December 31, 2016	4.00%
MTA Defined Benefit Plan	December 31, 2016	7.00%
NYCERS	June 30, 2017	7.00%
NYSLERS	March 31, 2017	7.00%

For the Additional Plan, MaBSTOA Plan, MNR Cash Balance Plan, MTA Defined Benefit Plan, NYCERS plan and NYSLERS plan, the long-term expected rate of return on investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation.

The target asset allocation of each of the funds and the expected real rate of returns (“RROR”) for each of the asset classes are summarized in the following tables for each of the pension plans:

Asset Class	Additional Plan		MaBSTOA Plan	
	Target Asset Allocation	Long - Term Expected Real Rate of Return	Target Asset Allocation	Long - Term Expected Real Rate of Return
US Core Fixed Income	10.00%	1.67%	10.00%	1.67%
US High Yield Bonds	8.00%	5.04%	8.00%	5.04%
Global Bonds	10.00%	0.28%	10.00%	0.28%
Emerging Markets Bonds	3.00%	3.78%	3.00%	3.78%
US Large Caps	10.00%	4.80%	10.00%	4.80%
US Small Caps	5.50%	6.06%	5.50%	6.06%
Global Equity	10.00%	5.49%	10.00%	5.49%
Foreign Developed Equity	10.00%	6.06%	10.00%	6.06%
Emerging Markets Equity	3.50%	8.39%	3.50%	8.39%
Global REITs	5.00%	5.77%	5.00%	5.77%
Private Real Estate Property	3.00%	3.64%	3.00%	3.64%
Private Equity	7.00%	8.99%	7.00%	8.99%
Hedge Funds - MultiStrategy	15.00%	3.45%	15.00%	3.45%
	<u>100.00%</u>		<u>100.00%</u>	
Assumed Inflation - Mean		2.50%		2.50%
Assumed Inflation - Standard Deviation		1.85%		1.85%
Portfolio Nominal Mean Return		7.03%		7.03%
Portfolio Standard Deviation		11.54%		11.54%
Long Term Expected Rate of Return selected by MTA		7.00%		7.00%

Asset Class	MTA Defined Benefit Plan		MNR Cash Balance Plan	
	Target Asset Allocation	Long - Term Expected Real Rate of Return	Target Asset Allocation	Long - Term Expected Real Rate of Return
US Core Fixed Income	10.00%	1.67%	100.00%	1.17%
US High Yield Bonds	8.00%	5.04%		
Global Bonds	10.00%	0.28%		
Emerging Markets Bonds	3.00%	3.78%		
US Large Caps	10.00%	4.80%		
US Small Caps	5.50%	6.06%		
Global Equity	10.00%	5.49%		
Foreign Developed Equity	10.00%	6.06%		
Emerging Markets Equity	3.50%	8.39%		
Global REITs	5.00%	5.77%		
Private Real Estate Property	3.00%	3.64%		
Private Equity	7.00%	8.99%		
Hedge Funds - MultiStrategy	15.00%	3.45%		
	<u>100.00%</u>		<u>100.00%</u>	
Assumed Inflation - Mean		2.50%		2.50%
Assumed Inflation - Standard Deviation		1.85%		1.85%
Portfolio Nominal Mean Return		7.03%		3.69%
Portfolio Standard Deviation		11.54%		4.55%
Long Term Expected Rate of Return selected by MTA		7.00%		4.00%

Asset Class	NYCERS		NYSLERS	
	Target Asset Allocation	Long - Term Expected Real Rate of Return	Target Asset Allocation	Long - Term Expected Real Rate of Return
U.S. Public Market Equities	29.00%	5.70%	36.00%	4.55%
International Public Market Equities	13.00%	6.10%	14.00%	6.35%
Emerging Public Market Equities	7.00%	7.60%	0.00%	0.00%
Private Market Equities	7.00%	8.10%	10.00%	7.75%
Fixed Income	33.00%	3.00%	17.00%	1.31%
Alternatives (Real Assets, Hedge Funds)	11.00%	4.70%	3.00%	5.54%
Real Estate			10.00%	5.80%
Absolute Return Strategies			2.00%	4.00%
Opportunistic Portfolio			3.00%	5.89%
Cash			1.00%	-0.25%
Inflation-indexed Bonds			4.00%	1.50%
	100.00%		100.00%	
Assumed Inflation - Mean		2.50%		2.50%
Long Term Expected Rate of Return		7.00%		7.00%

Discount rate

The discount rate used to measure the total pension liability of each pension plan is presented in the following table:

Year ended December 31,	Discount Rate			
	2017		2016	
Pension Plan	Measurement Date	Rate	Plan Measurement Date	Rate
Additional Plan	December 31, 2016	7.00%	December 31, 2015	7.00%
MaBSTOA Plan	December 31, 2016	7.00%	December 31, 2015	7.00%
MNR Cash Balance Plan	December 31, 2016	4.00%	December 31, 2015	4.00%
MTA Defined Benefit Plan	December 31, 2016	7.00%	December 31, 2015	7.00%
NYCERS	June 30, 2017	7.00%	June 30, 2016	7.00%
NYSLERS	March 31, 2017	7.00%	March 31, 2016	7.00%

The projection of cash flows used to determine the discount rate assumed that employee contributions will be made at the rates applicable for each pension plan and that employer contributions will be made at the rates determined by each pension plan's actuary. Based on those assumptions, each pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current and inactive plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

Changes in Net Pension Liability – Additional Plan, MaBSTOA Plan, MNR Cash Balance Plan and the MTA Defined Benefit Plan

Changes in the MTA’s net pension liability for the Additional Plan, MaBSTOA Plan, MNR Cash Balance Plan and the MTA Defined Benefit Plan for the year ended December 31, 2017, based on the December 31, 2016 measurement date, and for the year ended December 31, 2016, based on the December 31, 2015 measurement date, were as follows:

	Additional Plan			MaBSTOA Plan		
	Total Pension Liability	Plan Fiduciary Net Position	Net Pension Liability	Total Pension Liability	Plan Fiduciary Net Position	Net Pension Liability
	(in thousands)					
Balance as of December 31, 2015	\$ 1,562,251	\$ 726,198	\$ 836,053	\$ 3,391,989	\$ 2,292,316	\$ 1,099,673
Changes for fiscal year 2016:						
Service Cost	2,752	-	2,752	82,075	-	82,075
Interest on total pension liability	104,093	-	104,093	236,722	-	236,722
Effect of economic /demographic (gains) or losses	15,801	-	15,801	13,784	-	13,784
Benefit payments	(158,593)	(158,593)	-	(187,823)	(187,823)	-
Administrative expense	-	(611)	611	-	(186)	186
Member contributions	-	884	(884)	-	18,472	(18,472)
Net investment income	-	58,239	(58,239)	-	212,259	(212,259)
Nonemployer contributions	-	70,000	(70,000)	-	-	-
Employer contributions	-	81,100	(81,100)	-	220,697	(220,697)
Balance as of December 31, 2016	<u>\$ 1,526,306</u>	<u>\$ 777,822</u>	<u>\$ 749,087</u>	<u>\$ 3,536,747</u>	<u>\$ 2,555,735</u>	<u>\$ 981,012</u>

	Additional Plan			MaBSTOA Plan		
	Total Pension Liability	Plan Fiduciary Net Position	Net Pension Liability	Total Pension Liability	Plan Fiduciary Net Position	Net Pension Liability
	(in thousands)					
Balance as of December 31, 2014	\$ 1,602,159	\$ 782,852	\$ 819,307	\$ 3,331,464	\$ 2,265,293	\$ 1,066,171
Changes for fiscal year 2015:						
Service Cost	3,441	-	3,441	77,045	-	77,045
Interest on total pension liability	106,987	-	106,987	232,405	-	232,405
Effect of economic /demographic (gains) or losses	6,735	-	6,735	(68,997)	-	(68,997)
Benefit payments	(157,071)	(157,071)	-	(179,928)	(179,928)	-
Administrative expense	-	(1,218)	1,218	-	(88)	88
Member contributions	-	1,108	(1,108)	-	16,321	(16,321)
Net investment income	-	527	(527)	-	(24,163)	24,163
Employer contributions	-	100,000	(100,000)	-	214,881	(214,881)
Balance as of December 31, 2015	<u>\$ 1,562,251</u>	<u>\$ 726,198</u>	<u>\$ 836,053</u>	<u>\$ 3,391,989</u>	<u>\$ 2,292,316</u>	<u>\$ 1,099,673</u>

	MNR Cash Balance Plan			MTA Defined Benefit Plan		
	Total Pension Liability	Plan Fiduciary Net Position	Net Pension Liability	Total Pension Liability	Plan Fiduciary Net Position	Net Pension Liability
	(in thousands)					
Balance as of December 31, 2015	\$ 634	\$ 612	\$ 22	\$ 4,364,946	\$ 3,074,777	\$ 1,290,169
Changes for fiscal year 2016:						
Service Cost	-	-	-	138,215	-	138,215
Interest on total pension liability	24	-	24	308,009	-	308,009
Effect of plan changes	-	-	-	73,521	-	73,521
Effect of economic / demographic (gains) or losses	(15)	-	(15)	86,809	-	86,809
Effect of assumption changes or inputs	-	-	-	-	-	-
Benefit payments	(77)	(77)	-	(209,623)	(209,623)	-
Administrative expense	-	-	-	-	(3,051)	3,051
Member contributions	-	-	-	-	29,392	(29,392)
Net investment income	-	16	(16)	-	247,708	(247,708)
Employer contributions	-	23	(23)	-	280,768	(280,768)
Balance as of December 31, 2016	<u>\$ 566</u>	<u>\$ 514</u>	<u>\$ (8)</u>	<u>\$ 4,761,877</u>	<u>\$ 3,419,971</u>	<u>\$ 1,341,906</u>

	MNR Cash Balance Plan			MTA Defined Benefit Plan		
	Total Pension Liability	Plan Fiduciary Net Position	Net Pension Liability	Total Pension Liability	Plan Fiduciary Net Position	Net Pension Liability
	(in thousands)					
Balance as of December 31, 2014	\$ 710	\$ 698	\$ 12	\$ 4,099,738	\$ 3,065,220	\$ 1,034,518
Changes for fiscal year 2015:						
Service Cost	-	-	-	124,354	-	124,354
Interest on total pension liability	29	-	29	288,820	-	288,820
Effect of plan changes	-	-	-	6,230	-	6,230
Effect of economic / demographic (gains) or losses	(10)	-	(10)	121,556	-	121,556
Effect of assumption changes or inputs	18	-	18	(76,180)	-	(76,180)
Benefit payments	(113)	(113)	-	(199,572)	(199,572)	-
Administrative expense	-	3	(3)	-	(1,962)	1,962
Member contributions	-	-	-	-	34,519	(34,519)
Net investment income	-	6	(6)	-	(45,122)	45,122
Employer contributions	-	18	(18)	-	221,694	(221,694)
Balance as of December 31, 2015	<u>\$ 634</u>	<u>\$ 612</u>	<u>\$ 22</u>	<u>\$ 4,364,946</u>	<u>\$ 3,074,777</u>	<u>\$ 1,290,169</u>

Sensitivity of the Net Pension Liability to Changes in the Discount Rate

The following presents the MTA’s net pension liability calculated for the Additional Plan, MaBSTOA Plan, MNR Cash Balance Plan and the MTA Defined Benefit Plan using the discount rate as of each measurement date, as well as what the net pension liability would be if it were calculated using a discount rate that is 1-percentage point lower or 1-percentage point higher than the actual discount rate used for each measurement date:

Measurement Date:	December 31, 2016			December 31, 2015		
	1% Decrease (6.0%)	Discount Rate (7.0%)	1% Increase (8.0%)	1% Decrease (6.0%)	Discount Rate (7.0%)	1% Increase (8.0%)
	(in thousands)					
Additional Plan	\$ 871,350	\$ 749,087	\$ 642,973	\$ 963,427	\$ 836,053	\$ 725,673
MaBSTOA Plan	1,376,916	981,012	640,826	1,480,961	1,099,673	775,092
MTA Defined Benefit Plan	1,936,639	1,341,906	1,010,176	1,835,699	1,290,169	830,112
	(in whole dollars)			(in whole dollars)		
MNR Cash Balance Plan	\$ 25,200	\$ (7,899)	\$ (37,092)	\$ 60,689	\$ 21,847	\$ (12,361)

The MTA’s Proportion of Net Pension Liability – NYCERS and NYSLERS

The following table presents the MTA’s proportionate share of the net pension liability of NYCERS based on the June 30, 2015 and June 30, 2014 actuarial valuations, rolled forward to June 30, 2017 and June 30, 2016, respectively, and the proportion percentage of the aggregate net pension liability allocated to the MTA:

	NYCERS	
	June 30, 2017	June 30, 2016
	(\$ in thousands)	
MTA’s proportion of the net pension liability	24.096%	23.493%
MTA’s proportionate share of net pension liability	\$ 5,003,811	\$ 5,708,052

The following table presents the MTA’s proportionate share of the net pension liability of NYSLERS based on the April 1, 2016 and April 1, 2015 actuarial valuations, rolled forward to March 31, 2017 and March 31, 2016, respectively, and the proportion percentage of the aggregate net pension liability allocated to the MTA:

	NYSLERS	
	March 31, 2017	March 31, 2016
	(\$ in thousands)	
MTA’s proportion of the net pension liability	0.311%	0.303%
MTA’s proportionate share of the net pension liability	\$ 29,239	\$ 48,557

The MTA’s proportion of each respective Plan’s net pension liability was based on the MTA’s actual required contributions made to NYCERS for the plan’s fiscal year-end June 30, 2017 and 2016 and to NYSLERS for the plan’s fiscal year-end March 31, 2017 and 2016, relative to the contributions of all employers in each plan.

Sensitivity of the MTA's Proportionate Share of the Net Pension Liability to Changes in the Discount Rate

The following presents the MTA's proportionate share of the net pension liability for NYCERS and NYSLERS calculated using the discount rate as of each measurement date, as well as what the proportionate share of the net pension liability would be if it were calculated using a discount rate that is 1-percentage point lower or 1-percentage point higher than the actual discount rate used as of each measurement date (\$ in thousands):

Measurement Date:	June 30, 2017			June 30, 2016		
	1% Decrease	Discount Rate	1% Increase	1% Decrease	Discount Rate	1% Increase
	(6.0%)	(7.0%)	(8.0%)	(6.0%)	(7.0%)	(8.0%)
NYCERS	\$ 7,231,780	\$ 5,003,811	\$ 3,046,531	\$ 7,826,325	\$ 5,708,052	\$ 3,933,870

Measurement Date:	March 31, 2017			March 31, 2016		
	1% Decrease	Discount Rate	1% Increase	1% Decrease	Discount Rate	1% Increase
	(6.0%)	(7.0%)	(8.0%)	(6.0%)	(7.0%)	(8.0%)
NYSLERS	\$ 93,385	\$ 29,239	\$ (24,935)	\$ 109,494	\$ 48,557	\$ (2,931)

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

For the six-month period ended June 30, 2018 and year ended December 31, 2017, the MTA recognized pension expense related to each pension plan as follows (\$ thousands):

Pension Plan	June 30, 2018	December 31, 2017
	(Unaudited)	
Additional Plan	30,500	\$ 84,583
MaBSTOA Plan	96,652	156,302
MNR Cash Finance plan	-	(10)
MTA Defined Benefit Plan	159,105	346,535
NYCERS	384,901	595,905
NYSLERS	6,985	17,486
Total	\$ 678,143	\$ 1,200,801

For the six-month period ended June 30, 2018 and year ended December 31, 2017, the MTA reported deferred outflow of resources and deferred inflow of resources for each pension plan as follows (in \$ thousands):

For the Period Ended June 30, 2018 (Unaudited)	Additional Plan		MaBSTOA Plan		MNR Cash Balance Plan		MTA Defined Benefit Plan	
	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
Differences between expected and actual experience	\$ -	\$ -	\$ 11,663	\$ 47,891	\$ -	\$ -	\$ 167,897	\$ -
Changes in assumptions	-	-	-	-	-	-	-	56,647
Net difference between projected and actual earnings on pension plan investments	32,500	-	88,411	-	20	4	171,591	-
Changes in proportion and differences between contributions and proportionate share of contributions	-	-	-	-	-	-	6,386	6,386
Employer contributions to the plan subsequent to the measurement of net pension liability	221,523	-	205,111	-	-	-	319,565	-
Total	\$ 254,023	\$ -	\$ 305,174	\$ 47,891	\$ 20	\$ 4	\$ 665,439	\$ 63,033

For the Period Ended June 30, 2018 (Unaudited)	NYCERS		NYSLERS		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
Differences between expected and actual experience	\$ -	\$ 133,314	\$ 733	\$ 4,440	\$ 180,293	\$ 185,845
Changes in assumptions	246,670	-	9,989	-	256,659	56,647
Net difference between projected and actual earnings on pension plan investments	-	4,459	5,840	-	298,365	204,463
Changes in proportion and differences between contributions and proportionate share of contributions	119,738	26,449	2,631	132	128,755	32,967
Employer contributions to the plan subsequent to the measurement of net pension liability	399,868	-	13,969	-	1,158,799	-
Total	\$ 766,276	\$ 364,422	\$ 33,162	\$ 4,572	\$ 2,022,871	\$ 479,922

**For the Year Ended
December 31, 2017**

	Additional Plan		MaBSTOA Plan		MNR Cash Balance Plan		MTA Defined Benefit Plan	
	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
Differences between expected and actual experience	\$ -	\$ -	\$ 11,663	\$ 47,891	\$ -	\$ -	\$ 167,897	\$ -
Changes in assumptions	-	-	-	-	-	-	-	56,647
Net difference between projected and actual earnings on pension plan investments	32,500	-	88,414	-	20	4	171,591	-
Changes in proportion and differences between contributions and proportionate share of contributions	-	-	-	-	-	-	6,386	6,386
Employer contributions to the plan subsequent to the measurement of net pension liability	221,523	-	202,684	-	-	-	321,860	-
Total	<u>\$ 254,023</u>	<u>\$ -</u>	<u>\$ 302,761</u>	<u>\$ 47,891</u>	<u>\$ 20</u>	<u>\$ 4</u>	<u>\$ 667,734</u>	<u>\$ 63,033</u>

**For the Year Ended
December 31, 2017**

	NYCERS		NYSLERS		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
Differences between expected and actual experience	\$ -	\$ 33,514	\$ 733	\$ 4,440	\$ 180,293	\$ 185,845
Changes in assumptions	246,677	-	9,989	-	256,659	56,647
Net difference between projected and actual earnings on pension plan investments	-	204,659	5,840	-	298,364	204,463
Changes in proportion and differences between contributions and proportionate share of contributions	119,738	26,449	2,631	132	128,755	32,967
Employer contributions to the plan subsequent to the measurement of net pension liability	419,367	-	13,969	-	1,179,403	-
Total	<u>\$ 785,775</u>	<u>\$ 364,422</u>	<u>\$ 33,162</u>	<u>\$ 4,572</u>	<u>\$ 2,043,474</u>	<u>\$ 479,922</u>

The annual differences between the projected and actual earnings on investments are amortized over a five-year closed period beginning the year in which the difference occurs.

The following table presents the recognition periods used by each pension plan to amortize the annual differences between expected and actual experience, changes in proportion and differences between employer contributions and proportionate share of contributions, and changes in actuarial assumptions, beginning the year in which the deferred amount occurs.

Pension Plan	Recognition Period (in years)		
	Differences between expected and actual experience	Changes in proportion and differences between employer contributions and proportionate share of contributions	Changes in actuarial assumptions
Additional Plan	1.00	N/A	N/A
MaBSTOA Plan	6.50	N/A	6.30
MNR Cash Balance Plan	1.00	N/A	1.00
MTA Defined Benefit Plan	8.10	8.10	7.80
NYCERS	5.60	5.60	3.33
NYSLERS	5.00	5.00	5.00

For the six-month period ended June 30, 2018 and year ended December 31, 2017, \$1,158.8 and \$1,179.4 were reported as deferred outflows of resources related to pensions resulting from the MTA's contributions subsequent to the measurement date which will be recognized as a reduction of the net pension liability in the year ending December 31, 2018 and December 31, 2017, respectively. Other amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions at June 30, 2018 will be recognized as pension expense as follows:

Year Ending December 31:	Additional Plan	MaBSTOA Plan	MNR Cash Balance Plan	MTA Defined Benefit Plan	NYCERS	NYSLERS	Total
	(in thousands)						
2018	\$ 12,711	\$ 1,605	\$ 4	\$ 82,465	\$ (16,688)	\$ 6,271	\$ 111,248
2019	12,711	26,605	4	82,465	157,042	6,271	284,978
2020	8,896	17,892	6	62,958	(9,102)	5,797	86,441
2021	(1,572)	(18,811)	2	11,047	(137,250)	(3,718)	(150,302)
2022	-	1,065	-	16,746	7,984	-	23,565
Thereafter	-	1,060	-	27,160	-	-	28,220
	<u>\$ 32,500</u>	<u>\$ 52,186</u>	<u>\$ 16</u>	<u>\$ 282,841</u>	<u>\$ 1,986</u>	<u>\$ 14,621</u>	<u>\$ 384,150</u>

Deferred Compensation Program

Description - The Deferred Compensation Program consists of two defined contribution plans that provide benefits based solely on the amount contributed to each participant's account(s), plus or minus any income, expenses and gains/losses. The Deferred Compensation Program is comprised of the Deferred Compensation Plan For Employees of the Metropolitan Transportation Authority ("MTA"), its Subsidiaries and Affiliates ("457 Plan") and the Thrift Plan For Employees of the Metropolitan Transportation Authority, its Subsidiaries and Affiliates ("401(k) Plan"). Certain MTA Related Groups employees are eligible to participate in both deferred compensation plans. Both Plans are designed to have participant charges, including investment and other fees, cover the costs of administering the Deferred Compensation Program.

Participation in the 401(k) Plan is now available to non-represented employees and, after collective bargaining, most represented employees. All amounts of compensation deferred under the 401(k) Plan, and all income attributable to such compensation, less expenses and fees, are held in trust for the exclusive benefit of the participants and their beneficiaries. Accordingly, the 401(k) Plan is not reflected in the accompanying consolidated statements of net position.

The Deferred Compensation Program is administered and may be amended by the Deferred Compensation Committee.

As the Deferred Compensation Program's asset base and contribution flow increased, participants' investment options were expanded by the Deferred Compensation Committee with the advice of its Financial Advisor to provide greater diversification and flexibility. In 1988, after receiving an IRS determination letter for the 401(k) Plan, the MTA offered its managers the choice of either participating in the 457 Plan or the 401(k) Plan. By 1993, the MTA offered eight investment funds: a Guaranteed Interest Account Fund, a Money Market Fund, a Common Stock Fund, a Managed Fund, a Stock Index Fund, a Government Income Fund, an International Fund and a Growth Fund.

In 1998, the Deferred Compensation Committee approved the unbundling of the Plans. In 2008, the Plans' investment choices were restructured to set up a four-tier strategy:

- Tier 1 – The MTA Target-Year Lifecycle Funds, which are comprised of a mix of several funds, most of which are available as separate investments in the Deferred Compensation Program. The particular mix of investments for each Fund is determined by the “target” date, which is the date the money is intended to be needed for retirement income.
- Tier 2 - The MTA Index Funds offer a tier of index funds, which invest in the securities of companies that are included in a selected index, such as the Standard & Poor's 500 (large cap) Index or Russell Mid Cap Index.
- Tier 3 – The MTA Actively Managed Portfolios, which are comprised of actively managed portfolios that are directed by one or a team of professional managers who buy and sell a variety of holdings in an effort to outperform a selected index. These institutional strategies provide participants with a diversified array of distinct asset classes, with a single fund option in each class to simplify the decision making process.
- Tier 4 – Self-Directed Mutual Fund Option is designed for the more experienced investors. Offers access to an expanded universe of mutual funds from hundreds of well-known mutual fund families. Participants may invest only a portion of their account balances in this Tier.

In 2011, the Deferred Compensation Program began offering Roth contributions. Employees can elect after-tax Roth contributions and before-tax contributions in both the 401(k) Plan and the 457 Plan. The total combination of Roth after-tax contributions and regular before-tax contributions cannot exceed the IRS maximum of \$18,000 dollars or \$24,000 dollars for those over age 50 for the year ended December 31, 2017.

The two Plans offer the same array of investment options to participants. Eligible participants in the Deferred Compensation Program include employees (and in the case of MTA Long Island Bus, former employees) of:

- MTA
- MTA Long Island Rail Road
- MTA Bridges and Tunnels
- MTA Long Island Bus
- MTA Metro-North Railroad
- MTA New York City Transit
- MTA Staten Island Rapid Transit
- MTA Capital Construction
- MTA Bus

Matching Contributions - MTA Bus on behalf of certain MTA Bus employees, MTA Metro-North Railroad on behalf of certain MNR employees who opted-out of participation in the MTA Defined Benefit Pension Plan and MTA on behalf of certain represented MTA Business Service Center employees and on behalf of certain MTA Police Officers, make contributions to the 401(k) Plan. The rate for the employer contribution varies.

MTA Bus - Certain members who were employed by Queens Surface Corporation on February 26, 2005, and who became employees of MTA Bus on February 27, 2005, receive a matching contribution equal to 50% of member's before-tax contributions provided that the maximum matching contribution shall not exceed 3% of the member's base pay. MTA Bus also makes a basic contribution equal to 2% of the member's compensation. These members shall vest in the amount in the member's account attributable to the matching contributions and basic contributions as follows:

<u>Years of Service</u>	<u>Vested Percentage</u>
Less than 2	0%
2	20%
3	40%
4	60%
5	80%
6 or more	100%

As a result of collective bargaining, these members were offered a one-time opportunity to opt-out of the matching contributions and employer basic contribution and, instead, participate in the MTA Defined Benefit Pension Plan. No further matching or employer basic contributions will be made for those who make such election.

MTA Metro-North Railroad – MNR employees represented by certain unions and who elected to opt-out of participation in the MTA Defined Benefit Pension Plan receive an annual employer contribution equal to 4% of the member's compensation. Effective on the first full pay period following the nineteenth anniversary date of an eligible MNR member's continuous employment, MTA Metro-North Railroad contributes an amount equal to 7% of the member's compensation. Eligible MNR members vest in these employer contributions as set forth below:

<u>Years of Service</u>	<u>Vested Percentage</u>
Less than 5	0%
5 or more	100%

MTA Headquarters - Police – For each plan year, the MTA shall make contributions to the account of each eligible MTA Police Benevolent Association member in the amounts required by the collective bargaining agreement ("CBA") and subject to the contribution limits set forth in the CBA. These contributions shall be made monthly and shall be considered MTA Police contributions. Members are immediately 100% vested in these employer contributions.

In addition, for each plan year, the MTA shall make contributions to the account of each eligible MTA Police Department Commanding Officers Benevolent Association member in the amounts required by the CBA and subject to the contribution limits set forth in the CBA. These members are immediately 100% vested in these employer contributions.

MTA Headquarters – Business Services - Effective January 1, 2011, all newly hired MTA Business Services Center employees represented by the Transportation Communications Union are eligible to receive a matching contribution up to a maximum of 3% of the participant's compensation. A participant's right to the balance in his or her matching contributions shall vest upon the first of the following to occur:

1. Completing 5 years of service,
2. Attaining the Normal Retirement Age of 62 while in continuous employment, or
3. Death while in continuous employment.

Additional Deposits (Incoming Rollover or Transfers) - Participants in the Deferred Compensation Program are eligible to roll over both their before-tax and after-tax assets from other eligible retirement plans into the 401(k) and 457 Plans. Under certain conditions, both Plans accept rollovers from all eligible retirement plans (as defined by the Code), including 401(a), 457, 401(k), 403(b), and rollover IRAs.

Forfeitures – Non vested contributions are forfeited upon termination of employment. Such forfeitures are used to cover a portion of the pension plan’s administrative expenses.

	December 31, 2017	December 31, 2016
	(In thousands)	
Employer 401K contributions	\$ 4,109	\$ 3,973

5. OTHER POSTEMPLOYMENT BENEFITS

The MTA has implemented GASB Statement No. 45, *Accounting and Financial Reporting for Employers for Postemployment Benefits Other Than Pensions* (“GASB 45”). This Statement established the standards for the measurement, recognition, and display of Other Postemployment Benefits (“OPEB”) expense/expenditures and related liabilities (assets), note disclosures, and, if applicable, required supplementary information (“RSI”) in the financial reports of state and local governmental employers.

Postemployment benefits are part of an exchange of salaries and benefits for employee services rendered. Most OPEB have been funded on a pay-as-you-go basis and have been reported in financial statements when the promised benefits are paid. GASB 45 requires state and local government’s financial reports to reflect systematic, accrual-basis measurement and recognition of OPEB cost (expense) over a period that approximates employees’ years of service and provides information about actuarial accrued liabilities associated with the OPEB and to what extent progress is being made in funding the plan.

The Other Postemployment Benefits Plan (“the OPEB Plan”) and the related Trust Fund (“Trust”) was established on January 1, 2009 for the exclusive benefit of MTA retired employees and their eligible spouses and dependents, to fund some of the OPEB provided in accordance with the MTA’s various collective bargaining agreements. The Plan and the Trust are exempt from federal income taxation under Section 115(1) of the Internal Revenue Code. The OPEB Plan is classified as a single-employer plan.

The separate annual financial statements of the OPEB Plan may be obtained by writing to MTA Comptroller, 2 Broadway, 16th Floor, New York, New York 10004 or at www.mta.info.

Plan Description — The benefits provided by the MTA Group include medical, pharmacy, dental, vision, and life insurance, plus monthly supplements for Medicare Part B or Medicare supplemental plan reimbursements and welfare fund contributions. The different types of benefits provided vary by agency and employee type (represented employees versus management). All benefits are provided upon retirement as stated in the applicable pension plan, although some agencies provide benefits to some members if terminated within 5 years of attaining retirement eligibility. Employees of the MTA Group are members of the following pension plans: the MTA Defined Benefit Plan, the Additional Plan, the MNR Cash Balance Plan, the MaBSTOA Plan, NYCERS, and NYSLERS.

The MTA Group participates in the New York State Health Insurance Program (“NYSHIP”) to provide medical and prescription drug benefits, including Medicare Part B reimbursements, to many of its employees and retirees. NYSHIP provides a Preferred Provider Organization (“PPO”) plan and several Health Maintenance Organization (“HMO”) plans. Represented MTA New York City Transit employees, other MTA New York City Transit former employees who retired prior to January 1, 1996 or January 1, 2001, and MTA Bus retirees do not participate in NYSHIP. These benefits are provided either through a self-insured health plan, a fully insured health plan or an HMO.

The MTA is a participating employer in NYSHIP. The NYSHIP financial report can be obtained by writing to NYS Department of Civil Service, Employee Benefits Division, Alfred E. Smith Office Building, 805 Swan Street, Albany, NY 12239.

GASB Statement No. 45 requires employers to perform periodic actuarial valuations to determine annual accounting costs, and to keep a running tally of the extent to which these amounts are over or under funded. The valuation must be performed at least biennially. The most recent valuation was performed as of January 1, 2016. Forty-six thousand plan participants were receiving retirement benefits as of December 31, 2016, the last valuation reporting period.

During 2012, MTA funded \$250 into an OPEB Trust (“Trust”) allocated between MTA Headquarters and MTA New York City Transit and funded an additional \$50 during 2013 allocated between MTA Long Island Railroad and MTA Metro-North Railroad. There have been no further contributions made to the Trust. Under GASB Statement No. 45, the discount rate is based on the assets in a trust, the assets of the employer or a blend of the two based on the anticipated funding levels of the employer. For this valuation, the discount rate reflects a blend of Trust assets and employer assets. The assumed return on Trust assets is 6.5% whereas the assumed return on employer assets is 3.3% resulting in a discount rate under GASB Statement No. 45 of 3.3%, which is slightly lower than the discount rate of 3.5% used in the prior valuation. This decrease is primarily due to the decrease in Treasury yields and thus returns on employer assets since the prior valuation.

Annual OPEB Cost (“AOC”) and Net OPEB Obligation — The MTA’s annual OPEB cost (expense) represents the accrued cost for postemployment benefits under GASB Statement No. 45. Currently, the MTA expenses the actual benefits paid during a year. The cumulative difference between the annual OPEB cost (“new method”) and the benefits paid during a year (“old method”) will result in a net OPEB obligation (the “Net OPEB Obligation”), included in the consolidated statements of net position. The annual OPEB cost is equal to the Annual Required Contribution (the “ARC”) less adjustments if a Net OPEB Obligation exists and plus the interest on Net OPEB Obligations.

Actuarial Cost, Amortization Methods and Assumptions - For determining the ARC, the MTA has chosen to use the Frozen Initial Liability cost method (the “FIL Cost Method”), one of the cost methods in accordance with the parameters of GASB Statement No. 45. The initial liability is amortized over a 22-year period. As of the last valuation date, January 1, 2016, the remaining amortization period is 12 years.

The Entry Age Normal (“EAN”) Cost Method is used to determine the initial Frozen Accrued Liability as well as any subsequent changes in Accrued Liability due to changes in the plan and/or actuarial assumptions. The initial Frozen Unfunded Accrued Liability was determined as of January 1, 2006 (2007 for MTA Bus Company) to be used in the financials for the 2007 fiscal year. EAN is used to determine the unfunded actuarial accrued liability in the GASB Statement No. 45 supplementary schedule. The EAN method determines the Accrued Liability for each individual based on a level percent of pay for service accrued through the valuation date.

The Frozen Unfunded Accrued Liability is determined each year as the Frozen Unfunded Accrued Liability for the prior year, increased with interest produced by the end-of-year amortization payment and increased or decreased by any new bases established for the current year.

The difference between the Actuarial Present Value of Benefits and the Frozen Unfunded Accrued Liability less the Actuarial Value of Assets, if any, equals the Present Value of Future Normal Cost. The Normal Cost equals the Present Value of Future Normal Cost divided by the present value of future compensation and multiplied by the total of current compensation for members less than certain retirement age.

The Annual Required Contribution (“ARC”) is equal to the sum of the Normal Cost and the amortization for the Frozen Unfunded Accrued Liability with appropriate interest adjustments. Any difference between the ARC and actual plan contributions from the prior year are considered an actuarial gain/loss and thus are included in the development of the Normal Cost. This methodology differs from the approach used for the pension plan where the difference between the ARC and actual plan contributions from the prior year, if any, will increase or decrease the Frozen Unfunded Accrued Liability and will be reflected in future amortization payments. A different approach was applied to the OPEB benefits because these benefits are not actuarially funded.

Valuation Date - The valuation date is the date that all participant and other pertinent information is collected and liabilities are measured. This date may not be more than 24 months prior to the beginning of the fiscal year. The valuation date for this valuation is January 1, 2016, which is 12 months prior to the beginning of the 2017 calendar year.

Inflation Rate - 2.5% per annum compounded annually.

Discount Rate – GASB Statement No. 45 provides guidance to employers in selecting the discount rate. The discount rate should be based on the estimated long-term investment yield on the investments that are expected to be used to finance the benefits. If there are no plan assets, assets of the employer should be used to derive the discount rate. This would most likely result in a lower discount rate and thus, liabilities significantly higher than if the benefits are prefunded. In recognition of the decrease in short-term investment yields, the discount rate for this valuation has been lowered from 3.5% to 3.3%.

Healthcare Reform - The results of this valuation reflect our understanding of the impact in future health costs due to the Affordable Care Act (“ACA”) passed into law in March 2010. An excise tax for high cost health coverage or “Cadillac” health plans was included in ACA. The provision levies a 40% tax on the value of health plan costs that exceed certain thresholds for single coverage or family coverage. If, between 2010 and 2018, the cost of health care insurance rises more than 55%, the threshold for the excise tax will be adjusted. Legislative changes passed in December 2015 have delayed the effective date of the excise tax until 2020. However, the calculation of the threshold amounts remains unchanged. Also included in ACA are various fees (including, but not limited to, the Patient-Centered Outcomes Research Institute fee, Transitional Reinsurance Program fee, and the Health Insurer fee) associated with the initiation of health exchanges in 2014. The current provisions of ACA should be reflected in the projection of benefits and therefore, include the value of the excise tax and ACA fees which apply to the plan(s). It is assumed that there will be no changes to the current law and that there will be no changes in plan design to help mitigate the impact of the excise tax.

The legislative changes from H.R.1, originally known as the “Tax Cuts and Jobs Act”, and H.R. 195, the “Extension of Continuing Appropriations Act, 2018”, are not reflected in this valuation as passage occurred after the measurement date.

The OPEB-specific actuarial assumptions used in the most recent actuarial valuation are as follows:

Valuation date	January 1, 2016
Actuarial cost method	Frozen Initial Liability
Discount rate	3.30%
Price inflation	5.0% per annum, compounded annually
Per-Capita retiree contributions	*
Amortization method	Frozen Initial Liability
Remaining amortization period	12 years
Period closed or open	Closed

* In general, all coverages are paid for by the MTA. However, for MTAHQ members retired prior to 1997, pay a portion of the premium, depending on the year they retired.

Actuarial valuation involve estimates of the value of reported amounts and assumptions about the probability of events far into the future, and that actuarially determined amounts are subject to continual revision as actual results are compared to past expectations and new estimates are made about the future.

Per Capita Claim Costs - Use of a blended premium rate for active employees and retirees under age 65 is a common practice. Health costs generally increase with age, so the blended premium rate is higher than the true underlying cost for actives and the blended premium is lower than the true underlying cost for retirees. For retirees, this difference is called the implicit rate subsidy. Since GASB Statement No. 45 only requires an actuarial valuation for retirees, it requires the plan sponsor to determine the costs of these benefits by removing the subsidy. However in prior years a plan sponsor may use the premiums without adjustment for age if the employer participates in a community-rated plan, in which the premium rates reflect projected health claims experience of all participating employers, or if the insurer would offer the same premium rate if only non-Medicare-eligible retirees were covered.

Effective with this valuation, age adjustments are required for valuing NYSHIP benefits due to a change in actuarial standards. Age adjustments reflect that health costs are typically higher for retirees under age 65 than an average active population and, upon reaching Medicare, health costs are reduced as NYSHIP becomes the secondary payer.

The medical and pharmacy benefits provided to TWU Local 100, ATU 1056, ATU 726 and other eligible represented MTA New York City Transit members, represented MTA Bus members and represented MTA Staten Island Railway members are self-insured as well as some Pre-NYSHIP MTA New York City Transit members. For these benefits, a per capita claims cost assumptions was developed that vary by age, gender and benefit type. The per capita costs assumptions reflect medical and pharmacy claims information, including the Employer Group Waiver Plan (“EGWP”) for providing pharmacy benefits to Medicare-eligible retirees, for 2015 and 2016.

Healthcare Cost Trend — The healthcare trend assumption is based on the Society of Actuaries-Getzen Model version 2017 utilizing the baseline assumptions included in the model, except inflation of 2.5% for medical and pharmacy benefits. Additional adjustments apply based on percentage of costs associated with administrative expenses, aging factors, potential excise taxes due to healthcare reform, and other healthcare reform provisions, separately for NYSHIP and self-insured benefits administered by MTA New York City Transit. The NYSHIP trend reflects actual increases in premiums to Participating Agencies through 2017. Long-term trend increases are 4% for dental and vision benefits and 4.5% for Medicare Part B reimbursements, but not more than projected medical trends excluding any excise tax adjustments. The self-insured trend is applied directly for represented employees of by MTA New York City Transit, MTA Staten Island Railway and MTA Bus. Note that for purposes of estimating the impact of the Excise Tax, the self-insured trends for MTA Bus and MTA New York City Transit differ. The following lists illustrative rates for the NYSHIP and self-insured trend assumptions for MTA New York City Transit, MTA Staten Island Railway and MTA Bus (all amounts are in percentages).

Health Care Cost Trend Rates

Fiscal Year	NYSHIP		MTA New York City Transit and MTA Staten Island Railway		MTA Bus	
	< 65	>= 65	< 65	>= 65	< 65	>= 65
2016	11.8	-	7.3	4.9	7.3	4.9
2017	6.7	6.4	7.1	4.9	7.1	4.9
2018	6.2	6.0	7.0	5.0	6.4	5.0
2019	6.3	5.5	9.2	5.0	9.2	5.0
2020	5.3	5.1	6.0	5.1	6.0	5.1
2025	6.0	5.1	5.8	5.1	5.9	5.1
2030	5.9	5.1	5.8	5.1	5.8	5.1
2035	5.9	5.1	5.8	5.2	5.8	5.2
2040	5.9	5.2	5.7	5.2	5.7	5.2
2050	5.7	5.8	5.3	5.0	5.3	5.0
2060	5.2	5.1	5.1	5.2	5.2	5.2
2070	4.6	4.6	4.6	4.6	4.6	4.9
Ultimate1	4.2	4.2	4.2	4.5	4.2	4.5

1 Ultimate rate used for years prior to 2016 for Entry Age purposes.

Participation — The table below summarizes the census data provided by each Agency utilized in the preparation of the actuarial valuation. The table shows the number of active and retired employees by Agency and provides a breakdown of the coverage elected and benefits offered to current retirees.

OPEB Participation By Agency at January 1, 2016 (Valuation date for December 31, 2017)

	MTA New York City Transit	MTA Long Island Rail Road	MTA Metro - North Rail Road	MTA Bridges & Tunnels	MTAHQ	MTA Long Island Bus *	MTA Staten Island Railway	MTA Bus	Total
Active Members									
Number	49,174	7,141	6,506	1,475	1,720	-	297	3,757	70,070
Average Age	49	45	45	47	46	-	44	47	48
Average Service	14	12	13	14	13	-	12	12	13
Retirees									
Single Medical Coverage Employee/Spouse	12,818	662	452	622	193	88	27	616	15,478
Coverage	17,427	2,065	1,050	716	371	198	60	939	22,826
Employee/Child Coverage	1,085	107	77	7	29	21	4	47	1,415
No medical Coverage	817	2,387	2,486	7	11	17	24	296	6,345
Total Number	<u>32,147</u>	<u>5,221</u>	<u>4,065</u>	<u>730</u>	<u>604</u>	<u>624</u>	<u>115</u>	<u>1,898</u>	<u>46,064</u>
Average Age	72.0	68.5	74.5	69.7	65.9	66.1	64.8	70.6	71.5
Total Number with Dental/ Vision	7,018	846	534	435	529	58	47	110	9,577
Total Number with Vision	27,843	846	534	435	529	58	93	1,562	31,900
Total Number with Supplement	26,448	1,957	955	-	462	22	1,454	31,298	
Average Monthly Supplement									
Amount in whole dollars (Excluding Part B Premium)	\$ 32	\$ 22	\$ -	\$ 211	\$ -	\$ -	\$ 238	\$ 25	\$ 50
Total Number with Life Insurance	7,163	751	2,536	380	519	509	92	232	16,182
Average Life Insurance Amount	\$ 2,693	\$ 23,500	\$ 2,722	\$ 5,605	\$ 5,000	\$ 9,715	\$ 2,978	\$ 5,409	\$ 9,215

* No active members as of January 1, 2016. In addition, there are 155 vestees not included in these counts.

Coverage Election Rates — The majority of members participating in NYSHIP are assumed to elect coverage in the Empire PPO plan. For certain agencies (MTA New York City Transit, MTA Bridges and Tunnels, and MTA Staten Island Railway) a percentage of the membership is assumed to elect the NYSHIP HIP plan and for MTA Metro-North Railroad, a percentage is assumed to elect ConnectiCare.

Dependent Coverage — Spouses are assumed to be the same age as the employee/retiree. 80% of male and 45% of female eligible members participating in NYSHIP are assumed to elect family coverage upon retirement and 65% of male and 35% of female eligible members participating in self-insured programs administered by MTA New York City Transit are assumed to cover a dependent. Actual coverage elections for current retirees are used. If a current retiree's only dependent is a child, eligibility is assumed for an additional 7 years from the valuation date.

Demographic Assumptions:

Mortality — Preretirement and postretirement healthy annuitant rates are projected on a generational basis using Scale AA. As a generational table, it reflects mortality improvements both before and after the measurement date. The postretirement mortality assumption is based on an experience analysis covering the period from January 1, 2011 to December 31, 2015 for the MTA-sponsored pension plans.

Preretirement — RP-2000 Employee Mortality Table for Males and Females with blue-collar adjustments. No blue-collar adjustments were used for management members of MTAHQ.

Postretirement Healthy Lives — 95% of the rates from the RP-2000 Healthy Annuitant mortality table for males with blue collar adjustments and 116% of the rates from the RP-2000 Healthy Annuitant mortality table for females. No blue collar or percentage adjustments were used for management members of MTAHQ.

Postretirement Disabled Lives — RP-2014 Disabled Annuitant mortality table for males and females.

Vestee Coverage — For members that participate in NYSHIP, Vestees (members who have terminated, but not yet eligible to retire) are eligible for NYSHIP benefits provided by the Agency upon retirement, but must maintain NYSHIP coverage at their own expense from termination to retirement. Vestees are assumed to retire at first eligibility and would continue to maintain NYSHIP coverage based on the following percentages. This assumption is based on the Development of Recommended Actuarial Assumptions for New York State/SUNY GASB 45 Valuation report provided to Participating Employees of NYSHIP. These percentages were also applied to current vestees based on age at the valuation date.

Age at Termination	Percent Electing
< 40	0 %
40–43	5
44	20
45–46	30
47	40
49	50
50–51	80
52	100

The following table shows the elements of the MTA’s annual OPEB cost for the year, the amount actually paid, and changes in the MTA’s net OPEB obligation to the plan for the six-month period ended June 30, 2018 and year ended December 31, 2017. The portion of this actuarial present value allocated to a valuation year is called the Normal Cost. Calculations are based on the types of benefits provided under the terms of the substantive plan at the time of each valuation and on the pattern of sharing costs between the employer and plan members to that point. Calculations reflect a long-term perspective.

(In millions)	June 30, 2018 (Unaudited)	December 31, 2017
Annual required contribution (“ARC”)	\$ 1,492.6	\$ 2,985.1
Interest on net OPEB obligation	250.1	500.1
Adjustment to ARC	(685.9)	(1,329.8)
OPEB cost	1,056.8	2,155.4
Payments made	(314.2)	(579.9)
Increase in net OPEB obligation	742.6	1,575.5
Net OPEB obligation — beginning of period	16,731.0	15,155.5
Net OPEB obligation — end of period	\$ 17,473.6	\$ 16,731.0

The MTA's annual OPEB cost, the percentage of annual OPEB cost contributed to, and the net OPEB obligation for the year ended December 31, 2017, 2016 and 2015 are as follows (in millions):

Year Ended	Annual OPEB Cost	% of Annual Cost Contributed	Net OPEB Obligation
December 31, 2017	\$ 2,155.4	26.9%	\$ 16,731.0
December 31, 2016	2,146.4	25.7	15,155.5
December 31, 2015	1,997.2	25.2	13,560.1

The MTA funded status of the Plan is as follows (in millions):

Year Ended	Valuation Date	Actuarial Value of Assets {a}	Actuarial Liability (AAL)* {b}	Unfunded Actuarial Liability (UAL) {c} = {a} - {b}	Funded Ratio {a}/{b}	Covered Payroll {d}	Ratio of UAAL to Covered Payroll {c}/{d}
December 31, 2017	January 1, 2016	\$297.5	\$19,807.7	\$19,504.2	1.5%	\$5,041.00	386.9 %

* Based on Entry Age Normal

The required schedule of funding progress for the MTA Post-employment Benefit Plan immediately following the notes to the financial statements presents multiyear trend information about whether the actuarial value of plan assets is increasing or decreasing over time relative to the actuarial accrued liability for benefits.

6. CAPITAL ASSETS

Capital assets and improvements include land, buildings, equipment, and infrastructure of the MTA having a minimum useful life of two years and having a cost of more than \$25 thousand.

Capital assets are stated at historical cost, or at fair value, historical cost based on appraisals, or on other acceptable methods when historical cost is not available. 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.

Accumulated depreciation and amortization are reported as reductions of fixed assets. Depreciation is computed using the straight-line method based upon estimated useful lives of 25 to 50 years for buildings, 2 to 40 years for equipment, and 25 to 100 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. Capital assets consist of the following at December 31, 2016, December 31, 2017 and June 30, 2018 (in millions):

	Balance December 31, 2016	Additions / Reclassifications	Deletions / Reclassification	Balance December 31, 2017	Additions / Reclassifications (Unaudited)	Deletions / Reclassifications (Unaudited)	Balance June 30, 2018 (Unaudited)
Capital assets not being depreciated:							
Land	\$ 203	\$ 14	\$ -	\$ 217	\$ -	\$ -	\$ 217
Construction work-in-progress	16,256	6,491	7,769	15,978	2,915	1,555	18,338
Total capital assets not being depreciated	16,459	6,505	5,769	17,195	2,915	1,555	18,555
Capital assets being depreciated:							
Buildings and structures	17,458	751	93	17,716	75	1	17,790
Bridges and tunnels	3,316	288	-	3,604	328	-	3,932
Equipment:							
Passenger cars and locomotives	13,863	1	-	13,860	158	24	13,994
Buses	3,446	213	46	3,613	119	57	3,675
Infrastructure	22,078	1,502	27	23,834	467	-	24,301
Other	20,122	2,602	18	22,706	504	5	23,205
Total capital assets being depreciated	80,283	5,638	588	85,333	1,651	87	86,897
Less accumulated depreciation:							
Buildings and structures	6,683	20	290	6,923	263	-	7,186
Bridges and tunnels	746	37	-	783	5	-	788
Equipment:							
Passenger cars and locomotives	6,831	71	4	7,206	208	24	7,390
Buses	2,005	250	39	2,216	115	57	2,274
Infrastructure	8,635	672	21	9,286	422	-	9,708
Other	7,316	751	13	8,054	323	4	8,373
Total accumulated depreciation	32,224	2,611	367	34,468	1,336	85	35,719
Total capital assets being depreciated - net	48,059	3,027	221	50,865	315	2	51,178
Capital assets - net	\$ 64,518	\$ 9,532	\$ 5,990	\$ 68,060	\$ 3,230	\$ 1,557	\$ 69,733

Interest capitalized in conjunction with the construction of capital assets for the periods ended June 30, 2018 and December 31, 2017 was \$22.6 and \$58.9, respectively.

Capital assets acquired prior to April 1982 for MTA New York City Transit were funded primarily by NYC with capital grants made available to MTA New York City Transit. NYC has title to a substantial portion of such assets and, accordingly, these assets are not recorded on the books of the MTA. Subsequent acquisitions, which are part of the MTA Capital Program, are recorded at cost by MTA New York City Transit. In certain instances, title to MTA Bridges and Tunnels' real property may revert to NYC in the event the MTA determines such property is unnecessary for its corporate purpose. With respect to MTA Metro-North Railroad, capital assets completely funded by CDOT are not reflected in MTA's financial statements, as ownership is retained by CDOT.

For certain construction projects, the MTA holds in a trust account marketable securities pledged by third-party contractors in lieu of cash retainages. At June 30, 2018 and December 31, 2017, these securities, which are not included in these financial statements, totaled \$111.0 and \$114.8, respectively, and had a market value of \$96.5 and \$83.7, respectively.

7. LONG-TERM DEBT

(In millions)	Original Issuance	December 31, 2017	Issued (Unaudited)	Retired	June 30, 2018 (Unaudited)
MTA:					
Transportation Revenue Bonds					
1.37%–6.68% due through 2057	\$ 36,161	\$ 21,028	\$ 472	\$ -	\$ 21,500
Bond Anticipation Notes					
2.0% due through 2018	6,704	5,516	2,100	512	3,104
State Service Contract Bonds					
4.125%–5.70% due through 2031	2,395	1,668	-	33	35
Dedicated Tax Fund Bonds					
2.05%–5.00% due through 2056	1,039	5,371	-	-	5,371
	<u>56,299</u>	<u>27,983</u>	<u>2,572</u>	<u>545</u>	<u>30,010</u>
Net unamortized bond premium		1,578	190	137	1,631
	56,299	29,561	2,762	682	31,641
TBTA:					
General Revenue Bonds					
4.00%–5.77% due through 2050	15,977	7,218	352	41	7,529
Bond Anticipation Notes					
5.77% due through 2032	400	165	-	165	-
Subordinate Revenue Bonds					
4.00%–5.77% due through 2032	4,066	1,386	-	39	1,347
	<u>20,443</u>	<u>8,769</u>	<u>352</u>	<u>245</u>	<u>8,876</u>
Net unamortized bond premium	-	581	49	40	590
	20,443	9,350	401	285	9,466
MTA Hudson Rail Yards Trust:					
MTA Hudson Rail Yards Trust Obligation					
1.88%–2.65% due through 2056	1,057	1,057	-	-	1,057
Net unamortized bond premium	-	130	-	1	129
	<u>1,057</u>	<u>1,187</u>	<u>-</u>	<u>1</u>	<u>1,186</u>
Total	\$ 77,799	\$ 40,098	\$ 3,163	\$ 968	\$ 42,293
Current portion		<u>\$ 1,806</u>			<u>\$ 1,077</u>
Long-term portion		<u>\$ 38,292</u>			<u>\$ 41,216</u>

(In millions)	Original Issuance	December 31, 2016	Issued	Retired	December 31, 2017
MTA:					
Transportation Revenue Bonds					
1.37%–6.68% due through 2057	\$ 35,689	\$ 21,209	\$ 3,803	\$ 3,984	\$ 21,028
Bond Anticipation Notes					
2.0% due through 2018	4,604	948	2,204	1,636	1,516
State Service Contract Bonds					
4.125%–5.70% due through 2031	2,395	145	-	77	68
Dedicated Tax Fund Bonds					
2.05%–5.00% due through 2056	11,039	5,009	993	631	5,371
	<u>53,727</u>	<u>27,311</u>	<u>7,000</u>	<u>6,328</u>	<u>27,983</u>
Net unamortized bond premium	-	1,345	740	507	1,578
	53,727	28,656	7,740	6,835	29,561
TBTA:					
General Revenue Bonds					
4.00%–5.77% due through 2050	15,625	6,871	2,040	1,639	7,218
Bond Anticipation Notes					
5.77% due through 2032	400	-	400	235	165
Subordinate Revenue Bonds					
4.00%–5.77% due through 2032	4,066	1,520	1,008	242	1,386
	<u>20,091</u>	<u>8,391</u>	<u>2,548</u>	<u>2,116</u>	<u>8,769</u>
Net unamortized bond premium	-	1,355	399	553	581
	20,091	9,746	2,947	2,669	9,350
MTA Hudson Rail Yards Trust:					
MTA Hudson Rail Yards Trust Obligations					
1.88%–2.65% due through 2056	1,057	1,057	-	-	1,057
Net unamortized bond premium	-	137	-	7	130
	<u>1,057</u>	<u>1,194</u>	<u>-</u>	<u>7</u>	<u>1,187</u>
Total	\$ 74,875	\$ 38,922	\$ 10,687	\$ 9,511	\$ 40,098
Current portion		<u>1,977</u>			<u>\$ 1,806</u>
Long-term portion		<u>\$ 36,945</u>			<u>\$ 38,292</u>

MTA Transportation Revenue Bonds. Prior to 2018, MTA issued sixty-one Series of Transportation Revenue Bonds secured under its General Resolution Authorizing Transportation Revenue Obligations adopted on March 26, 2002 in the aggregate principal amount of \$31,419. The Transportation Revenue Bonds are MTA's special obligations payable solely from transit and commuter systems revenues and certain state and local operating subsidies.

On January 23, 2018, MTA issued \$477 of Transportation Revenue Bonds, Series 2018A. Proceeds from the transaction were used to pay off the existing outstanding 2017B Bond Anticipation Notes in the amount of \$500. The Series 2018A bonds were issued as \$195 Subseries 2018A-1 and \$277 Subseries 2018A-2. The Series 2018A-1 bonds were issued as mandatory tender bonds with an initial purchase date of November 15, 2020. The Series 2018A-2 bonds were issued as mandatory tender bonds with an initial purchase date of November 15, 2022.

On March 12, 2018, S&P Global Ratings lowered its long-term rating on all outstanding MTA Transportation Revenue Bonds to A+ from AA-.

On March 29, 2018, MTA effectuated a mandatory tender and remarketed \$100 of MTA Transportation Revenue Variable Rate Refunding Bonds, Subseries 2002D-2b because its current interest rate period was set to expire by its terms.

MTA Bond Anticipation Notes — From time to time, MTA issues Transportation Revenue Bond Anticipation Notes in accordance with the terms and provisions of the General Resolution described above in the form of commercial paper to fund its transit and commuter capital needs. The interest rate payable on the notes depends on the maturity and market conditions at the time of issuance. The MTA Act requires MTAHQ to periodically (at least each five years) refund its bond anticipation notes with bonds.

On January 23, 2018, MTA issued \$500 of MTA Transportation Revenue Bond Anticipation Notes, Series 2018A to finance existing approved transit and commuter projects. The Subseries 2018A notes are fixed rate tax-exempt notes with a final maturity of August 15, 2019.

On June 19, 2018, MTA issued \$1,600 of MTA Transportation Revenue Bond Anticipation Notes, Series 2018B to generate new money proceeds to finance existing approved transit and commuter projects. The Series 2018B Notes are fixed rate tax-exempt notes with a final maturity of May 15, 2021.

MTA Revenue Anticipation Notes — On January 9, 2014, MTA closed a \$350 revolving working capital liquidity facility with the Royal Bank of Canada which is expected to remain in place until July 7, 2017. Draws on the facility will be taxable, as such this facility is intended to be used only for operating needs of MTA and the related entities. On January 31, 2017, MTA drew down \$200 of its \$350 Revolving Credit Agreement with the Royal Bank of Canada, which was entered into on January 9, 2014. The purpose of the draw was to retire Transportation Revenue Bond Anticipation Notes, Subseries 2016A-1. The \$200 draw-down plus accrued interest was repaid on March 31, 2017.

On August 24, 2017, MTA entered into a \$350 taxable Revenue Anticipation Note facility, (the “2017A RAN”), with J.P. Morgan Chase Bank, National Association. An initial draw of \$3.5 was made at closing. This balance will remain throughout the duration of the agreement. The 2017A RAN is available to be used by MTA for any corporate purpose as needed and is structured as a revolving credit facility. The RAN expires on August 24, 2022.

MTA State Service Contract Bonds — Prior to 2018, MTA issued two Series of State Service Contract Bonds secured under its State Service Contract Obligation Resolution adopted on March 26, 2002, in the aggregate principal amount of \$2,395. Currently, the outstanding balance is \$35. The State Service Contract Bonds are MTA’s special obligations payable solely from certain payments from the State of New York under a service contract.

MTA Dedicated Tax Fund Bonds — Prior to 2018, MTA issued twenty-two Series of Dedicated Tax Fund Bonds secured under its Dedicated Tax Fund Obligation Resolution adopted on March 26, 2002, in the aggregate principal amount of \$9,769. The Dedicated Tax Fund Bonds are MTA’s special obligations payable solely from monies held in the Pledged Amounts account of the MTA Dedicated Tax Fund. State law requires that the MTTF revenues and MMTOA revenues (described above in Note 2 under “Nonoperating Revenues”) be deposited, subject to appropriation by the State Legislature, into the MTA Dedicated Tax Fund.

MTA Certificates of Participation — Prior to 2018, MTA (solely on behalf of MTA Long Island Rail Road and MTA Metro-North Railroad), MTA New York City Transit and MTA Bridges and Tunnels executed and delivered three Series of Certificates of Participation in the aggregate principal amount of \$807 to finance certain building and leasehold improvements of an office building at Two Broadway in Manhattan occupied principally by MTA New York City Transit, MTA Bridges and Tunnels, MTA Capital Construction, and MTAHQ. The Certificates of Participation represented proportionate interests in the principal and interest components of Base Rent paid severally, but not jointly, in their respective proportionate shares by MTA New York City Transit, MTA, and MTA Bridges and Tunnels, pursuant to a Leasehold Improvement Sublease Agreement.

MTA Bridges and Tunnels General Revenue Bonds — Prior to 2018, MTA Bridges and Tunnels issued twenty-nine Series of General Revenue Bonds secured under its General Resolution Authorizing General Revenue Obligations adopted on March 26, 2002, in the aggregate principal amount of \$12,422. The General Revenue Bonds are MTA Bridges and Tunnels’ general obligations payable generally from the net revenues collected on the bridges and tunnels operated by MTA Bridges and Tunnels.

On January 24, 2018, MTA effectuated a mandatory tender and remarketed \$122.635 of Triborough Bridge and Tunnel Authority General Revenue Variable Rate Bonds, Subseries 2003B-1 because the irrevocable direct-pay LOC relating to the Subseries 2003B-1 Bonds issued by PNC Bank, National Association, and the irrevocable direct-pay LOC relating to the Triborough Bridge and Tunnel Authority General Revenue Variable Rate Bonds, Subseries 2003B-3 Bonds issued by Wells Fargo Bank, National Association expired by their terms. The LOC facilities related to both Subseries 2003B-1 and Subseries 2003B-3 were substituted with an irrevocable direct-pay LOC issued by Bank of America, N.A. The LOC expires on January 21, 2022.

On January 24, 2018, MTA effectuated a mandatory tender and remarketed \$190.3 of Triborough Bridge and Tunnel Authority General Revenue Variable Rate Refunding Bonds, Subseries 2005B-2 because the irrevocable direct-pay LOC issued by Wells Fargo Bank, National Association expired by its terms, and was substituted with an irrevocable direct-pay LOC issued by Citibank, N.A. The LOC expires on January 23, 2021.

On February 1, 2018, MTA issued \$352 of Triborough Bridge and Tunnel Authority General Revenue Bonds, Series 2018A. The proceeds from the transactions were used to retire \$165 of MTA Bridges and Tunnels General Revenue Bond Anticipation Notes, Series 2017A and to finance bridge and tunnel capital projects. The Series 2018A bonds have a final maturity of November 15, 2048.

On June 27, 2018, MTA effectuated a mandatory tender and remarketed \$107.275 of Triborough Bridge and Tunnel Authority General Revenue Variable Rate Bonds, Series 2001C because the irrevocable direct-pay LOC relating to the Series 2001C Bonds issued by The Bank of Tokyo-Mitsubishi UFJ, Ltd., was expiring by its terms and was substituted with an irrevocable direct-pay LOC issued by State Street Bank and Trust Company. The LOC will expire on June 26, 2023.

On June 27, 2018, MTA effectuated a mandatory tender and remarketed \$190.300 of Triborough Bridge and Tunnel Authority General Revenue Variable Rate Refunding Bonds, Subseries 2005B-3 because the irrevocable direct-pay LOC relating to the Subseries 2005B-3 Bonds issued by The Bank of Tokyo-Mitsubishi UFJ, Ltd., was expiring by its terms and was substituted with an irrevocable direct-pay LOC issued by State Street Bank and Trust Company. The LOC will expire on June 26, 2023.

MTA Bridges and Tunnels Subordinate Revenue Bonds — Prior to 2018, MTA Bridges and Tunnels issued twelve Series of Subordinate Revenue Bonds secured under its 2002 Subordinate Revenue Resolution Authorizing Subordinate Revenue Obligations adopted on March 26, 2002, for the aggregate principal amount of \$3,871. The Subordinate Revenue Bonds are MTA Bridges and Tunnels special obligations payable generally from the net revenues collected on the bridges and tunnels operated by MTA Bridges and Tunnels after the payment of debt service on the MTA Bridges and Tunnels General Revenue Bonds described in the preceding paragraph.

MTA Hudson Rail Yards Trust Obligations — The MTA Hudson Rail Yards Trust Obligations, Series 2016A (“Series 2016A Obligations”) were executed and delivered on September 22, 2016 by Wells Fargo Bank National Association, as Trustee (“Trustee”), to (i) retire the outstanding Transportation Revenue Bond Anticipation Notes, Series 2016A of the MTA, which were issued to provide interim financing of approved capital program transit and commuter projects, (ii) finance approved capital program transit and commuter projects of the affiliates and subsidiaries of the MTA, (iii) fund an Interest Reserve Requirement in an amount equal to one-sixth (1/6) of the greatest amount of Interest Component (as hereinafter defined) in the current or any future year, (iv) fund a portion of the Capitalized Interest Fund requirement, and (v) finance certain costs of issuance.

Pursuant to the Financing Agreement (as hereinafter defined), the MTA has agreed to pay to, or for the benefit of, the Trustee the “MTA Financing Agreement Amount,” consisting of principal and interest components. The Series 2016A Obligations provide the interest of the Owners thereof in such MTA Financing Agreement Amount payable by the MTA pursuant to the Financing Agreement. The principal amount of the Series 2016A Obligations represent the principal components of the MTA Financing Agreement Amount (“Principal Components”) and the interest represent the interest components of the MTA Financing Agreement Amount (“Interest Components”). The Series 2016A Obligations (and the related Principal Components and Interest Components) are special limited obligations payable solely from the Trust Estate established under the MTA Hudson Rail Yards Trust Agreement, dated as of September 1, 2016 (“Trust Agreement”), by and between the MTA and the Trustee.

The Trust Estate consists principally of (i) the regularly scheduled rent, delinquent rent or prepaid rent (“Monthly Ground Rent”) to be paid by Ground Lease Tenants (the tenants under the Western Rail Yard Original Ground Lease and each Severed Parcel Ground Lease of the Eastern Rail Yard) of certain parcels being developed on and above the Eastern Rail Yard and Western Rail Yard portions of the John D. Caemmerer West Side Yards (“Hudson Rail Yards”) currently operated by The Long Island Rail Road Company (“LIRR”), (ii) monthly scheduled transfers from the Capitalized Interest Fund during the limited period that the Monthly Ground Rent is abated under the applicable Ground Lease, (iii) payments made by the Ground Lease Tenants if they elect to exercise their option to purchase the fee interest in such parcels (“Fee Purchase Payments”), (iv) Interest Reserve Advances and Direct Cost Rent Credit Payments (collectively “Contingent Support Payments”) made by the MTA, (v) rights of the MTA to exercise certain remedies under the Ground Leases and (vi) rights of the Trustee to exercise certain remedies under the Ground Leases and the Fee Mortgages.

Pursuant to the Interagency Financing Agreement, dated as of September 1, 2016 (“Financing Agreement”), by and among the MTA, New York City Transit Authority, Manhattan and Bronx Surface Transit Operating Authority, LIRR, Metro-North Commuter Railroad Company, and MTA Bus Company (collectively, the “Related Transportation Entities”), and the Trustee, the MTA has agreed to pay to the Trustee the MTA Financing Agreement Amount with moneys provided by the Financing Agreement Payments (which are principally the revenues within the Trust Estate) and Interest Reserve Advances. The MTA has established a deposit account with Wells Fargo Bank, National Association, as depository (“Depository”), and the MTA will direct all Ground Lease Tenants to make Monthly Ground Rent and Fee Purchase Payments (payments made by the Ground Lease Tenants if they elect to exercise their option to purchase the fee interest in such parcels) directly to the Depository, which deposits will be transferred daily to the Trustee. In addition, in the event the MTA elects to exercise certain Authority Cure Rights upon the occurrence of a Ground Lease Payment Event of Default or is required to make certain Direct Cost Rent Credit Payments, the MTA will make all payments relating to defaulted and future Monthly Ground Rent directly to the Depository.

Refer to Note 8 for further information on Leases.

Debt Limitation — The New York State Legislature has imposed limitations on the aggregate amount of debt that the MTA and MTA Bridges and Tunnels can issue to fund the approved transit and commuter capital programs. The current aggregate ceiling, subject to certain exclusions, is \$55,497 compared with issuances totaling approximately \$34,397. The MTA expects that the current statutory ceiling will allow it to fulfill the bonding requirements of the approved Capital Programs.

Bond Refundings — From time to time, the MTA and MTA Bridges and Tunnels issue refunding bonds to achieve debt service savings or other benefits. The proceeds of refunding bonds are generally used to purchase U.S. Treasury obligations that are placed in irrevocable trusts. The principal and interest within the trusts will be used to repay the refunded debt. The trust account assets and the refunded debt are excluded from the consolidated statements of net position.

At June 30, 2018 and December 31, 2017, the following amounts of MTA bonds, which have been refunded, remain valid debt instruments and are secured solely by and payable solely from their respective irrevocable trusts.

(In millions)	June 30, 2018 (Unaudited)	December 31, 2017
MTA Transit and Commuter Facilities:		
Transit Facilities Revenue Bonds	\$ 189	\$ 189
Commuter Facilities Revenue Bonds	193	193
Transit and Commuter Facilities Service Contract Bonds	-	28
Dedicated Tax Fund Bonds	42	61
MTA New York City Transit — Transit Facilities Revenue Bonds (Livingston Plaza Project)	-	8
MTA Bridges and Tunnels:		
General Purpose Revenue Bonds	674	694
Special Obligation Subordinate Bonds	102	115
Mortgage Recording Tax Bonds	-	-
Total	<u>\$ 1,200</u>	<u>\$ 1,288</u>

For the six months ended June 30, 2018, MTA did not have any refunding transactions. For the six months ended June 30, 2017, MTA refunding transactions decreased aggregate debt service payments by \$269 and provided an economic gain of \$192. Details of bond refunding savings as of December 31, 2017 are as follows:

Bonds Refunded in 2017

(In millions)	Series	Date issued	Par value Refunded	Debt Service Savings	Net Present Value of Savings
Transportation Revenue Bonds	TRB 2017A-2	03/16/2017	\$ 137	\$ 22	\$ 16
	TRB 2017B	09/20/2017	662	91	80
	TRB 2017C	12/14/2017	2,021	170	156
	TRB 2017D	12/21/2017	643	56	51
Total Transportation Revenue Bonds			<u>3,463</u>	<u>339</u>	<u>303</u>
Dedicated Tax Fund Bonds	DTF 2017B-2	05/17/2017	371	47	36
MTA Bridges and Tunnels General Revenue Bonds	TBTA 2017B	01/17/2017	903	199	139
	TBTA 2017C-1	01/17/2017	521	62	56
Total MTA Bridges and Tunnels General Revenue Bonds			<u>1,424</u>	<u>261</u>	<u>195</u>
Total Bond Refunding Savings			<u><u>\$ 5,258</u></u>	<u><u>\$ 647</u></u>	<u><u>\$ 534</u></u>

For the six-month periods ended June 30, 2018 and 2017, the accounting loss on bond refundings totaled \$0 and the accounting gain on bond refundings totaled \$97, respectively.

Unamortized losses related to bond refundings were as follows:

(In millions)	December 31, 2016	(Gain)/loss on refunding	Current year amortization	December 31, 2017	(Gain)/loss on refunding (Unaudited)	Current year amortization (Unaudited)	June 30, 2018 (Unaudited)
MTA:							
Transportation Revenue Bonds	\$ 557	222	\$ (51)	\$ 728	-	(30)	\$ 698
State Service Contract Bonds	(7)	-	(3)	(10)	-	(1)	(11)
Dedicated Tax Fund Bonds	-	55	(16)	254	-	(8)	246
	<u>765</u>	<u>277</u>	<u>(70)</u>	<u>972</u>	<u>-</u>	<u>(39)</u>	<u>933</u>
TBTA:							
General Revenue Bonds	171	82	(20)	233	-	(1)	232
Subordinate Revenue Bonds	32	-	(2)	30	-	(10)	20
	<u>203</u>	<u>82</u>	<u>(22)</u>	<u>263</u>	<u>-</u>	<u>(11)</u>	<u>252</u>
Total	<u><u>\$ 968</u></u>	<u><u>359</u></u>	<u><u>\$ (92)</u></u>	<u><u>\$ 1,235</u></u>	<u><u>\$ -</u></u>	<u><u>\$ (50)</u></u>	<u><u>\$ 1,185</u></u>

Debt Service Payments — Future principal and interest debt service payments at June 30, 2018 are as follows (in millions):

(Unaudited)	MTA		MTA BRIDGES AND TUNNELS		Debt Service	
	Principal	Interest	Principal	Interest	Principal	Interest
2018	\$ 770	\$ 1,361	\$ 307	\$ 193	\$ 1,077	\$ 1,554
2019	2,236	1,319	268	373	2,504	1,692
2020	720	1,296	335	365	1,055	1,661
2021	2,354	1,183	341	350	2,695	1,533
2022	811	1,144	356	334	1,167	1,478
2023-2027	5,092	4,926	2,063	1,401	7,155	6,327
2028-2032	6,388	3,857	2,606	888	8,994	4,745
2033-2037	5,611	2,859	1,140	536	6,751	3,395
2038-2042	4,084	1,927	824	258	4,908	2,185
2043-2047	1,428	478	533	102	1,961	580
2048-2052	572	207	103	9	675	216
2053-2057	319	118	0	0	319	118
Thereafter	682	-	0	0	682	-
	<u>\$ 31,067</u>	<u>\$ 20,675</u>	<u>\$ 8,877</u>	<u>\$ 4,809</u>	<u>\$ 39,943</u>	<u>\$ 25,484</u>

The above interest amounts include both fixed-rate and variable-rate calculations. The interest rate assumptions for variable rate bonds are as follows:

- *Transportation Revenue Refunding Bonds, Series 2000D* — 4.00% per annum taking into account the interest rate swap plus the current fixed floating rate note spread.
- *Transportation Revenue Refunding Bonds, Series 2002G* — 3.542% per annum taking into account the interest rate swap plus the current fixed floating rate note spread; and 4.00% per annum plus the current fixed floating rate note spread on the unhedged portion.
- *Transportation Revenue Bonds, Series 2005D* — 3.561% per annum taking into account the interest rate swaps.
- *Transportation Revenue Bonds, Series 2005E* — 3.311% per annum taking into account the interest rate swaps and 4.00% per annum on the unhedged portion.
- *Transportation Revenue Bonds, Series 2011B* — 3.542% per annum taking into account the interest rate swaps plus the current fixed floating rate note spread; and 4.00% per annum plus the current fixed floating rate note spread on the unhedged portion.
- *Transportation Revenue Bonds, Series 2012A* — 4.00% per annum plus the current fixed floating rate note spread.
- *Transportation Revenue Bonds, Series 2012G* — 3.563% per annum taking into account the interest rate swaps plus the current fixed floating rate note spread.
- *Transportation Revenue Bonds, Series 2014D-2* — 4.00% per annum plus the current fixed floating rate note spread.
- *Transportation Revenue Bonds, Series 2015A-2* — 4.00% per annum plus the current fixed floating rate note spread.
- *Transportation Revenue Bonds, Series 2015E* — 4.00% per annum.
- *Dedicated Tax Fund Bonds, Series 2002B* — 4.00% per annum on SubSeries 2002B-1; and 4.00% per annum plus the current fixed floating rate note spread.
- *Dedicated Tax Fund Variable Rate Refunding Bonds, Series 2008A* — 3.316% per annum taking into account the interest rate swaps plus the current fixed floating rate note spread; and 4.00% per annum plus the current fixed floating rate note spread on the unhedged portion.
- *Dedicated Tax Fund Refunding Bonds, SubSeries 2008B-3a and 2008B-3c* — 4.00% per annum plus the current fixed floating rate note spread.

- *MTA Bridges and Tunnels Subordinate Refunding Bonds, Series 2000ABCD* — 6.08% per annum taking into account the interest rate swap plus the current fixed floating rate note spread; and 4.00% per annum plus the current fixed floating rate note spread on the unhedged portion.
- *MTA Bridges and Tunnels General Revenue Refunding Bonds, Series 2001B and Series 2001C* — 4.00% per annum.
- *MTA Bridges and Tunnels General Revenue Refunding Bonds, Series 2002F* — 5.404% and 3.076% per annum taking into account the interest rate swaps and 4.00% per annum on portions not covered by the interest rate swaps.
- *MTA Bridges and Tunnels General Revenue Bonds, Series 2003B* — 4.00% per annum; and 4.00% per annum plus the current fixed floating rate note spread on SubSeries 2003B-2.
- *MTA Bridges and Tunnels General Revenue Bonds, Series 2005A* — 4.00% per annum except from November 1, 2027 through November 1, 2030, 3.076% per annum taking into account the interest rate swap.
- *MTA Bridges and Tunnels General Revenue Refunding Bonds, Series 2005B* — 3.076% per annum based on the Initial Interest Rate Swaps plus the current fixed floating rate note spread.
- *MTA Bridges and Tunnels General Revenue Bonds, Series 2008B-2* — 4.00% per annum plus the current fixed floating rate note spread.

Loans Payable – The MTA and the New York Power Authority (“NYPA”) entered into an updated Energy Services Program Agreement (“ESP Agreement”). The ESP Agreement authorized MTA affiliates and subsidiaries to enter into a Customer Installation Commitment (“CIC”) with NYPA for turn-key, energy efficiency projects, which would usually be long-term funded and constructed by NYPA. The repayment period for the NYPA loan can be up to 20 years, but can be repaid at any time without penalty.

The debt service requirements at June 30, 2018 are as follows:

Loans Payable (in millions)

Year	(Unaudited)	Principal	Interest	Total
2018		\$ 10	\$ 1	\$ 11
2019		13	1	14
2020		12	1	13
2021		11	1	12
2022		11	1	12
2023-2027		35	2	37
2028-2032		13	1	14
2033-2037		2	0	2
Total		<u>\$ 107</u>	<u>\$ 8</u>	<u>\$ 115</u>
Current portion		\$ 10		
Long-term portion		97		
Total NYPA Loans Payable		<u>\$ 107</u>		

The above interest amounts include both fixed and variable rate calculations. Interest on the variable-rate loan is paid at the Securities Industry and Financial Markets Association Municipal Swap Index (“SIFMA”) rate and is reset annually.

Tax Rebate Liability — Under the Internal Revenue Code of 1986, the MTA may accrue a liability for an amount of rebateable arbitrage resulting from investing low-yielding, tax-exempt bond proceeds in higher-yielding, taxable securities. The arbitrage liability is payable to the federal government every five years. No accruals or payments were made during the periods ended June 30, 2018 and December 31, 2017.

Liquidity Facility — MTA and MTA Bridges and Tunnels have entered into several Standby Bond Purchase Agreements (“SBPA”) and Letter of Credit Agreements (“LOC”) as listed on the table below.

<u>Resolution</u>	<u>Series</u>	<u>Swap</u>	<u>Provider (Insurer)</u>	<u>Type of Facility</u>	<u>Exp. Date</u>
Transportation Revenue	2002G-1g	Y	TD Bank, N.A.	LOC	11/1/2018
Transportation Revenue	2005D-1	Y	Helaba	LOC	11/7/2018
Transportation Revenue	2005D-2	Y	Helaba	LOC	11/10/2022
Transportation Revenue	2005E-1	Y	Bank of Montreal	LOC	8/24/2018
Transportation Revenue	2005E-2	Y	Bank of America, N.A.	LOC	12/10/2021
Transportation Revenue	2005E-3	Y	Bank of Montreal	LOC	8/24/2018
Transportation Revenue	2012G-2	Y	TD Bank, N.A.	LOC	11/1/2018
Transportation Revenue	2015E-1	N	U.S. Bank National Asso	LOC	9/7/2018
Transportation Revenue	2015E-2	N	The Bank of Tokyo Mits	LOC	9/7/2018
Transportation Revenue	2015E-3	N	Citibank, N.A.	LOC	9/7/2018
Transportation Revenue	2015E-4	N	Bank of the West	LOC	9/7/2018
Transportation Revenue	2015E-5	N	U.S. Bank National Asso	LOC	9/7/2018
Dedicated Tax Fund	2002B-1	N	Bank of Tokyo Mitsubishi	LOC	3/22/2021
Dedicated Tax Fund	2008A-1	Y	TD Bank, N.A.	LOC	6/13/2022
MTA Bridges and Tunnels General Revenue	2001B	N	State Street	LOC	9/28/2018
MTA Bridges and Tunnels General Revenue	2001C	Y	State Street	LOC	6/26/2023
MTA Bridges and Tunnels General Revenue	2002F	Y	Helaba	SBPA	11/1/2018
MTA Bridges and Tunnels General Revenue	2003B-1	Y	Bank of America, N.A.	LOC	1/21/2022
MTA Bridges and Tunnels General Revenue	2005A	Y	TD Bank, N.A.	LOC	1/28/2020
MTA Bridges and Tunnels General Revenue	2005B-2	Y	Citibank, N.A.	LOC	1/23/2021
MTA Bridges and Tunnels General Revenue	2005B-3	Y	State Street	LOC	6/26/2023
MTA Bridges and Tunnels Subordinate	2013D-1	Y	Bank of America, N.A.	LOC	12/14/2018
MTA Bridges and Tunnels Subordinate	2013D-2	Y	Bank of America, N.A.	LOC	12/14/2018

Derivative Instruments — Fair value for the swaps is calculated in accordance with GASB Statement No. 72, utilizing the income approach and Level 2 inputs. It incorporates the mid-market valuation, nonperformance risk of either MTA/MTA Bridges and Tunnels or the counterparty, as well as bid/offer. The fair values were estimated using the zero-coupon method. 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 on the swap.

The fair value balances and notional amounts of derivative instruments outstanding at June 30, 2018 and December 31, 2017, classified by type, and the changes in fair value of such derivative instruments from the year ended December 31, 2017 are as follows:

Derivative Instruments - Summary Information

(in \$ millions)

Bond Resolution Credit	Underlying Bond Series	Type of Derivative	Cash Flow or Fair Value Hedge	Effective Methodology	Trade/Hedge Association Date	As of June 30, 2018	
						Notional Amount	Fair Value
Cashflow Hedges						(Unaudited)	
MTA Bridges and Tunnels Senior Revenue Bonds	2002F & 2003B-2 (Citi 2005B)	Libor Fixed Payer	Cash Flow	Synthetic Instrument	6/2/2005	\$ 190.300	\$ (21.86)
MTA Bridges and Tunnels Senior Revenue Bonds	2005B-2,3,4	Libor Fixed Payer	Cash Flow	Synthetic Instrument	6/2/2005	570.900	(65.576)
MTA Bridges and Tunnels Senior Revenue Bonds	2005A (COPS 2004A)	Libor Fixed Payer	Cash Flow	Synthetic Instrument	4/1/2016	22.650	(2.271)
MTA Bridges and Tunnels Senior Revenue Bonds	2001C (COPS 2004A)	Libor Fixed Payer	Cash Flow	Synthetic Instrument	12/5/2016	40.275	(1.587)
MTA Bridges and Tunnels Subordinate Revenue Bonds	2000ABCD	SIFMA Fixed Payer	Cash Flow	Synthetic Instrument	8/12/1998	11.150	(0.531)
MTA Dedicated Tax Fund Bonds	2008A	Libor Fixed Payer	Cash Flow	Synthetic Instrument	3/8/2005	326.860	(34.170)
MTA Transportation Revenue Bonds	2002D-2	Libor Fixed Payer	Cash Flow	Synthetic Instrument	7/11/2002	200.000	(54.502)
MTA Transportation Revenue Bonds	2005D & 2005E	Libor Fixed Payer	Cash Flow	Synthetic Instrument	9/10/2004	380.700	(52.588)
MTA Transportation Revenue Bonds	2012G	Libor Fixed Payer	Cash Flow	Synthetic Instrument	12/12/2007	357.150	(63.998)
MTA Transportation Revenue Bonds	2002G-1 (COPS 2004A)	Libor Fixed Payer	Cash Flow	Synthetic Instrument	4/1/2016	127.660	(8.114)
MTA Transportation Revenue Bonds	2011B (COPS 2004A)	Libor Fixed Payer	Cash Flow	Synthetic Instrument	4/1/2016	69.590	(11.660)
Total						\$ 2,297.235	\$ (316.856)

Derivative Instruments - Summary Information

(in \$ millions)

Bond Resolution Credit	Underlying Bond Series	Type of Derivative	Cash Flow or Fair Value Hedge	Effective Methodology	Trade/Hedge Association Date	As of December 31, 2017	
						Notional Amount	Fair Value
Cashflow Hedges							
MTA Bridges and Tunnels Senior Revenue Bonds	2002F & 2003B-2 (Citi 2005B)	Libor Fixed Payer	Cash Flow	Synthetic Instrument	6/2/2005	\$ 191.300	\$ (29.658)
MTA Bridges and Tunnels Senior Revenue Bonds	2005B-2,3,4	Libor Fixed Payer	Cash Flow	Synthetic Instrument	6/2/2005	573.900	(88.974)
MTA Bridges and Tunnels Senior Revenue Bonds	2005A (COPS 2004A)	Libor Fixed Payer	Cash Flow	Synthetic Instrument	4/1/2016	22.765	(3.028)
MTA Bridges and Tunnels Senior Revenue Bonds	2001C (COPS 2004A)	Libor Fixed Payer	Cash Flow	Synthetic Instrument	12/5/2016	57.475	(2.409)
MTA Bridges and Tunnels Subordinate Revenue Bonds	2000ABCD	SIFMA Fixed Payer	Cash Flow	Synthetic Instrument	8/12/1998	34.150	(1.450)
MTA Dedicated Tax Fund Bonds	2008A	Libor Fixed Payer	Cash Flow	Synthetic Instrument	3/8/2005	326.860	(45.587)
MTA Transportation Revenue Bonds	2002D-2	Libor Fixed Payer	Cash Flow	Synthetic Instrument	7/11/2002	200.000	(65.547)
MTA Transportation Revenue Bonds	2005D & 2005E	Libor Fixed Payer	Cash Flow	Synthetic Instrument	9/10/2004	380.700	(67.631)
MTA Transportation Revenue Bonds	2012G	Libor Fixed Payer	Cash Flow	Synthetic Instrument	12/12/2007	357.150	(81.075)
MTA Transportation Revenue Bonds	2002G-1 (COPS 2004A)	Libor Fixed Payer	Cash Flow	Synthetic Instrument	4/1/2016	142.015	(11.405)
MTA Transportation Revenue Bonds	2011B (COPS 2004A)	Libor Fixed Payer	Cash Flow	Synthetic Instrument	4/1/2016	56.220	(14.961)
Total						\$ 2,342.535	\$ (411.725)

	Changes In Fair Value		Fair Value at June 30, 2018		Notional (in millions) (Unaudited)
	Classification	Amount (in millions) (Unaudited)	Classification	Amount (in millions) (Unaudited)	
Government activities					
Cash Flow hedges:					
Pay-fixed interest rate swaps	Deferred outflow of resources	\$94.869	Debt	\$(316.856)	\$2,297.235

Swap Agreements Relating to Synthetic Fixed Rate Debt

Board-adopted Guidelines. The Related Entities adopted guidelines governing the use of swap contracts on March 26, 2002. The guidelines were amended and approved by the MTA Board on March 13, 2013. The guidelines establish limits on the amount of interest rate derivatives that may be outstanding and specific requirements that must be satisfied for a Related Entity to enter into a swap contract, such as suggested swap terms and objectives, retention of a swap advisor, credit ratings of the counterparties, collateralization requirements and reporting requirements.

Objectives of synthetic fixed rate debt. To achieve cash flow savings through a synthetic fixed rate, MTA and MTA Bridges and Tunnels have entered into separate pay-fixed, receive variable interest rate swaps at a cost anticipated to be less than what MTA and MTA Bridges and Tunnels would have paid to issue fixed-rate debt, and in some cases where Federal tax law prohibits an advance refunding to synthetically refund debt on a forward basis.

Terms and Fair Values. The terms, fair values and counterparties of the outstanding swaps of MTA and MTA Bridges and Tunnels are reflected in the following tables (as of June 30, 2018).

Metropolitan Transportation Authority						
Related Bonds	Notional Amount as of 6/30/18 (Unaudited)	Effective Date	Maturity Date	Terms	Counterparty and Ratings(S&P / Moody's / Fitch)	Fair Value as of 6/30/18 (Unaudited)
TRB 2002D-2	\$ 200.000	11/01/07	11/01/32	Pay 4.45%; receive 9% 1M LIBOR	JPMorgan Chase Bank, NA (A+ / Aa3 / AA)	\$ (54.502)
TRB 2005D & 2005E	285.525	11/02/05	11/01/35	Pay 3.561%; receive 67% 1M LIBOR	UBS AG (A+ / Aa3 / AA-)	(39.441)
TRB 2005E	95.175	11/02/05	11/01/35	Pay 3.561%; receive 67% 1M LIBOR	AIG Financial Products ⁽¹⁾ (BBB+ / Baa1 / BBB+)	(13.147)
TRB 2012G	77.150	11/05/12	11/01/32	Pay 3.563%; receive 67% 1M LIBOR	JPMorgan Chase Bank, NA (A+ / Aa3 / AA)	(63.998)
DTF 2008A	26.860	03/21/05	11/01/31	Pay 3.3156%; receive 67% 1M LIBOR	Bank of New York Mellon (AA- / Aa2 / AA)	(34.170)
Total	\$ 1,265,110					\$ (205.258)

¹ Guarantor: American International Group, Inc., a parent of AIG Financial Products.

MTA Bridges and Tunnels						
Related Bonds	Notional Amount as of 6/30/18 (Unaudited)	Effective Date	Maturity Date	Terms	Counterparty and Ratings (S&P / Moody's / Fitch)	Fair Value as of 6/30/18 (Unaudited)
TBTA 2002F & 2003B-2	\$ 190.300	07/07/05	01/01/32	Pay 3.076%; receive 67% 1M LIBOR	Citibank, N.A. (A+ / A1 / A+)	\$ (21.859)
TBTA 2005B-2	190.300	07/07/05	01/01/32	Pay 3.076%; receive 67% 1M LIBOR	JPMorgan Chase Bank, NA (A+ / Aa3 / AA)	(21.859)
TBTA 2005B-3	190.300	07/07/05	01/01/32	Pay 3.076%; receive 67% 1M LIBOR	BNP Paribas North America (A / A3 / A+)	(21.859)
TBTA 2005B-4	190.300	07/07/05	01/01/32	Pay 3.076%; receive 67% 1M LIBOR	UBS AG (A+ / Aa3 / AA-)	(21.859)
TBTA 2000ABCD	11.150	01/01/01	01/01/19	Pay 6.08%; receive SIFMA-15 bp ¹	JPMorgan Chase Bank, NA (A+ / Aa3 / AA)	(0.531)
TRB 2002G-1 & 2011B, TBTA 2005A & 2001C 2	130.088 ³	04/01/16	01/01/30	Pay 3.52%; receive 67% 1M LIBOR	U.S. Bank N.A. (AA- / A1 / AA-)	(11.816) ³
TRB 2002G-1 & 2011B, TBTA 2005A & 2001C 2	130.087 ³	04/01/16	01/01/30	Pay 3.52%; receive 67% 1M LIBOR	Wells Fargo Bank, N.A. (A+ / Aa2 / AA-)	(11.815) ³
Total	\$ 1,032.525					\$ (111.598)

- 1 In accordance with a swaption entered into on August 12, 1998, TBTA received an upfront option premium of \$22,740, which is being amortized over the life of the swap agreement.
- 2 Between November 22, 2016 and December 5, 2016, the Variable Rate Certificates of Participation, Series 2004A were redeemed. Corresponding notional amounts from the Series 2004A COPs were reassigned to MTA Bridges and Tunnels General Revenue Variable Rate Bonds, Series 2001C.
- 3 Pursuant to an Interagency Agreement (following novations from UBS in 2016), MTA New York City Transit is responsible for 68.7%, MTA is responsible for 21.0%, and TBTA is responsible for 10.3% of the transaction.

LIBOR: London Interbank Offered Rate
SIFMA: Securities Industry and Financial Markets Association Index
TRB: Transportation Revenue Bonds
DTF: Dedicated Tax Fund Bonds

Risks Associated with the Swap Agreements

From MTA's and MTA Bridges and Tunnels' perspective, the following risks are generally associated with swap agreements:

Credit Risk. The risk that a counterparty becomes insolvent or is otherwise not able to perform its financial obligations. To mitigate the exposure to credit risk, the swap agreements include collateral provisions in the event of downgrades to the swap counterparties' credit ratings. Generally, MTA and MTA Bridges and Tunnels' swap agreements contain netting provisions under which transactions executed with a single counterparty are netted to determine collateral amounts. Collateral may be posted with a third-party custodian in the form of cash, U.S. Treasury securities, or certain Federal agency securities. MTA and MTA Bridges and Tunnels require its counterparties to fully collateralize if ratings fall below certain levels (in general, at the Baa1/BBB+ or Baa2/BBB levels), with partial posting requirements at higher rating levels (details on collateral posting discussed further under "Collateralization/Contingencies"). As of June 30, 2018, all of the valuations were in liability positions to MTA and MTA Bridges and Tunnels; accordingly, no collateral was posted by any of the counterparties.

The following table shows, as of June 30, 2018, the diversification, by percentage of notional amount, among the various counterparties that have entered into ISDA Master Agreements with MTA and/or MTA Bridges and Tunnels. The notional amount totals below include all swaps.

Counterparty	S&P	Moody's	Fitch	Notional Amount (in thousands) (Unaudited)	% of Total Notional Amount (Unaudited)
JPMorgan Chase Bank, NA	A+	Aa3	AA	\$758,600	33.00%
UBS AG	A+	Aa3	AA-	475,825	20.71
The Bank of New York Mellon	AA-	Aa2	AA	326,860	14.23
Citibank, N.A.	A+	A1	A+	190,300	8.28
BNP Paribas North America, Inc.	A	Aa3	A+	190,300	8.29
U.S. Bank National Association	AA-	A1	AA-	130,088	5.67
Wells Fargo Bank, N.A.	A+	Aa2	AA-	130,087	5.66
AIG Financial Products Corp.	BBB+	Baa1	BBB+	95,175	4.14
Total				\$2,297,235	100.00%

Interest Rate Risk. MTA and MTA Bridges and Tunnels are exposed to interest rate risk on the interest rate swaps. On the pay-fixed, receive variable interest rate swaps, as LIBOR or S&P MA (as applicable) decreases, MTA and MTA Bridges and Tunnels' net payments on the swaps increase.

Basis Risk. The risk that the variable rate of interest paid by the counterparty under the swap and the variable interest rate paid by MTA or MTA Bridges and Tunnels on the associated bonds may not be the same. If the counterparty's rate under the swap is lower than the bond interest rate, then the counterparty's payment under the swap agreement does not fully reimburse MTA or MTA Bridges and Tunnels for its interest payment on the associated bonds. Conversely, if the bond interest rate is lower than the counterparty's rate on the swap, there is a net benefit to MTA or MTA Bridges and Tunnels.

Termination Risk. The risk that a swap agreement will be terminated and MTA or MTA Bridges and Tunnels will be required to make a swap termination payment to the counterparty and, in the case of a swap agreement which was entered into for the purpose of creating a synthetic fixed rate loan an advance refunding transaction may also be required to take action to protect the tax-exempt status of the related refunding bonds.

The ISDA Master Agreement sets forth certain termination events applicable to all swaps entered into by the parties to that ISDA Master Agreement. MTA and MTA Bridges and Tunnels have entered into separate ISDA Master Agreements with each counterparty that govern the terms of each swap with that counterparty, subject to individual terms negotiated in a confirmation. MTA and MTA Bridges and Tunnels are subject to termination risk if its credit ratings fall below certain specified thresholds or if MTA/MTA Bridges and Tunnels commits a specified event of default or other specified event of termination. If, at the time of termination, a swap were in a liability position to MTA or MTA Bridges and Tunnels, a termination payment would be owed by MTA or MTA Bridges and Tunnels to the counterparty, subject to applicable netting arrangements.

The following tables set forth the Additional Termination Events for MTA/MTA Bridges and Tunnels and its counterparties.

MTA Transportation Revenue		
Counterparty Name	MTA	Counterparty
AIG Financial Products Corp.; JPMorgan Chase Bank, NA; UBS AG	Below Baa3 (Moody's) or BBB- (S&P)*	Below Baa3 (Moody's) or BBB- (S&P)*

*Note: Equivalent Fitch rating is replacement for Moody's or S&P.

MTA Dedicated Tax Fund		
Counterparty Name	MTA	Counterparty
Bank of New York Mellon	Below BBB (S&P) or BBB (Fitch)*	Below A3 (Moody's) or A- (S&P)**

*Note: Equivalent Moody's rating is replacement for S&P or Fitch.

**Note: Equivalent Fitch rating is replacement for Moody's or S&P.

MTA Bridges and Tunnels Senior Lien		
Counterparty Name	MTA Bridges and Tunnels	Counterparty
BNP Paribas North America, Inc.; Citibank, N.A.; JPMorgan Chase Bank, NA; UBS AG	Below Baa2 (Moody's) or BBB (S&P)*	Below Baa1 (Moody's) or BBB+ (S&P)*

*Note: Equivalent Fitch rating is replacement for Moody's or S&P.

MTA Bridges and Tunnels Subordinate Lien		
Counterparty Name	MTA Bridges and Tunnels	Counterparty
JPMorgan Chase Bank, NA	Swap Insurer below A3 (Moody's) and A- (S&P); and MTA Bridges and Tunnels Senior Lien rating below Baa3 (Moody's) and BBB- (S&P)	Below Baa2 (Moody's) or BBB (S&P)
U.S. Bank National Association; Wells Fargo Bank, N.A.	Below Baa2 (Moody's) or BBB (S&P)*	Below Baa2 (Moody's) or BBB (S&P)**

*Note: Equivalent Fitch rating is replacement for Moody's or S&P. If rating below Investment grade, MTA Bridges and Tunnels may cure such Termination Event by posting collateral at a Zero threshold.

**Note: Equivalent Fitch rating is replacement for Moody's or S&P.

MTA and MTA Bridges and Tunnels' ISDA Master Agreements provide that the payments under one transaction will be netted against other transactions entered into under the same ISDA Master Agreement. Under the terms of these agreements, should one party become insolvent or otherwise default on its obligations, close-out netting provisions permit the non-defaulting party to accelerate and terminate all outstanding transactions and net the amounts so that a single sum will be owed by, or owed to, the non-defaulting party.

Rollover Risk. The risk that the swap agreement matures or may be terminated prior to the final maturity of the associated bonds on a variable rate bond issuance, and MTA or MTA Bridges and Tunnels may be exposed to then market rates and cease to receive the benefit of the synthetic fixed rate for the duration of the bond issue. The following debt is exposed to rollover risk:

Associated Bond Issuance	Bond Maturity Date	Swap Termination Date
MTA Bridges and Tunnels General Revenue Variable Rate Bonds, Series 2001C (swaps with U.S. Bank/Wells Fargo)	January 1, 2032	January 1, 2030
MTA Bridges and Tunnels General Revenue Variable Rate Refunding Bonds, Series 2002F (swaps with Citibank, N.A.)	November 1, 2032	January 1, 2032
MTA Bridges and Tunnels General Revenue Variable Rate Bonds, Series 2003B (swap with Citibank, N.A.)	January 1, 2033	January 1, 2032
MTA Bridges and Tunnels General Revenue Variable Rate Bonds, Series 2005A (swaps with U.S. Bank/Wells Fargo and Citibank, N.A.)	November 1, 2035	January 1, 2030 (U.S. Bank/Wells Fargo) January 1, 2032 (Citibank)
MTA Transportation Revenue Variable Rate Bonds, Series 2011B (swaps with U.S. Bank/Wells Fargo)	November 1, 2041	January 1, 2030

Collateralization/Contingencies. Under the majority of the swap agreements, MTA and/or MTA Bridges and Tunnels is required to post collateral in the event its credit rating falls below certain specified levels. The collateral posted is to be in the form of cash, U.S. Treasury securities, or certain Federal agency securities, based on the valuations of the swap agreements in liability positions and net of the effect of applicable netting arrangements. If MTA and/or MTA Bridges and Tunnels do not post collateral, the swap(s) may be terminated by the counterparty(ies).

As of June 30, 2018, the aggregate mid-market valuation of the MTA's swaps subject to collateral posting agreements was (\$175.915); as of this date, the MTA was not subject to collateral posting based on its credit ratings (see further details below).

As of June 30, 2018, the aggregate mid-market valuation of MTA Bridges and Tunnels' swaps subject to collateral posting agreements was (\$111.431); as of this date, MTA Bridges and Tunnels was not subject to collateral posting based on its credit ratings (see further details below).

The following tables set forth the ratings criteria and threshold amounts applicable to MTA/MTA Bridges and Tunnels and its counterparties.

MTA Transportation Revenue Fund		
Counterparty	MTA Collateral Thresholds (based on highest rating)	Counterparty Collateral Thresholds (based on highest rating)
AIG Financial Products Corp.; JPMorgan Chase Bank, NA; UBS AG	Baa1/BBB+: \$5 million Baa2/BBB & below: Zero	Baa1/BBB+: \$10 million Baa2/BBB & below: Zero

Note: Based on Moody's and S&P ratings. In all cases except JPMorgan counterparty thresholds, Fitch rating is replacement for either Moody's or S&P, at which point threshold is based on lowest rating.

MTA Medical Fund		
Counterparty	MTA Collateral Thresholds	Counterparty Collateral Thresholds (based on highest rating)
Bank of New York Mellon	N/A—MTA does not post collateral	Aa3/AA-: \$10 million A1/A+: \$5 million A2/A: \$2 million A3/A-: \$1 million Baa1/BBB+ & below: Zero

Note: Counterparty thresholds based on Moody's and S&P ratings. Fitch rating is replacement for either Moody's or S&P.

MTA Bridges and Tunnels Senior Lien		
Counterparty	MTA Bridges and Tunnels Collateral Thresholds (based on highest rating)	Counterparty Collateral Thresholds (based on highest rating)
BNP Paribas North America, Inc.; Citibank, N.A.; JPMorgan Chase Bank, NA; UBS AG	Baa1/BBB+: \$30 million Baa2/BBB: \$15 million Baa3/BBB- & below: Zero	A3/A-: \$10 million Baa1/BBB+ & below: Zero

Note: MTA Bridges and Tunnels thresholds based on Moody's, S&P, and Fitch ratings. Counterparty thresholds based on Moody's and S&P ratings; Fitch rating is replacement for Moody's or S&P.

MTA Bridges and Tunnels Subordinate Lien		
Counterparty	MTA Bridges and Tunnels Collateral Thresholds (based on lowest rating)	Counterparty Collateral Thresholds (based on lowest rating)
JPMorgan Chase Bank, NA	N/A—MTA Bridges and Tunnels does not post collateral	\$1,000,000
U.S. Bank National Association; Wells Fargo Bank, N.A.	Baa3/BBB- & below: Zero <i>(note: only applicable as cure for Termination Event)</i>	Aa3/AA-: \$15 million A1/A+ to A3/A-: \$5 million Baa1/BBB+ & below: Zero

Note: Thresholds based on Moody's and S&P ratings. Fitch rating is replacement for Moody's or S&P.

Swap payments and Associated Debt. The following tables contain the aggregate amount of estimated variable-rate bond debt service and net swap payments during certain years that such swaps were entered into in order to: protect against the potential of rising interest rates; achieve a lower net cost of borrowing; reduce exposure to changing interest rates on a related bond issue; or, in some cases where Federal tax law prohibits an advance refunding, achieve debt service savings through a synthetic fixed rate. As rates vary, variable-rate bond interest payments and net swap payments will vary. Using the following assumptions, debt service requirements of MTA's and MTA Bridges and Tunnels' outstanding variable-rate debt and net swap payments are estimated to be as follows:

- It is assumed that the variable-rate bonds would bear interest at a rate of 4.0% per annum.
- The net swap payments were calculated using the actual fixed interest rate on the swap agreements.

MTA				
(in millions)				
Period Ended June 30, 2018	Variable-Rate Bonds		Net Swap Payments	Total
	Principal	Interest		
2018	35.8	50.1	(5.4)	80.6
2019	55.6	48.6	(5.2)	99.0
2020	38.4	46.0	(4.7)	80.0
2021	58.3	39.9	(4.7)	98.5
2022	63.3	32.6	(4.4)	101.4
2023-2027	324.3	171.7	(17.2)	481.0
2028-2032	827.6	454.7	(8.3)	1,274.0
2033-2037	122.7	27.5	(1.6)	148.7

MTA Bridges and Tunnels				
(in millions)				
Period Ended June 30, 2018	Variable-Rate Bonds		Net Swap Payments	Total
	Principal	Interest		
2018	55.5	39.7	(6.6)	95.7
2019	43.4	38.0	(6.9)	74.5
2020	25.4	37.0	(6.9)	55.6
2021	26.2	36.0	(6.8)	55.8
2022	27.6	34.9	(6.8)	55.7
2023-2027	147.5	152.5	(32.3)	267.6
2028-2032	543.0	68.5	(16.5)	595.0
2033-2037	184.1	2.5	-	186.6

8. LEASE TRANSACTIONS

Leveraged Lease Transactions: Qualified Technological Equipment — On December 19, 2002, the MTA entered into four sale/leaseback transactions whereby MTA New York City Transit transferred ownership of certain MTA New York City Transit qualified technological equipment (“QTE”) relating to the MTA New York City Transit automated fare collection system to the MTA. The MTA sold that equipment to third parties and the MTA leased that equipment back from such third parties. Three of those four leases were terminated early and are no longer outstanding. The fourth lease expires in 2022, at which point the MTA has the option of either exercising a fixed-price purchase option for the equipment or returning the equipment to the third-party owner.

Under the terms of the outstanding sale/leaseback agreement the MTA initially received \$74.9, which was utilized as follows: The MTA paid \$52.1 to an affiliate of the lender to the third party, which affiliate has the obligation to pay to MTA an amount equal to the rent obligations under the lease attributable to the debt service on the loan from the third party's lender. The MTA also purchased U.S. Treasury debt securities in amounts and with maturities, which are expected to be sufficient to pay the remainder of the regularly scheduled lease rent payments under the lease and the purchase price due upon exercise by the MTA of the related purchase option if exercised.

Leveraged Lease Transaction: Subway Cars — On September 3, 2003, the MTA entered into a sale/leaseback transaction whereby MTA New York City Transit transferred ownership of certain MTA New York City Transit subway cars to the MTA, the MTA sold those cars to a third party, and the MTA leased those cars back from such third party. The MTA subleased the cars to MTA New York City Transit. The lease expires in 2033. At the lease expiration, the MTA has the option of either exercising a fixed-price purchase option for the cars or returning the cars to the third-party owner.

Under the terms of the sale/leaseback agreement, the MTA initially received \$168.1, which was utilized as follows: The MTA paid \$126.3 to an affiliate of one of the lenders to the third party, which affiliate has the obligation to pay to the MTA an amount equal to the rent obligations under the lease attributable to the debt service on such loan from such third party's lender. The obligations of the affiliate of the third party's lender are guaranteed by American International Group, Inc. The MTA also purchased the Federal National Mortgage Association ("FNMA") and U.S. Treasury securities in amounts and with maturities which are sufficient to make the lease rent payments equal to the debt service on the loans from the other lender to the third party and to pay the remainder of the regularly scheduled rent due under that lease and the purchase price due upon exercise by the MTA of the fixed price purchase option if exercised. The amount remaining after payment of transaction expenses, \$7.4, was the MTA's benefit from the transaction.

Leveraged Lease Transactions: Subway Cars — On September 25, 2003 and September 29, 2003, the MTA entered into two sale/leaseback transactions whereby MTA New York City Transit transferred ownership of certain MTA New York City Transit subway cars to the MTA, the MTA sold those cars to third parties, and the MTA leased those cars back from such third parties. The MTA subleased the cars to MTA New York City Transit. Both leases expire in 2033. At the lease expiration, MTA HQ has the option of either exercising a fixed-price purchase option for the cars or returning the cars to the third-party owner.

Under the terms of the sale/leaseback agreements, the MTA initially received \$294, which was utilized as follows: In the case of one of the leases, the MTA paid \$97 to an affiliate of one of the lenders to the third party, which affiliate has the obligation to pay to the MTA an amount equal to the rent obligations under the lease attributable to the debt service on the loan from such third party's lender. The obligations of the affiliate of such third party's lender are guaranteed by American International Group, Inc. In the case of the other lease, the MTA purchased U.S. Treasury debt securities in amounts and with maturities, which are sufficient for the MTA to make the lease rent payments equal to the debt service on the loan from the lender to that third party. In the case of both of the leases, the MTA also purchased Resolution Funding Corporation ("REFCO") debt securities that mature in 2030. Under an agreement with AIG Matched Funding Corp. (guaranteed by American International Group, Inc.), AIG Matched Funding Corp. receives the proceeds from the REFCO debt securities at maturity and is obligated to pay to the MTA amounts sufficient for the MTA to pay the remainder of the regularly scheduled lease rent payments under those leases and the purchase price due upon exercise by the MTA of the purchase options if exercised. The amount remaining after payment of transaction expenses, \$24, was the MTA's net benefit from these two transactions.

On September 16, 2008, the MTA learned that American International Group, Inc. was downgraded to a level that under the terms of the transaction documents for the sale/leaseback transaction that closed on September 29, 2003, the MTA was required to replace or restructure the applicable Equity Payment Undertaking Agreement provided by AIG Financial Products Corp. and guaranteed by American International Group, Inc. On December 17, 2008, MTA terminated the Equity Payment Undertaking Agreement provided by AIG Financial Products Corp. and guaranteed by American International Group, Inc. and provided replacement collateral in the form of U.S. Treasury strips. REFCO debt security that was being held in pledge was released to MTA. On November 6, 2008, the MTA learned that Ambac Assurance Corp., the provider of the credit enhancement that insures the MTA's contingent obligation to pay a portion of the termination values upon an early termination in both the September 25, 2003 and September 29, 2003 transactions, was downgraded to a level that required the provision of new credit enhancement facilities for each lease by December 21, 2008.

On December 17, 2008, MTA terminated the Ambac Assurance Corp. surety bond for the lease transaction that closed on September 25, 2003 and since then MTA has provided short-term U.S. Treasury debt obligations as replacement collateral. As of June 30, 2018, the market value of total collateral funds was \$37.3.

On January 12, 2009, MTA provided a short-term U.S. Treasury debt obligation as additional collateral in addition to the Ambac Assurance Corp. surety bond for the lease transaction that closed on September 29, 2003. From time to time, additional collateral has been required to be added such that the total market value of the securities being held as additional collateral are expected to be sufficient to pay the remainder of the regularly scheduled lease rent payments under the lease. As of June 30, 2018, the market value of total collateral funds was \$52.5.

MTA Hudson Rail Yards Ground Leases – In the 1980’s, the MTA developed a portion of the Hudson Rail Yards as a storage yard, car wash and repair facility for the Long Island Railroad Company (“LIRR”) rail cars entering Manhattan. It was anticipated that, eventually, the air rights above the Hudson Rail Yards would be developed to meet the evolving needs for high-quality commercial, retail, residential and public space in Manhattan. The Hudson Rail Yards is a rectangular area of approximately 26-acres bounded by 10th Avenue on the east, 12th Avenue on the west, 30th Street on the south and 33rd Street on the North. The Hudson Rail Yards is divided into the Eastern Rail Yards (“ERY”) and the Western Rail Yards (“WRY”). In 2008, the MTA selected a development team led by the Related Companies, L.P to develop a commercial, residential and retail development on the ERY and the WRY.

To undertake the development of the Hudson Rail Yards, the MTA entered into 99-year ground leases (“Balance Leases”) for the airspace above a limiting plane above the tracks (from 31st to 33rd Streets) and the area where there are no rail tracks (from 30th to 31st Streets) within the boundary of the Hudson Rail Yards (“Ground Leased Property”). The Balance Leases do not encumber the railroad tracks, which will continue to be used for transportation purposes.

The following ground leases, each with a 99-year term (beginning December 3, 2012), entered into between the MTA, as landlord, and a special purpose entity controlled by Related-World Oxford, as Ground Lease tenants, all of which Ground Leases demise the Eastern Rail Yards (“ERY”) and were severed from the ERY Balance Lease, dated as of April 10, 2013:

- the Ground Lease demising the Tower A Severed Parcel, also known as 50 Hudson Yards.
- the Ground Lease demising the Tower D Severed Parcel, also known as 15 Hudson Yards.
- the Ground Lease demising the Tower E Severed Parcel, also known as 35 Hudson Yards.
- the Ground Lease demising the Retail Podium Severed Parcel.
- the Ground Lease demising the Retail Pavement Severed Parcel.

The 99-year West Side Rail Yard (“WRY”) Balance Lease (beginning December 3, 2013) between the MTA and a special purpose entity controlled by Related-World Oxford demising the WRY and the Severed Parcel Leases to be entered into upon the creation of Severed Parcel that may be severed from the WRY, at the option of the applicable Ground Lease Tenant, upon satisfaction of certain conditions, in order to construct improvements thereon in accordance with the terms of the applicable Severed Parcel Lease.

Both the ERY and WRY Ground Leases were pledged as security for the Series 2016A Hudson Yards Trust Obligations.

The MTA has also entered into the following ground leases which do not provide a source of payment or security for the Series 2016A Hudson Yards Trust Obligations:

- the now-terminated ground lease demising Tower C, also known as 10 Hudson Yards, as to which the Ground Lease tenant exercised its exercise of its Fee Conversion Option on August 1, 2016 for which MTA received \$120.
- the ground lease demising the Culture Shed, which does not pay any Monthly Ground Rent, and
- the ground lease demising the Open Space Severed Parcel which does not pay any Monthly Ground Rent.

The Severed Parcel Ground Leases required Ground Lease Tenants, at their sole cost and expense, to construct the Long Island Railroad Roof (“LIRR Roof”) over the Long Island Railroad tracks in the Hudson Rail Yards, which LIRR Roof will serve as the foundation for substantial portions of the buildings and other improvements being constructed pursuant to each Severed Parcel Ground Lease. Each Ground Lease tenant has the option to purchase fee title to the Ground Leased Property at any time following completion of construction of the building on the Ground Leased Property.

The MTA has classified the ERY and WRY Ground Leases as operating leases. If at the inception of the ground leases, the leases meet one or more of the following four criteria, the lease should be classified as a capital lease. Otherwise, it should be classified as an operating lease. The ERY and WRY Ground Leases did not meet one or more of the following criteria:

- i. The lease transfers ownership of the property to the lessee by the end of the lease term.
- ii. The lease contains a bargain purchase option.
- iii. The lease term is equal to 75 percent or more of the estimated economic life of the leased property.
- iv. The present value at the beginning of the lease term of the minimum lease payments, equals or exceeds 90 percent of the excess of the fair value of the leased property to the lessor at the inception of the lease over any related investment tax credit retained by and expected to be realized by the lessor.

Minimum rent receipts for ERY and WRY Ground Leases are as follows as of June 30, 2018 (unaudited):

Year	ERY	WRY	Total
2018	4	6	10
2019	18	16	34
2020	19	16	35
2021	19	32	51
2022	19	33	52
Thereafter	887	1,558	2,445
Total	\$966	\$1,661	\$2,627

Other Lease Transactions — On July 29, 1998, the MTA (solely on behalf of MTA Long Island Rail Road and MTA Metro-North Railroad, MTA New York City Transit and MTA Bridges and Tunnels) entered into a lease and related agreements whereby each agency as sub-lessee, will rent, an office building at Two Broadway in lower Manhattan. The triple-net-lease has an initial stated term of approximately 50 years, with the right to extend the lease for two successive 15-year periods at a rental of at least 95% of fair market rent. Remaining payments under the lease approximately \$1.1 billion. Under the subleases, the lease is apportioned as follows: MTA New York City Transit, 68.7%; MTA, 27.0%; and MTA Bridges and Tunnels, 10.3%. However, the involved agencies have agreed to sub-sublease space from one another as necessary to satisfy actual occupancy needs. The agencies will be responsible for obligations under the lease based on such actual occupancy percentages. Actual occupancy percentages at June 30, 2018, for the MTA New York City Transit, MTA Bridges and Tunnels and MTA (including MTA F&S, MTA Capital Construction Company and MTA Business Service Center) were 57.8%, 7.5% and 34.7%, respectively. MTA's sublease is for a year-to-year term, automatically extended, except upon the giving of a non-extension notice by MTA. The lease is comprised of both operating and capital elements, with the portion of the lease attributable to the land recorded as an operating lease, and the portion of the lease attributable to the building recorded as a capital lease. The total annual rental payments over the initial lease term are \$1,602 with rent being abated from the commencement date through June 30, 1999. The office building at 2 Broadway, is principally occupied by MTA New York City Transit, MTA Bridges and Tunnels, MTA Capital Construction, and MTAHQ.

MTA reflected a capital lease obligation as of June 30, 2018 and December 31, 2017, of \$228 and \$228, respectively. The MTA made rent payments of \$13 and \$25 for the period ended June 30, 2018 and December 31, 2017, respectively. MTA pays the lease payments on behalf of MTA New York City Transit and MTA Bridges and Tunnels and subsequently makes monthly chargebacks in the form of rental payments. During 2017, the total of the rental payments charged to MTA New York City Transit and MTA Bridges and Tunnels was \$4,138 and \$1,900 less, respectively, than the lease payment made by MTA on behalf of MTA New York City Transit and MTA Bridges and Tunnels.

The adjusted capital lease for the aforementioned building is being amortized over the remaining life of the lease. The cost of the building and related accumulated amortization at June 30, 2018 and December 31, 2017, is as follows (in millions):

	June 30, 2018	December 31, 2017
	(Unaudited)	
Capital lease - building	\$196	\$196
Less accumulated amortization	(90)	(88)
Capital lease - building - net	<u>\$106</u>	<u>\$108</u>

On April 8, 1994, the MTA amended its lease for the Harlem/Hudson line properties, including Grand Central Terminal. This amendment initially extends the lease term, previously expiring in 2031, an additional 110 years and, pursuant to several other provisions, an additional 133 years. In addition, the amendment grants the MTA an option to purchase the leased property after the 25th anniversary of the amended lease, subject to the owner's right to postpone such purchase option exercise date for up to an additional 15 years if the owner has not yet closed the sale, transfer or conveyance of an aggregate amount of 1,000,000 square feet or more of development rights appurtenant to Grand Central Terminal and the associated zoning lots. The amended lease comprises both operating (for the lease of land) and capital (for the lease of buildings and track structure) elements.

In August 1988, the MTA entered into a 99-year lease agreement with Amtrak for Pennsylvania Station. This agreement, with an option to renew, is for rights to the lower concourse level and certain platforms.

The \$45 paid to Amtrak by the MTA under this agreement is included in other assets. This amount is being amortized over 30 years.

Total rent expense under operating leases approximated \$35.8 and \$35.8 for the periods ended June 30, 2018 and 2017, respectively.

At June 30, 2018, the future minimum lease payments under non-cancelable leases are as follows (in millions):

Years	Operating	Capital
	(Unaudited)	
2018	\$ 73	\$ 22
2019	73	25
2020	73	33
2021	72	24
2022	69	75
2023–2027	297	104
2028–2032	370	129
2033–2037	300	576
2038–2042	262	172
2043–2047	263	194
Thereafter	425	215
Future minimum lease payments	<u>\$ 2,277</u>	1,569
Amount representing interest		(1,128)
Total present value of capital lease obligations		441
Less current present value of capital lease obligations		4
Noncurrent present value of capital lease obligations		<u>\$ 437</u>

Capital Leases Schedule

For the Period Ended June 30, 2018
 (in millions)

Description	December 31,		June 30,	
	2017	Increase	Decrease	2018
		(Unaudited)	(Unaudited)	
Sumitomo	\$ 15	\$ -	\$ -	\$ 15
Met Life	6	-	-	6
Met Life Equity	19	-	-	19
Bank of New York	22	-	-	22
Bank of America	37	-	-	37
Bank of America Equity	16	-	-	16
Sumitomo	31	1	-	32
Met Life Equity	52	-	-	52
Grand Central Terminal & Harlem Hudson Railroad Lines	14	-	-	14
2 Broadway Lease Improvement	173	-	-	173
2 Broadway	5	-	-	5
Total MTA Capital Lease	\$ 440	1	\$ -	\$ 441
Current Portion Obligations under Capital Lease	4			4
Long Term Portion Obligations under Capital Lease	\$ 436			\$ 437

Capital Leases Schedule

For the Year Ended December 31, 2017
 (in millions)

Description	December 31,		December 31,	
	2016	Increase	Decrease	2017
Sumitomo	\$ 15	\$ -	\$ -	\$ 15
Met Life	5	1	-	6
Met Life Equity	19	-	-	19
Bank of New York	22	-	-	22
Bank of America	34	3	-	37
Bank of America Equity	16	-	-	16
Sumitomo	35	1	5	31
Met Life Equity	50	2	-	52
Grand Central Terminal & Harlem Hudson Railroad Lines	14	-	-	14
2 Broadway Lease Improvement	169	4	-	173
2 Broadway	54	1	-	55
Total MTA Capital Lease	\$ 433	\$ 12	\$ 5	\$ 440
Current Portion Obligations under Capital Lease	4			4
Long Term Portion Obligations under Capital Lease	\$ 429			\$ 436

9. FUTURE OPTION

In 2010, MTA and MTA Long Island Railroad entered into an Air Space Parcel Purchase and Sale Agreement (“Agreement”) with Atlantic Yards Development Company, LLC (“AADC”) pursuant to which AADC has obtained an exclusive right to purchase fee title to a parcel (subdivided into six sub-parcels) of air space above the MTA Long Island Railroad Vanderbilt Yard in Brooklyn, New York. Initial annual payments of \$2 (covering all six sub-parcels) commenced on June 1, 2012 and are due on the following three anniversaries of that date. Starting on June 1, 2016, and continuing on each anniversary thereof through and including June 1, 2031, an annual option payment in the amount of \$11 is due. The Agreement provides that all such payments are (i) fully earned by MTA as of the date due in consideration of the continuing grant to AADC of the rights to purchase the air space sub-parcels, (ii) are non-refundable except under certain limited circumstances and (iii) shall be deemed to be payments on account of successive annual options granted to AADC.

After AADC and its affiliates have completed the new yard and transit improvements to be constructed by them at and in the vicinity of the site, AADC has the right from time to time until June 1, 2031, to close on the purchase of any or all of the six air rights sub-parcels. The purchase price for the six sub-parcels is an amount, when discounted at 6.5% per annum from the date of each applicable payment that equals a present value of \$80 as of January 1, 2010. The purchase price of any particular air space sub-parcel is equal to a net present value as of January 1, 2010 (calculated based on each applicable payment) of the product of that sub-parcel's percentage of the total gross square footage of permissible development on all six air space sub-parcels multiplied by \$80.

10. ESTIMATED LIABILITY ARISING FROM INJURIES TO PERSONS

A summary of activity in estimated liability as computed by actuaries arising from injuries to persons, including employees, and damage to third-party property for the period ended June 30, 2018 and year ended December 31, 2017 is presented below (in millions):

	June 30, 2018	December 31, 2017
Balance - beginning of year	\$ 3,851	\$ 3,441
Activity during the year:		
Current year claims and changes in estimates	408	832
Claims paid	(218)	(422)
Balance - end of year	4,041	3,851
Less current portion	(427)	(415)
Long-term liability	<u>3,614</u>	<u>\$ 3,436</u>

See Note 2 for additional information on MTA's liability and property disclosures.

11. COMMITMENTS AND CONTINGENCIES

The MTA Group monitors its properties for presence of pollutants and/or hazardous wastes and evaluates its exposure with respect to such matters. When the expense, if any, to clean up pollutants and/or hazardous wastes is estimable it is accrued by the MTA (see Note 12).

Management has reviewed with counsel all actions and proceedings pending against or involving the MTA Group, including personal injury claims. Although the ultimate outcome of such actions and proceedings cannot be predicted with certainty at this time, management believes that losses, if any, in excess of amounts accrued resulting from those actions will not be material to the financial position, results of operations, or cash flows of the MTA.

Under the terms of federal and state grants, periodic audits are required and certain costs may be questioned as not being appropriate expenditures under the terms of the grants. Such audits could lead to reimbursements to the grantor agencies. While there have been some questioned costs in recent years, ultimate repayments required of the MTA have been infrequent.

Financial Guarantee — *Moynihan Station Development Project* - On May 22, 2017, the MTA Board approved entering into various agreements, including a Joint Services Agreement (“JSA”), necessary to effectuate Phase 2 of the Moynihan Station Development Project (the “Project”), which will entail the redevelopment of the James A. Farley Post Office Building to include a new world-class train hall to be shared by National Railroad Passenger Corporation (“Amtrak”), the Long Island Rail Road and Metro-North Commuter Railroad (the “Train Hall”), as well as retail and commercial space (Retail and Commercial Space).

On July 21, 2017, New York State Urban Development Corporation d/b/a Empire State Development (“ESD”) executed a TIFIA Loan Agreement with the United States Department of Transportation (the “TIFIA Lender”) in an amount of up to \$526 (the “TIFIA Loan”), with a final maturity date of the earlier of (1) October 30, 2055 and (2) the last semi-annual payment date occurring no later than the date that is thirty-five (35) years following the date on which the Train Hall is substantially completed. The proceeds of the TIFIA Loan are being used to pay for costs of the construction of the Train Hall. The TIFIA Loan is secured by a mortgage on the Train Hall property. The principal and interest on the TIFIA Loan is payable from a pledged revenue stream that primarily

consists of PILOT payments to be paid by certain tenants in the Retail and Commercial Space. The amount of the PILOT payments is fixed through September, 2030 and is thereafter calculated based upon the assessed value of the properties as determined by the City. The TIFIA Loan is further supported by a TIFIA Debt Service Reserve Account, which is funded in an amount equal to the sum of the highest aggregate TIFIA debt service amounts that will become due and payable on any two consecutive semi-annual payment dates in a five-year prospective period.

Simultaneously with the execution of the TIFIA Loan Agreement, the JSA was entered into by and among the MTA, the TIFIA Lender, ESD, and Manufacturers and Traders Trust Company (as Pilot trustee). Under the JSA, MTA is obligated to satisfy semi-annual deficiencies in the TIFIA Debt Service Reserve Account. MTA's obligations under the JSA are secured by the same moneys available to MTA for the payment of the operating and maintenance expenses of the operating agencies.

MTA's obligation under the JSA remains in effect until the earliest to occur of (a) the MTA JSA Release Date (as defined in the JSA and generally summarized below), (b) the date on which the TIFIA Loan has been paid in full and (c) foreclosure by the TIFIA Lender under the Mortgage (as defined in the TIFIA Loan Agreement).

The obligations of the MTA under the JSA will be terminated and released on the date (the "MTA JSA Release Date") on which each of the following conditions have been satisfied: (a) substantial completion of (1) the Train Hall Project and initiation by LIRR and Amtrak of transportation operations therein, and (2) the Retail and Commercial Space; (b) all material construction claims have been discontinued or settled; (c) the PILOT payments have been calculated based upon assessed value for at least three years (i.e., 2033); (d) certain designated defaults or events of default under the TIFIA Loan Agreement have not occurred and are not continuing; and (e) either of the following release tests shall have been satisfied:

- Release Test A: (a) certain debt service coverage ratios have equaled or exceeded levels set forth in the JSA, taking into consideration assessment appeals; (b) occupancy levels have equaled or exceeded levels set forth in the JSA; and (c) the TIFIA Loan is rated no lower than "BBB-" or "Baa3" by one rating agency, all as more fully described in the JSA; or
- Release Test B: the TIFIA Loan is rated no lower than "A-" or "A3" by two rating agencies, all as more fully described in the JSA.

On the date the JSA was executed and delivered, MTA deposited \$20 into an account, which MTA invests, to be used in accordance with the JSA to reimburse MTA in the event it is obligated under the JSA to make semi-annual deficiency payments to the TIFIA Debt Service Reserve Account.

On June 12, 2017, the MTA entered into a Memorandum of Understanding with ESD and the New York State Division of the Budget (the "Division") whereby the Division agreed that in the event in any given year during the term of the JSA (i) the MTA is required to make a semi-annual deficiency payment to the TIFIA Debt Service Reserve Account, and (ii) the Division has determined that the MTA has incurred an expense that would otherwise have been incurred by the State of New York (the "State Expense"), the Division will consider entering into a cost recovery agreement with the MTA pursuant to subdivision 4 of Section 2975 of the Public Authorities Law (the "PAL") for such year that will provide that in lieu of paying the full assessment pursuant to subdivisions 2 and 3 of Section 2975 of the PAL in any such year, any such assessment shall be reduced by the State Expense.

12. POLLUTION REMEDIATION COST

In accordance with GASB Statement No. 49, *Accounting and Financial Reporting for Pollution Remediation Obligations*, an operating expense provision and corresponding liability measured at its current value using the expected cash flow method is recognized when an obligatory event occurs. Pollution remediation obligations are estimates and subject to changes resulting from price increase or reductions, technology, or changes in applicable laws or regulations. The MTA does not expect any recoveries of cost that would have a material effect on the recorded obligations.

The MTA recognized pollution remediation expenses of \$4 and \$1 for the periods ended June 30, 2018 and 2017, respectively. A summary of the activity in pollution remediation liability at June 30, 2018 and December 31, 2017 were as follows:

	June 30, 2018	December 31, 2017
	(Unaudited)	
Balance at beginning of year	\$ 79	\$ 88
Current year expenses/changes in estimates	4	13
Current year payments	(2)	(22)
Balance at end of year	<u>81</u>	<u>79</u>
Less current portion	20	20
Long-term liability	<u>\$ 61</u>	<u>\$ 59</u>

The MTA's pollution remediation liability primarily consists of future remediation activities associated with asbestos removal, lead abatement, ground water contamination, arsenic contamination and soil remediation.

13. CURRENT AND NON-CURRENT LIABILITIES

Changes in the activity of current and non-current liabilities for the periods ended June 30, 2018 and December 31, 2017 are presented below:

	Balance December 31, 2016			Balance December 31, 2017			Balance June 30, 2018		
	<u>2016</u>	<u>Additions</u>	<u>Reductions</u>	<u>2017</u>	<u>Additions</u>	<u>Reductions</u>	<u>2018</u>	<u>(Unaudited)</u>	<u>(Unaudited)</u>
Current liabilities:									
Accounts payable	\$ 526	\$ 81	-	\$ 607	\$ 9	-	\$ 616		
Interest	22	-	(22)	204	14	-	218		
Salaries, wages and payroll taxes	31	56	-	307	-	(12)	295		
Vacation and sick pay benefits	911	-	-	988	21	-	1,009		
Current portion — retirement and death benefits	15	-	(1)	14	7	-	21		
Capital accrual	5	-	(24)	412	103	-	515		
Other accrued expenses	648	213	-	861	133	-	994		
Unearned revenues	571	23	-	594	8	-	602		
Total current liabilities	<u>\$ 2,104</u>	<u>\$ 450</u>	<u>\$ (47)</u>	<u>\$ 3,987</u>	<u>\$ 295</u>	<u>\$ (12)</u>	<u>\$ 4,270</u>		
Non-current liabilities:									
Contract retainage payable	\$ 309	\$ 67	-	\$ 376	\$ 8	-	\$ 384		
Other long-term liabilities	317	30	-	347	-	-	347		
Total non-current liabilities	<u>\$ 626</u>	<u>\$ 97</u>	<u>\$ -</u>	<u>\$ 723</u>	<u>\$ 8</u>	<u>\$ -</u>	<u>\$ 731</u>		

14. FUEL HEDGE

MTA partially hedges its fuel cost exposure using financial hedges. All MTA fuel hedges provide for up to 24 monthly settlements. The table below summarizes twenty-four (24) active ultra-low sulfur diesel (“ULSD”) hedges in whole dollars:

Counterparty	Goldman Sachs	Macquarie Energy LLC	Goldman Sachs	Macquarie Energy LLC	Goldman Sachs	Goldman Sachs	JPM Ventures Energy Corporation	Cargill
Trade Date	7/28/2016	8/24/2016	9/22/2016	10/26/2016	11/22/2016	12/20/2016	1/26/2017	2/28/2017
Effective Date	1/17/2007	1/17/2008	1/17/2009	1/17/2010	1/17/2011	1/17/2012	1/18/2001	1/18/2002
Termination Date	6/30/2018	7/31/2018	8/31/2018	9/30/2018	10/31/2018	11/30/2018	12/31/2018	1/31/2019
Price/Gal	\$1.5020	\$1.6350	\$1.5975	\$1.6240	\$1.6670	\$1.7657	\$1.7485	\$1.6824
Original Notional Quantity	2,994,811	2,924,151	2,924,156	2,956,573	2,927,330	2,900,871	2,923,252	2,923,256

Counterparty	Goldman Sachs							
Trade Date	3/28/2017	4/27/2017	5/30/2017	6/27/2017	7/26/2017	8/29/2017	9/22/2017	10/26/2017
Effective Date	1/18/2003	1/18/2004	1/18/2005	1/18/2006	1/18/2007	1/18/2008	1/18/2009	1/18/2010
Termination Date	2/28/2019	3/31/2019	4/30/2019	5/31/2019	6/30/2019	7/31/2019	8/31/2019	9/30/2019
Price/Gal	\$1.6090	\$1.5915	\$1.6085	\$1.5225	\$1.6180	\$1.6315	\$1.7205	\$1.7635
Original Notional Quantity	2,923,255	2,887,174	2,914,270	2,914,252	2,914,252	2,914,252	2,914,244	2,612,515

Counterparty	Goldman Sachs	Macquarie Energy LLC	Goldman Sachs	Goldman Sachs				
Trade Date	11/29/2017	12/27/2017	1/31/2018	2/28/2018	3/28/2018	4/24/2018	5/29/2018	6/26/2018
Effective Date	1/18/2011	1/18/2012	1/19/2001	1/19/2002	1/19/2003	1/19/2004	1/19/2005	1/19/2006
Termination Date	10/31/2019	11/30/2019	1/31/2019	3/31/2020	2/29/2020	3/31/2020	4/30/2020	5/31/2020
Price/Gal	\$1.8520	\$1.9050	\$1.8815	\$1.8815	\$1.9805	\$2.0795	\$2.1590	\$2.1755
Original Notional Quantity	2,870,561	2,870,561	2,870,565	2,786,237	2,853,500	2,799,258	2,841,090	2,841,069

The monthly settlements are based on the daily prices of the respective commodities whereby MTA will either receive a payment, or make a payment to the various counterparties depending on the average monthly price of the commodities in relation to the contract prices. At a contract’s termination date, the MTA will take delivery of the fuel. As of June 30, 2018, the total outstanding notional value of the ULSD contracts was 53.3 million gallons with a positive fair market value of \$1.8 (unaudited). The valuation of each trade was based on discounting future net cash flows to a single current amount (the income approach) using observable commodity futures prices (Level 2 inputs).

15. CONDENSED COMPONENT UNIT INFORMATION

The following tables present condensed financial information for MTA's component units (in millions).

June 30, 2018 (Unaudited)	Metro - North Railroad	Long Island Railroad	New York City Transit Authority	Triborough Bridge and Tunnel Authority	Eliminations	Consolidated Total	
Current assets	\$ 7,774	\$ 229	\$ 256	\$ 588	\$ (311)	\$ 9,381	
Capital assets	10,494	4,890	6,380	41,769	6,199	69,733	
Other Assets	11,331	5	-	1	481	(10,814)	1,004
Intercompany receivables	1,567	123	237	1,198	(14)	(3,111)	-
Deferred outflows of resources	1,614	245	340	1,019	439	(136)	3,521
Total assets and deferred outflows of resources	\$ 32,780	\$ 5,492	\$ 7,213	\$ 44,575	\$ 7,950	\$ (14,371)	\$ 83,639
Current liabilities	\$ 2,772	\$ 273	\$ 251	\$ 1,893	\$ 847	\$ (228)	\$ 5,808
Non-current liabilities	36,151	1,213	2,350	22,035	10,388	(70)	72,067
Intercompany payables	2,441	117	100	689	517	(3,864)	-
Deferred inflows of resources	49	20	-	392	21	-	504
Total liabilities and deferred inflows of resources	\$ 41,413	\$ 1,623	\$ 2,701	\$ 24,309	\$ 11,773	\$ (4,162)	\$ 78,379
Net investment in capital assets	\$ (25,716)	\$ 4,876	\$ 6,380	\$ 41,597	1,640	(60)	\$ 28,717
Restricted	1,975	-	-	-	669	(448)	2,196
Unrestricted	15,108	(1,000)	(1,800)	(22,031)	(6,132)	(9,701)	(25,653)
Total net position	\$ (8,633)	\$ 3,880	\$ 4,490	\$ 19,566	\$ (3,823)	\$ (10,209)	\$ 5,260
For the period ended June 30, 2018 (Unaudited)							
Fare revenue	\$ 111	\$ 359	\$ 300	\$ 2,207	\$ -	\$ -	\$ 3,036
Vehicle toll revenue	-	-	-	-	952	-	952
Rents, freight and other revenue	42	25	-	223	11	(22)	299
Total operating revenue	153	384	300	2,430	963	(22)	4,287
Total labor expenses	622	91	616	3,791	152	44	5,716
Total non-labor expenses	46	-	185	995	114	(30)	1,699
Depreciation	51	11	196	905	69	-	1,336
Total operating expenses	679	102	997	5,691	335	14	8,751
Operating (deficit) surplus	(766)	(411)	(618)	(3,261)	628	(36)	(4,464)
Subsidies and grants	697	71	-	249	4	(249)	772
Tax revenue	3,577	-	-	1,427	-	(1,119)	3,615
Interagency subsidy	373	210	331	114	-	(1,028)	-
Interest expense	(587)	-	-	(3)	(137)	(6)	(733)
Other	(847)	-	1	1	-	937	92
Total non-operating revenues (expenses)	2,943	281	332	1,788	(133)	(1,465)	3,746
Gain (Loss) before appropriations	2,177	(130)	(286)	(1,473)	495	(1,501)	(718)
Appropriations, grants and other receipts externally restricted for capital projects	(787)	161	530	(109)	(276)	1,235	754
Change in net position	1,390	31	244	(1,582)	219	(266)	36
Net position, beginning of period	(10,023)	3,838	4,246	21,148	(4,042)	(9,943)	5,224
Net position, end of period	\$ (8,633)	\$ 3,869	\$ 4,490	\$ 19,566	\$ (3,823)	\$ (10,209)	\$ 5,260
For the period ended June 30, 2018 (Unaudited)							
Net cash (used in) / provided by operating activities	\$ (558)	\$ (238)	\$ (371)	\$ (1,719)	\$ 747	\$ (4)	\$ (2,143)
Net cash provided by / (used in) non-capital financing activities	1,776	303	456	2,404	(378)	(1,648)	2,913
Net cash (used in) / provided by capital and related financing activities	(1,629)	(31)	5	(523)	(228)	1,648	(758)
Net cash provided by / (used in) investing activities	692	(35)	(70)	(173)	(89)	4	329
Cash at beginning of period	199	15	5	56	8	-	283
Cash at end of period	\$ 480	\$ 14	\$ 25	\$ 45	\$ 60	\$ -	\$ 624

	MTA	Metro- North Railroad	Long Island Railroad	New York City Transit Authority	Triborough Bridge and Tunnel Authority	Eliminations	Consolidated Total
December 31, 2017							
Current assets	\$ 6,017	\$ 227	\$ 236	\$ 586	\$ 471	\$ (111)	\$ 7,426
Capital assets	9,809	4,828	6,102	41,316	6,005	-	68,060
Other Assets	11,074	5	-	1	4	(9,977)	1,107
Intercompany receivables	751	77	159	1,884	635	(3,506)	-
Deferred outflows of resources	1,748	248	340	1,018	502	(169)	3,687
Total assets and deferred outflows of resources	\$ 29,399	\$ 5,385	\$ 6,837	\$ 44,805	\$ 7,617	\$ (13,763)	\$ 80,280
Current liabilities	\$ 3,017	\$ 288	\$ 253	\$ 1,876	\$ 1,039	\$ (227)	\$ 6,246
Non-current liabilities	33,469	1,185	2,282	21,390	10,093	(116)	68,304
Intercompany payables	2,885	53	34	-	506	(3,477)	-
Deferred inflows of resources	51	21	22	391	21	-	506
Total liabilities and deferred inflows of resources	\$ 39,422	\$ 1,547	\$ 2,591	\$ 23,657	\$ 11,659	\$ (3,820)	\$ 75,056
Net investment in capital assets	\$ (25,162)	\$ 4,814	\$ 6,102	\$ 41,144	\$ 1,730	\$ (378)	\$ 28,250
Restricted	1,484	-	-	-	717	(520)	1,681
Unrestricted	13,655	(976)	(1,856)	(19,996)	(6,489)	(9,045)	(24,707)
Total net position	\$ (10,023)	\$ 3,838	\$ 4,248	\$ 21,148	\$ (4,042)	\$ (9,943)	\$ 5,224
For the period ended June 30, 2017 (Unaudited)							
Fare revenue	\$ 110	\$ 354	\$ 354	\$ 2,208	-	-	\$ 3,026
Vehicle toll revenue	-	-	-	-	910	-	910
Rents, freight and other revenue	41	-	-	222	16	(27)	309
Total operating revenue	151	354	354	2,430	926	(27)	4,245
Total labor expenses	604	486	565	3,660	158	(17)	5,456
Total non-labor expenses	196	173	170	872	108	(34)	1,487
Depreciation	54	18	170	791	78	-	1,211
Total operating expenses	854	777	907	5,323	344	(51)	8,154
Operating (deficit) surplus	(703)	(423)	(524)	(2,893)	582	24	(3,909)
Subsidies and grants	0	-	-	40	4	220	524
Tax revenue	3,501	-	-	1,302	-	(1,060)	3,501
Interagency subsidy	2	170	389	110	-	(1,031)	-
Interest expense	(654)	-	-	-	(155)	(13)	(822)
Other	(1,285)	51	-	(1)	1	1,364	130
Total non-operating revenues (expenses)	1,933	230	389	1,451	(150)	(520)	3,333
Loss before appropriations	1,254	(165)	(135)	(1,442)	432	(496)	(576)
Appropriations, grants and other resources externally restricted for capital projects	46	148	307	527	(351)	421	1,098
Change in net position	1,276	(17)	172	(915)	81	(75)	522
Net position, beginning of the period	(9,409)	3,746	3,874	21,435	(4,477)	(9,562)	5,607
Net position, end of period	\$ (8,133)	\$ 3,729	\$ 4,046	\$ 20,520	\$ (4,396)	\$ (9,637)	\$ 6,129
For the period ended June 30, 2017 (Unaudited)							
Net cash (used in) / provided by operating activities	\$ (404)	\$ (217)	\$ (392)	\$ (1,316)	\$ 675	\$ (32)	\$ (1,686)
Net cash provided by / (used in) non-capital financing activities	2,298	227	426	1,557	(360)	(1,583)	2,565
Net cash (used in) / provided by capital and related financing activities	(1,414)	(13)	(37)	(485)	(283)	1,582	(650)
Net cash provided by / (used in) investing activities	(446)	-	-	236	(141)	33	(318)
Cash at beginning of period	524	14	13	61	120	-	732
Cash at end of period	\$ 558	\$ 11	\$ 10	\$ 53	\$ 11	\$ -	\$ 643

16. SUBSEQUENT EVENTS

On July 31, 2018, MTA executed a 2,820,856 gallon ultra-low sulfur diesel fuel hedge at an all-in price of \$2.173 (whole dollars) per gallon. The hedge covers the period from July 2019 through June 2020.

On August 8, 2018, S&P Global Ratings lowered its long-term rating on all outstanding MTA Transportation Revenue Bonds to A from A+.

On August 14, 2018, MTA closed on an additional \$350 Revenue Anticipation Note facility with JPMorgan Chase, bringing the total amount available to \$700, and drew an initial amount of \$3.5 in order to secure a lower commitment fee of 0.35%. The facility will be available to the MTA through August 22, 2022.

On August 22, 2018, MTA effectuated a mandatory tender and remarketed \$167 of Transportation Revenue Variable Rate Bonds, Series 2005E-1 and 2005E-3 because the existing letters of credit relating to the remarketed bonds issued by Bank of Montreal expired by its terms on August 24, 2018.

On August 23, 2018, MTA issued \$207 Transportation Revenue Refunding Green Bonds, Series 2018B to (i) refund certain outstanding Transportation Revenue Bonds and Dedicated Tax Fund Bonds, and (ii) pay certain financing, legal, and miscellaneous expenses. The Series 2018B bonds have maturities each November 15th from 2019 through 2028.

On August 29, 2018, MTA executed a 2,831,924 gallon ultra-low sulfur diesel fuel hedge at an all-in price of \$2.2145 (whole dollars) per gallon. The hedge covers the period from August 2019 through July 2020.

On August 30, 2018, MTA Bridges and Tunnels issued \$275 General Revenue Refunding Bonds, Series 2018B to (i) refund certain outstanding indebtedness and (ii) pay certain financing, legal, and miscellaneous expenses. The Series 2018B bonds have maturities each November 15th beginning in 2024 through 2031.

On August 30, 2018, MTA Bridges and Tunnels issued \$125 General Revenue Refunding Bonds, Series 2018C to (i) refund certain outstanding indebtedness and (ii) pay certain financing, legal, and miscellaneous expenses. The Series 2018C bonds have maturities each November 15th beginning in 2031 through 2038.

On September 5, 2018, MTA effectuated a mandatory tender of \$193 MTA Transportation Revenue Variable Rate Bonds, Subseries 2015E-2 because its irrevocable direct-pay LOC was expiring by its terms and MTA executed a Bond Purchase Agreement and Firm Remarketing Agreement constituting a Private Placement to replace the expiring LOC. The Initial Mandatory Purchase date for the Subseries 2015E-2 bonds is September 5, 2023.

On September 5, 2018, MTA effectuated a mandatory tender and remarketed \$155 MTA Transportation Revenue Variable Rate Bonds, Subseries 2015E-3, \$125 MTA Transportation Revenue Variable Rate Bonds, Subseries 2015E-4, and \$48 MTA Transportation Revenue Variable Rate Bonds, Subseries 2015E-5 because their respective irrevocable direct-pay LOCs were expiring by their terms. The LOC relating to the Subseries 2015E-3 issued by Citibank, N.A. was substituted with a LOC issued by Bank of America, N.A. The LOC will expire on September 2, 2022. The LOCs relating to the Subseries 2015E-4 and Subseries 2015E-5 issued by Bank of the West and U.S. Bank National Association, respectively, were substituted with a LOC issued by PNC Capital Markets as both Subseries were combined into one (Subseries 2015E-4). The LOC for the combined Subseries 2015E-4 will expire on September 3, 2021.

On September 25, 2018, MTA executed a 2,831,922 gallon ultra-low sulfur diesel fuel hedge at an all-in price of \$2.2885 (whole dollars) per gallon. The hedge covers the period from September 2019 through August 2020.

On September 26, 2018, MTA effectuated a mandatory tender and remarketed \$107 MTA Bridges and Tunnels General Revenue Variable Rate Bonds, Series 2001B. Among other aspects of the tender and remarketing, the Series 2011B Bonds were converted from the Weekly Mode, as defined in the original issuance, to the Term Rate Mode bearing interest at a variable rate based on the Secured Overnight Financing Rate index.

On October 4, 2018, MTA Bridges and Tunnels issued \$125 General Revenue Variable Rate Bonds, Series 2018D to (i) finance bridge and tunnel projects in the MTA Bridges and Tunnels approved Capital Program, and (ii) pay certain financing, legal, and miscellaneous expenses. The Series 2018D bonds mature on November 15, 2038.

On October 10, 2018, MTA issued \$900 Transportation Revenue Bond Anticipation Notes, Series 2018C consisting of \$450 Subseries 2018C-1, which mature on September 1, 2020, and \$450 Subseries C-2, which mature on September 1, 2021. The Series 2018C Notes were issued to (i) finance existing approved transit and commuter projects, (ii) pay interest on the Series 2018C Notes accruing through maturity, and (iii) pay certain financing, legal, and miscellaneous expenses.

On October 11, 2018, MTA extended the direct pay LOCs from TD Bank, N.A. that are associated with Transportation Revenue Variable Rate Bonds, Subseries 2002G-1g and Transportation Revenue Variable Rate Refunding Bonds, Subseries 2012G-2. The respective LOCs will be extended for three years to November 1, 2021.

On October 30, 2018, MTA executed a 2,831,934 gallon ultra-low sulfur diesel fuel hedge at an all-in price of \$2.2455 (whole dollars) per gallon. The hedge covers the period from October 2019 through September 2020.

On October 30, 2018, MTA effectuated a mandatory tender and remarketed \$163 of Triborough Bridge and Tunnel Authority General Revenue Variable Rate Bonds, Series 2002F because the irrevocable direct-pay LOC relating to the Series 2002F bonds was expiring by its terms and was substituted with an irrevocable direct-pay LOC, which will expire on October 29, 2021.

On October 30, 2018, MTA effectuated a mandatory tender and remarketed \$38 of MTA Transportation Revenue Variable Rate Refunding Bonds, Series 2002G-1f and \$137 of MTA Transportation Revenue Variable Rate Refunding Bonds, Subseries 2005D-1 because their current interest rate periods were expiring by their terms. Both the Series 2002G-1f and 2005D-1 Bonds were remarketed in Term Rate Mode as Floating Rate Tender Notes ("FRNs") with a purchase date of July 1, 2021 and with an interest rate of 67% of 1-month LIBOR plus 0.65%.

DRAFT

METROPOLITAN TRANSPORTATION AUTHORITY
(A Component Unit of the State of New York)
REQUIRED SUPPLEMENTARY INFORMATION

Schedule of Changes in the MTA's Net Pension Liability and Related Ratios for Single Employer Pension Plans

(\$ in thousands)	Additional Plan			MaBSTOA Plan		
	2016	2015	2014	2016	2015	2014
Plan Measurement Date (December 31):						
Total pension liability:						
Service cost	\$ 2,752	\$ 3,441	\$ 3,813	\$ 82,075	\$ 77,045	\$ 72,091
Interest	104,093	106,987	110,036	236,722	232,405	223,887
Effect of economic / demographic (gains) or losses	15,801	6,735	-	13,784	(68,997)	-
Differences between expected and actual experience	-	-	-	-	-	(1,596)
Benefit payments and withdrawals	(158,593)	(157,071)	(156,974)	(187,823)	(179,928)	(175,447)
Net change in total pension liability	(35,947)	(50,908)	(43,125)	144,758	60,525	118,935
Total pension liability—beginning	1,562,251	1,602,159	1,645,284	3,391,989	3,331,464	3,212,529
Total pension liability—ending (a)	1,526,304	1,562,251	1,602,159	3,536,747	3,391,989	3,331,464
Plan fiduciary net position:						
Employer contributions	81,100	100,000	407,513	220,697	214,881	226,374
Nonemployer contributions	70,000	-	-	-	-	-
Member contributions	884	1,108	1,304	18,472	16,321	15,460
Net investment income	58,257	527	21,231	212,260	(24,163)	105,084
Benefit payments and withdrawals	(158,593)	(157,071)	(156,974)	(187,823)	(179,928)	(175,447)
Administrative expenses	(11)	(1,218)	(975)	(186)	(88)	(74)
Net change in plan fiduciary net position	51,019	(56,654)	272,099	263,420	27,023	171,397
Plan fiduciary net position—beginning	726,288	782,852	510,753	2,292,316	2,265,293	2,093,896
Plan fiduciary net position—ending (b)	777,210	726,198	782,852	2,555,736	2,292,316	2,265,293
Employer's net pension liability—ending (a)-(b)	749,087	\$ 836,053	\$ 819,307	\$ 981,011	\$ 1,099,673	\$ 1,066,171
Plan fiduciary net position as a percentage of the total pension liability	50.92%	46.48%	48.86%	72.26%	67.58%	68.00%
Covered-employee payroll	\$ 29,512	\$ 39,697	\$ 43,267	\$ 716,527	\$ 686,674	\$ 653,287
Employer's net pension liability as a percentage of covered-employee payroll	2555.56%	2106.09%	1893.61%	136.91%	160.14%	163.20%

Note: Information was not readily available for periods prior to 2014. This schedule is intended to show information for ten years. Additional years will be displayed as they become available.

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METROPOLITAN TRANSPORTATION AUTHORITY
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REQUIRED SUPPLEMENTARY INFORMATION

Schedule of Changes in the MTA's Net Pension Liability and Related Ratios for Single Employer Pension Plans

(continued)

(\$ in thousands)	MNR Cash Balance Plan			MTA Defined Benefit Plan		
	2016	2015	2014	2016	2015	2014
Plan Measurement Date (December 31):						
Total pension liability:						
Service cost	\$ -	\$ -	\$ -	\$ 138,215	\$ 124,354	\$ 121,079
Interest	24	29	32	308,009	288,820	274,411
Effect of economic / demographic (gains) or losses	(15)	(9)	-	86,809	121,556	-
Effect of assumption changes or inputs	-	18	-	-	(76,180)	-
Effect of plan changes	-	-	-	73,521	6,230	-
Differences between expected and actual experience	-	-	-	-	-	2,322
Benefit payments and withdrawals	(77)	(113)	(88)	(209,623)	(199,572)	(191,057)
Net change in total pension liability	(68)	(76)	(56)	396,931	265,208	206,755
Total pension liability—beginning	634	710	766	4,364,946	4,099,738	3,892,983
Total pension liability—ending (a)	566	634	710	4,761,877	4,364,946	4,099,738
Plan fiduciary net position:						
Employer contributions	3	18	-	280,768	221,694	331,259
Member contributions	-	-	-	29,392	34,519	26,006
Net investment income	16	6	41	247,708	(45,122)	102,245
Benefit payments and withdrawals	(77)	(113)	(88)	(209,623)	(199,572)	(191,057)
Administrative expenses	-	3	(3)	(3,051)	(1,962)	(9,600)
Net change in plan fiduciary net position	(5)	(86)	(50)	345,194	9,557	258,853
Plan fiduciary net position—beginning	612	698	748	3,074,777	3,065,220	2,806,367
Plan fiduciary net position—ending (b)	574	612	698	3,419,971	3,074,777	3,065,220
Employer's net pension liability—ending (a)-(b)	\$ (8)	\$ 22	\$ 12	\$ 1,341,906	\$ 1,290,169	\$ 1,034,518
Plan fiduciary net position as a percentage of the total pension liability	101.41%	96.53%	98.36%	71.82%	70.44%	74.77%
Covered-employee payroll	\$ 846	\$ 1,474	\$ 2,274	\$ 1,784,369	\$ 1,773,274	\$ 1,679,558
Employer's net pension liability as a percentage of covered-employee payroll	-0.95%	1.49%	0.53%	75.20%	72.76%	61.59%

Note: Information was not readily available for periods prior to 2014. This schedule is intended to show information for ten years. Additional years will be displayed as they become available.

METROPOLITAN TRANSPORTATION AUTHORITY
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REQUIRED SUPPLEMENTARY INFORMATION

Schedule of the MTA's Proportionate Share of the Net Pension Liabilities of Cost-Sharing Multiple-Employer Pension Plans

(\$ in thousands)

Plan Measurement Date:	NYCERS Plan			NYSLERS Plan		
	June 30, 2017	June 30, 2016	June 30, 2015	March 31, 2017	March 31, 2016	March 31, 2015
MTA's proportion of the net pension liability	24.096%	23.493%	23.585%	0.311%	0.303%	0.289%
MTA's proportionate share of the net pension liability	\$ 5,003,811	\$ 5,008,052	\$ 4,773,787	\$ 29,239	\$ 48,557	\$ 9,768
MTA's actual covered-employee payroll	\$ 3,154,673	\$ 3,064,007	\$ 2,989,480	\$ 96,583	\$ 87,670	\$ 87,315
MTA's proportionate share of the net pension liability as a percentage of the MTA's covered-employee payroll	158.616%	163.5294%	159.686%	30.273%	55.386%	11.187%
Plan fiduciary net position as a percentage of the total pension liability	74.05%	69.568%	73.125%	94.703%	90.685%	97.947%

Note: Information was not readily available for periods prior to 2015. This schedule is intended to show information for ten years. Additional years will be displayed as they become available. The data provided in this schedule is based on the measurement date used by NYCERS and NYSLERS for the net pension liability.

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REQUIRED SUPPLEMENTARY INFORMATION

Schedule of the MTA's Contributions for All Pension Plans for the Year Ended December 31,

	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
	(\$ in thousands)									
Additional Plan*										
Actuarially Determined Contribution	\$ 76,523	\$ 83,183	\$ 82,382	\$ 112,513	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Actual Employer Contribution	221,523	151,100	100,000	407,513	-	-	-	-	-	-
Contribution Deficiency (Excess)	<u>\$ (145,000)</u>	<u>\$ (67,917)</u>	<u>\$ (17,618)</u>	<u>\$ (75,000)</u>	<u>\$ -</u>					
Covered Payroll	<u>\$ 20,500</u>	<u>\$ 29,312</u>	<u>\$ 39,697</u>	<u>\$ 43,267</u>	<u>\$ -</u>					
Contributions as a % of Covered Payroll	1080.62%	515.49%	251.91%	94.77%	N/A	N/A	N/A	N/A	N/A	N/A
MaBSTOA Plan										
Actuarially Determined Contribution	\$ 202,924	\$ 220,697	\$ 214,881	\$ 206,374	\$ 234,474	\$ 228,918	\$ 186,454	\$ 200,633	\$ 204,274	\$ 201,919
Actual Employer Contribution	202,684	220,697	214,881	206,374	234,474	228,918	186,454	200,633	204,274	201,919
Contribution Deficiency (Excess)	<u>\$ 240</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>
Covered Payroll	<u>\$ 749,666</u>	<u>\$ 716,527</u>	<u>\$ 676,674</u>	<u>\$ 653,287</u>	<u>\$ 582,081</u>	<u>\$ 575,989</u>	<u>\$ 579,696</u>	<u>\$ 591,073</u>	<u>\$ 569,383</u>	<u>\$ 562,241</u>
Contributions as a % of Covered Payroll	27.04%	30.80%	31.29%	34.65%	40.28%	39.74%	32.16%	33.94%	35.88%	35.91%
Metro-North Cash Balance Plan*										
Actuarially Determined Contribution	\$ -	\$ 23	\$ -	\$ 5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Actual Employer Contribution	-	23	14	-	-	-	-	-	-	-
Contribution Deficiency (Excess)	<u>\$ -</u>	<u>\$ -</u>	<u>\$ (14)</u>	<u>\$ 5</u>	<u>\$ -</u>					
Covered Payroll	<u>\$ 471</u>	<u>\$ 846</u>	<u>\$ 1,474</u>	<u>\$ 2,274</u>	<u>\$ -</u>					
Contributions as a % of Covered Payroll	0.00%	2.68%	0.96%	0.00%	N/A	N/A	N/A	N/A	N/A	N/A
MTA Defined Benefit Plan*										
Actuarially Determined Contribution	\$ 316,916	\$ 290,411	\$ 273,700	\$ 271,523	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Actual Employer Contribution	321,861	280,767	221,694	331,259	-	-	-	-	-	-
Contribution Deficiency (Excess)	<u>\$ (4,945)</u>	<u>\$ 9,648</u>	<u>\$ 52,006</u>	<u>\$ (59,736)</u>	<u>\$ -</u>					
Covered Payroll	<u>\$ 1,857,026</u>	<u>\$ 1,784,369</u>	<u>\$ 1,773,274</u>	<u>\$ 1,679,558</u>	<u>\$ -</u>					
Contributions as a % of Covered Payroll	17.33%	15.73%	12.50%	19.72%	N/A	N/A	N/A	N/A	N/A	N/A

* For the MTA Defined Benefit Plan, Additional Plan and Metro-North Cash Balance Plan, information was not readily available for periods prior to 2014. This schedule is intended to show information for ten years. Additional years will be displayed as they become available.

METROPOLITAN TRANSPORTATION AUTHORITY
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REQUIRED SUPPLEMENTARY INFORMATION

Schedule of the MTA's Contributions for All Pension Plans for the Year Ended December 31,

(continued)

	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
	(in thousands)									
NYCERS										
Actuarially Determined Contribution	\$ 800,863	\$ 797,845	\$ 736,212	\$ 741,223	\$ 736,361	\$ 731,983	\$ 657,771	\$ 574,555	\$ 548,721	\$ 499,603
Actual Employer Contribution	800,863	797,845	736,212	741,223	736,361	731,983	657,771	574,555	548,721	499,603
Contribution Deficiency (Excess)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Covered Payroll	\$ 3,768,885	\$ 3,523,993	\$ 3,494,907	\$ 3,617,087	\$ 3,274,195	\$ 2,925,834	\$ 2,900,630	\$ 2,886,789	\$ 2,800,882	\$ 2,656,778
Contributions as a % of Covered Payroll	21.25%	22.64%	21.07%	20.49%	22.49%	25.02%	22.68%	19.90%	19.59%	18.80%
NYSLERS **										
Actuarially Determined Contribution	\$ 13,969	\$ 12,980	\$ 15,792	\$ 13,800	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Actual Employer Contribution	13,969	12,980	15,792	13,800	-	-	-	-	-	-
Contribution Deficiency (Excess)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Covered Payroll	\$ 103,787	\$ 94,801	\$ 87,322	\$ 83,964	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Contributions as a % of Covered Payroll	13.46%	13.69%	18.20%	16.44%	N/A	N/A	N/A	N/A	N/A	N/A

** For the NYSLERS plan, information was not readily available for periods prior to 2014. This schedule is intended to show information for ten years. Additional years will be displayed as they become available.

METROPOLITAN TRANSPORTATION AUTHORITY
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REQUIRED SUPPLEMENTARY INFORMATION
Notes to Schedule of the MTA's Contributions for All Pension Plans

	Additional Plan		
Valuation Dates:	January 1, 2016	January 1, 2015	January 1, 2014
Measurement Date:	December 31, 2016	December 31, 2015	December 31, 2014
Actuarial cost method:	Entry Age Normal Cost	Entry Age Normal Cost	Entry Age Normal Cost
Amortization method:	Period specified in current valuation report (closed 17 year period beginning January 1, 2016) with level dollar payments.	Period specified in current valuation report (closed 18 year period beginning January 1, 2015) with level dollar payments.	Period specified in current valuation report (closed 19 year period beginning January 1, 2014) with level dollar payments.
Asset Valuation Method:	Actuarial value equals market value less unrecognized gains/losses over a 5-year period. Gains/losses are based on market value of assets.	Actuarial value equals market value less unrecognized gains/losses over a 5-year period. Gains/losses are based on market value of assets.	Actuarial value equals market value less unrecognized gains/losses over a 5-year period. Gains/losses are based on market value of assets.
Salary increases:	3.00%	3.00%	3.00%
Actuarial assumptions:			
Discount Rate:	7.00%	7.00%	7.00%
Investment rate of return :	7.00%, net of investment expenses.	7.00%, net of investment expenses.	7.00%, net of investment expenses.
Mortality:	Based on experience of all MTA members reflecting mortality improvement on a generational basis using scale AA.	Based on experience of all MTA members reflecting mortality improvement on a generational basis using scale AA.	Based on experience of all MTA members reflecting mortality improvement on a generational basis using scale AA. As generational tables, they reflect mortality improvements both before and after the measurement date. Mortality assumption is based on a 2012 experience study for all MTA plans.
Pre-retirement:	RP-2000 Employee Mortality Table for Males and Females with blue collar adjustments.	RP-2000 Employee Mortality Table for Males and Females with blue collar adjustments.	RP-2000 Employee Mortality Table for Males and Females with blue collar adjustments.
Post-retirement Healthy Lives:	95% of the rates from the RP-2000 Healthy Annuitant mortality table for males with blue collar adjustments and 116% of the rates from the RP-2000 Healthy Annuitant mortality table for females.	95% of the rates from the RP-2000 Healthy Annuitant mortality table for males with blue collar adjustments and 116% of the rates from the RP-2000 Healthy Annuitant mortality table for females.	95% of the rates from the RP-2000 Healthy Annuitant mortality table for males with blue collar adjustments and 116% of the rates from the RP-2000 Healthy Annuitant mortality table for females.
Post-retirement Disabled Lives:	N/A	N/A	N/A
Inflation/Railroad Retirement Wage Base:	2.50%; 3.50%	2.50%; 3.50%	2.50%; 3.50%
Cost-of-Living Adjustments:	N/A	N/A	N/A

METROPOLITAN TRANSPORTATION AUTHORITY
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REQUIRED SUPPLEMENTARY INFORMATION
Notes to Schedule of the MTA's Contributions for All Pension Plans

	MaBSTOA Plan		
Valuation Dates:	January 1, 2016	January 1, 2015	January 1, 2014
Measurement Date:	December 31, 2016	December 31, 2015	December 31, 2014
Actuarial cost method:	Frozen Initial Liability (FIL)	Frozen Initial Liability (FIL)	Frozen Initial Liability (FIL)
Amortization method:	For FIL bases, period specified in current valuation 30-year level dollar. Future gains/losses are amortized through the calculation of the normal cost in accordance with the FIL cost method amortized based on expected working lifetime, weighted by salary, of the projected population.	For FIL bases, period specified in current valuation 30-year level dollar. Future gains/losses are amortized through the calculation of the normal cost in accordance with the FIL cost method amortized based on expected working lifetime, weighted by salary, of the projected population.	For FIL bases, period specified in current valuation 30-year level dollar. Future gains/losses are amortized through the calculation of the normal cost in accordance with the FIL cost method amortized based on expected working lifetime, weighted by salary, of the projected population.
Asset Valuation Method:	Actuarial value equals market value less unrecognized gains/losses over a 5-year period. Gains/losses are based on market value of assets.	Actuarial value equals market value less unrecognized gains/losses over a 5-year period. Gains/losses are based on market value of assets.	Actuarial value equals market value less unrecognized Market value restart as of 1/1/96, then gains/losses over a 5-year period. Gains/losses are five-year moving average of market values based on market value of assets.
Salary increases:	Varies by years of employment and employment type.	Varies by years of employment and employment type.	In general, merit and promotion increases plus assumed general wage increases of 3.5% to 15.0% for operating employees and 4.0% to 7.0% for nonoperating employees per year, depending on years of service.
Actuarial assumptions:			
Discount Rate:	7.00%	7.00%	7.00%
Investment rate of return :	7.00%, net of investment expenses.	7.00%, net of investment expenses.	7.00%, net of investment expenses.
Mortality:	Based on experience of all MTA members reflecting mortality improvement on a generational basis using scale AA.	Based on experience of all MTA members reflecting mortality improvement on a generational basis using scale AA.	Pre-retirement and post-retirement healthy annuitant rates are projected on a generational basis using Scale AA. As generational tables, they reflect mortality improvements both before and after the measurement date. Mortality assumption is based on a 2012 experience study for all MTA plans.
Pre-retirement:	RP-2000 Employee Mortality Table for Males and Females with blue collar adjustments.	RP-2000 Employee Mortality Table for Males and Females with blue collar adjustments.	RP-2000 Employee Mortality Table for Males and Females with blue collar adjustments.
Post-retirement Healthy Lives:	95% of the rates from the RP-2000 Healthy Annuitant mortality table for males with blue collar adjustments and 116% of the rates from the RP-2000 Healthy Annuitant mortality table for females.	95% of the rates from the RP-2000 Healthy Annuitant mortality table for males with blue collar adjustments and 116% of the rates from the RP-2000 Healthy Annuitant mortality table for females.	95% of the rates from the RP-2000 Healthy Annuitant mortality table for males with blue collar adjustments and 116% of the rates from the RP-2000 Healthy Annuitant mortality table for females.
Post-retirement Disabled Lives:	75% of the rates from the RP-2000 Healthy Annuitant mortality table for males and females.	75% of the rates from the RP-2000 Healthy Annuitant mortality table for males and females.	75% of the rates from the RP-2000 Healthy Annuitant mortality table for males and females.
Inflation/Railroad Retirement Wage Base:	2.50%	2.50%	2.50%
Cost-of-Living Adjustments:	1.375% per annum	1.375% per annum	1.375% per annum

METROPOLITAN TRANSPORTATION AUTHORITY

(A Component Unit of the State of New York)

REQUIRED SUPPLEMENTARY INFORMATION
Notes to Schedule of the MTA's Contributions for All Pension Plans
(continued)

	MNR Cash Balance Plan		
Valuation Dates:	January 1, 2017	January 1, 2016	January 1, 2014
Measurement Date:	December 31, 2016	December 31, 2015	December 31, 2014
Actuarial cost method:	Unit Credit Cost	Unit Credit Cost	Unit Credit Cost
Amortization method:	One-year amortization of the unfunded liability, if any.	One-year amortization of the unfunded liability, if any.	Period specified in current valuation report (closed 10 year period beginning January 1, 2008 - 4 year period for the January 1, 2014 valuation).
Asset Valuation Method:	Actuarial value equals market value.	Actuarial value equals market value.	Effective January 1, 2015, the Actuarially Determined Contribution (ADC) will reflect one-year amortization of the unfunded accrued liability in accordance with the funding policy adopted by the MTA.
Salary increases:	N/A	N/A	There were no projected salary increase assumptions used in the January 1, 2014 valuation as the participants of the Plan were covered under the Management Plan effective January 1, 1989. For participants of the Plan eligible for additional benefits, these benefits were not valued as the potential liability is de minimus.
Actuarial assumptions:			
Discount Rate:	4.00%	4.50%	4.50%
Investment rate of return :	4.00%, net of investment expenses.	4.00%, net of investment expenses.	4.50%, net of investment expenses.
Mortality:	Based on experience of all MTA members reflecting mortality improvement on a generational basis using scale AA. Mortality assumption is based on a 2012 experience study for all MTA plans.	Based on experience of all MTA members reflecting mortality improvement on a generational basis using scale AA. Mortality assumption is based on a 2012 experience study for all MTA plans.	Based on experience of all MTA members reflecting mortality improvement on a generational basis using scale AA. As generational tables, they reflect mortality improvements both before and after the measurement date. Mortality assumption is based on a 2012 experience study for all MTA plans.
Pre-retirement:	RP-2000 Employee Mortality Table for Males and Females with blue collar adjustments.	RP-2000 Employee Mortality Table for Males and Females with blue collar adjustments.	RP-2000 Employee Mortality Table for Males and Females with blue collar adjustments.
Post-retirement Healthy Lives:	95% of the rates from the RP-2000 Healthy Annuitant mortality table for males with blue collar adjustments and 116% of the rates from the RP-2000 Healthy Annuitant mortality table for females.	95% of the rates from the RP-2000 Healthy Annuitant mortality table for males with blue collar adjustments and 116% of the rates from the RP-2000 Healthy Annuitant mortality table for females.	95% of the rates from the RP-2000 Healthy Annuitant mortality table for males with blue collar adjustments and 116% of the rates from the RP-2000 Healthy Annuitant mortality table for females.
Post-retirement Disabled Lives:	N/A	N/A	N/A
Inflation/Railroad Retirement Wage Base:	2.30%	2.30%	2.50%
Cost-of-Living Adjustments:	N/A	N/A	N/A

METROPOLITAN TRANSPORTATION AUTHORITY
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REQUIRED SUPPLEMENTARY INFORMATION

Notes to Schedule of the MTA’s Contributions for All Pension Plans

(continued)

	MTA Defined Benefit Plan		
Valuation Dates:	January 1, 2016	January 1, 2015	January 1, 2014
Measurement Date:	December 31, 2016	December 31, 2015	December 31, 2014
Actuarial cost method:	Entry Age Normal Cost	Entry Age Normal Cost	Entry Age Normal Cost
Amortization method:	For Frozen Initial Liability (“FIL”) bases, period specified in current valuation report. Future gains/ losses are amortized through the calculation of the normal cost in accordance with FIL cost method amortized based on expected working lifetime, weighted by salary, of the projected population for each group.	For Frozen Initial Liability (“FIL”) bases, period specified in current valuation report. Future gains/ losses are amortized through the calculation of the normal cost in accordance with FIL cost method amortized based on expected working lifetime, weighted by salary, of the projected population for each group.	For Frozen Initial Liability (“FIL”) bases, period specified in current valuation report. Future gains/ losses are amortized through the calculation of the normal cost in accordance with FIL cost method amortized based on expected working lifetime, weighted by salary, of the projected population for each group.
Asset Valuation Method:	Actuarial value equals market value less unrecognized gains/losses over a 5-year period. Gains/losses are based on market value of assets.	Actuarial value equals market value less unrecognized gains/losses over a 5-year period. Gains/losses are based on market value of assets.	Actuarial value equals market value less unrecognized gains/losses over a 5-year period. Gains/losses are based on market value of assets.
Salary increases:	Varies by years of employment, and employee group. 3.5% for MTA Bus hourly employees.	Varies by years of employment, and employee group. 3.5% for MTA Bus hourly employees.	Varies by years of employment, and employee group.
Actuarial assumptions:			
Discount Rate:	7.00%	7.00%	7.00%
Investment rate of return :	7.00%	7.00%	7.00%
Mortality:	Preretirement and postretirement healthy annuitant rates are projected on a generational basis using Scale AA. As a general table, it reflects mortality improvements both before and after the measurement date.	Preretirement and postretirement healthy annuitant rates are projected on a generational basis using Scale AA. As a general table, it reflects mortality improvements both before and after the measurement date.	Preretirement and postretirement healthy annuitant rates are projected on a generational basis using Scale AA, as recommended by the Society of Actuaries Retirement Plans Experience Committee. Mortality assumption is based on a 2012 experience study for all MTA plans.
Pre-retirement:	RP-2000 Employee Mortality Table for Males and Females with blue collar adjustments.	RP-2000 Employee Mortality Table for Males and Females with blue collar adjustments.	RP-2000 Employee Mortality Table for Males and Females with blue collar adjustments.
Post-retirement Healthy Lives:	95% of the rates from the RP-2000 Healthy Annuitant mortality table for males with blue collar adjustments and 116% of the rates from the RP-2000 Healthy Annuitant mortality table for females.	95% of the rates from the RP-2000 Healthy Annuitant mortality table for males with blue collar adjustments and 116% of the rates from the RP-2000 Healthy Annuitant mortality table for females.	95% of the rates from the RP-2000 Healthy Annuitant mortality table for males with blue collar adjustments and 116% of the rates from the RP-2000 Healthy Annuitant mortality table for females.
Post-retirement Disabled Lives:	75% of the rates from the RP-2000 Healthy Annuitant mortality table for males and females. At age 85 and later for males and age 77 and later for females, the disability rates are set to the male and females healthy rates, respectively.	75% of the rates from the RP-2000 Healthy Annuitant mortality table for males and females. At age 85 and later for males and age 77 and later for females, the disability rates are set to the male and females healthy rates, respectively.	75% of the rates from the RP-2000 Healthy Annuitant mortality table for males and females. At age 85 and later for males and age 77 and later for females, the disability rates are set to the male and females healthy rates, respectively.
Inflation/Railroad Retirement Wage Base:	2.50%; 3.50%	2.50%; 3.50%	2.50%; 3.00%
Cost-of-Living Adjustments:	55% of inflation assumption or 1.375%, if applicable.	55% of inflation assumption or 1.375%, if applicable.	55% of inflation assumption or 1.375%, if applicable.

METROPOLITAN TRANSPORTATION AUTHORITY
 (A Component Unit of the State of New York)

REQUIRED SUPPLEMENTARY INFORMATION
Notes to Schedule of the MTA's Contributions for All Pension Plans
(continued)

	NYCERS Plan		
Valuation Dates:	June 30, 2015	June 30, 2014	June 30, 2013
Measurement Date:	June 30, 2017	June 30, 2016	June 30, 2015
Actuarial cost method:	Entry Age Normal Cost	Entry Age Normal Cost	Entry Age Normal Cost
Amortization method:	Increasing Dollar for Initial Unfunded; Level Dollar for Post 2010 Unfunded.	Increasing Dollar for Initial Unfunded; Level Dollar for Post 2010 Unfunded.	Increasing Dollar for Initial Unfunded; Level Dollar for Post 2010 Unfunded.
Asset Valuation Method:	Modified six-year moving average of market values with a Market Value Restart as of June 30, 2011	Modified six-year moving average of market values with a Market Value Restart as of June 30, 2011	Modified six-year moving average of market values with a Market Value Restart as of June 30, 2011.
Salary increases:	3% per annum.	3% per annum.	3% per annum.
Actuarial assumptions:			
Discount Rate:	7.00%	7.00%	7.00%
Investment rate of return :	7.00%, net of investment expenses.	7.00%, net of investment expenses.	7.00%, net of investment expenses.
Mortality:	Mortality tables for service and disability pensioners were developed from an experience study of NYCERS's pensioners. The mortality tables for beneficiaries were developed from an experience review of NYCERS's beneficiaries. The most recently completed study was published by Gabriel Roeder & Company ("GRS"), dated October 2015, and analyzed experience for Fiscal Years 2010 through 2013.	Mortality tables for service and disability pensioners were developed from an experience study of NYCERS's pensioners. The mortality tables for beneficiaries were developed from an experience review of NYCERS's beneficiaries. The most recently completed study was published by Gabriel Roeder & Company ("GRS"), dated October 2015, and analyzed experience for Fiscal Years 2010 through 2013.	Mortality tables for service and disability pensioners were developed from an experience study of NYCERS's pensioners. The mortality tables for beneficiaries were developed from an experience review of NYCERS' beneficiaries. The most recently completed study was published by Gabriel Roeder & Company ("GRS"), dated October 2015, and analyzed experience for Fiscal Years 2010 thorough 2013.
Pre-retirement:	N/A	N/A	N/A
Post-retirement Healthy Lives:	N/A	N/A	N/A
Post-retirement Disabled Lives:	N/A	N/A	N/A
Inflation/Railroad Retirement Wage Base:	2.50%	2.50%	2.50%
Cost-of-Living Adjustments:	1.5% per annum for Auto COLA and 2.5% per annum for Escalation.	1.5% per annum for Auto COLA and 2.5% per annum for Escalation.	1.5% per annum for Auto COLA and 2.5% per annum for Escalation.

METROPOLITAN TRANSPORTATION AUTHORITY
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REQUIRED SUPPLEMENTARY INFORMATION
Notes to Schedule of the MTA's Contributions for All Pension Plans
(continued)

	NYSLERS Plan		
Valuation Dates:	April 1, 2016	April 1, 2015	April 1, 2014
Measurement Date:	March 31, 2017	March 31, 2016	March 31, 2015
Actuarial cost method:	Aggregate Cost method	Aggregate Cost method	Aggregate Cost method
Amortization method:	Evenly over the remaining working lifetimes of the active membership.	Evenly over the remaining working lifetimes of the active membership.	Evenly over the remaining working lifetimes of the active membership.
Asset Valuation Method:	5 year level smoothing of the difference between the actual gain and the expected gain using the assumed investment rate of return.	5 year level smoothing of the difference between the actual gain and the expected gain using the assumed investment rate of return.	5-year level smoothing of the difference between the actual gain and the expected gain using the assumed investment rate of return.
Salary increases:	3.80%	3.80%	4.90%
Actuarial assumptions:			
Discount Rate:	7.00%	7.00%	7.50%
Investment rate of return :	7.00%, net of investment expenses.	7.00%, net of investment expenses.	7.5%, net of investment expenses.
Mortality:	Annuitant mortality rates are based on NYSLERS's 2010 experience study of the period April 1, 2005 through March 31, 2010 with adjustments for mortality improvements based on the Society of Actuaries's Scale MP-2014.	Annuitant mortality rates are based on NYSLERS's 2010 experience study of the period April 1, 2005 through March 31, 2010 with adjustments for mortality improvements based on the Society of Actuaries's Scale MP-2014.	Annuitant mortality rates are based on NYSLERS's 2010 experience study of the period April 1, 2005 through March 31, 2010 with adjustments for mortality improvements based on the Society of Actuaries's Scale MP-2014.
Pre-retirement:	N/A	N/A	N/A
Post-retirement Healthy Lives:	N/A	N/A	N/A
Post-retirement Disabled Lives:	N/A	N/A	N/A
Inflation/Railroad Retirement Wage Base:	2.70%	2.50%	2.70%
Cost-of-Living Adjustments:	1.3% per annum.	1.3% per annum.	1.4% per annum.

METROPOLITAN TRANSPORTATION AUTHORITY

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REQUIRED SUPPLEMENTARY INFORMATION

Notes to Schedule of MTA's Contributions for All Pension Plans

(concluded)

Significant methods and assumptions used in calculating the actuarially determined contributions of an employer's proportionate share in Cost Sharing, Multiple-Employer pension plans, the NYCERS plan and the NYSLERS plan, are presented as notes to the schedule.

Factors that significantly affect trends in the amounts reported are changes of benefit terms, changes in the size or composition of the population covered by the benefit terms, or the use of different assumptions. Following is a summary of such factors:

Changes of Benefit Terms:

There were no changes of benefit terms in the June 30, 2015 valuation for the NYCERS plan.

There were no significant legislative changes in benefit for the April 1, 2015 valuation for the NYSLERS plan.

Changes of Assumptions:

There were no changes in benefit assumptions used in the June 30, 2015 valuation for the NYCERS plan.

There were changes in the economic and demographic assumptions used in the April 1, 2015 valuation for the NYSLERS plan.

METROPOLITAN TRANSPORTATION AUTHORITY

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REQUIRED SUPPLEMENTARY INFORMATION

SCHEDULE OF FUNDING PROGRESS FOR THE MTA POSTEMPLOYMENT BENEFIT PLAN

(\$ in millions)

Year Ended	Actuarial Valuation Date	Actuarial Value of Assets {a}	Actuarial Liability (AAL) {b}	Unfunded Actuarial Liability (UAAL) {c} = {b} - {a}	Funded Ratio {a} / {b}	Covered Payroll {d}	Ratio of UAAL to Covered Payroll {c} / {d}
December 31, 2017	January 1, 2016	\$298	\$19,802	\$19,504	1.50 %	\$5,041.0	386.9 %
December 31, 2016	January 1, 2014	\$300	\$18,472	\$18,172	1.60 %	\$4,669.8	389.1 %
December 31, 2015	January 1, 2014	\$300	\$18,472	\$18,172	1.60 %	\$4,669.8	389.1 %

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METROPOLITAN TRANSPORTATION AUTHORITY
 (A Component Unit of the State of New York)

SUPPLEMENTARY INFORMATION
SCHEDULE OF CONSOLIDATED RECONCILIATION BETWEEN FINANCIAL PLAN
AND FINANCIAL STATEMENTS FOR THE PERIOD ENDED JUNE 30, 2018
 (\$ in millions)

(Unaudited)

Category	Financial Plan Actual	Statement GAAP Actual	Variance
REVENUE:			
Farebox revenue	\$ 3,036	\$ 3,036	\$ -
Vehicle toll revenue	952	952	-
Other operating revenue	295	299	4
Total revenue	<u>4,283</u>	<u>4,287</u>	<u>4</u>
OPERATING EXPENSES:			
Labor:			
Payroll	2,557	2,567	10
Overtime	4	537	3
Health and welfare	647	650	3
Pensions	663	664	1
Other fringe benefits	466	464	(2)
Postemployment benefits	1,133	1,095	(38)
Reimbursable overhead	(245)	(261)	(16)
Total labor expenses	<u>5,755</u>	<u>5,716</u>	<u>(39)</u>
Non-labor:			
Electric power	234	231	(3)
Fuel	97	97	-
Insurance	(4)	(4)	-
Claims	185	185	-
Paratransit service contracts	214	214	-
Maintenance and other	322	303	(19)
Professional service contract	250	243	(7)
Pollution remediation project co	4	4	-
Materials and supplies	310	310	-
Other business expenses	119	116	(3)
Total non-labor expenses	<u>1,731</u>	<u>1,699</u>	<u>(32)</u>
Depreciation	1,335	1,336	1
Total operating expenses	<u>8,821</u>	<u>8,751</u>	<u>(70)</u>
NET OPERATING LOSS	<u>\$ (4,538)</u>	<u>\$ (4,464)</u>	<u>\$ 74</u>

METROPOLITAN TRANSPORTATION AUTHORITY
 (A Component Unit of the State of New York)

SUPPLEMENTARY INFORMATION
**SCHEDULE OF CONSOLIDATED SUBSIDY ACCRUAL RECONCILIATION BETWEEN
 FINANCIAL PLAN AND FINANCIAL STATEMENTS FOR THE PERIOD ENDED JUNE 30, 2018**

(\$ in millions)

(Unaudited)

Accrued Subsidies	Financial Plan Actual	Financial Statement GAAP Actual	Variance	
Mass transportation operating assistance	\$ 1,686	\$ 1,686	\$ -	
Mass transit trust fund subsidies	310	310	-	{1}
Mortgage recording tax 1 and 2	212	212	-	{1}
MRT transfer	(3)	(3)	-	{1}
Urban tax	3	333	-	{1}
State and local operating assistance	-	217	-	{1}
Station maintenance	84	84	-	{1}
Connecticut Department of Transportation (CDOT)	71	71	-	{1}
Subsidy from New York City for MTA Bus and SIRTOA	230	232	2	{1}
NYS Grant for debt service	-	1	1	{3}
Build American Bonds Subsidy	45	45	-	{1}
Mobility tax	1,074	1,074	-	{1}
NYS/NYC Subway Action Plan	209	209	-	{1}
Other non-operating income	-	8	8	{2}
Total accrued subsidies	4,468	4,479	11	
Net operating deficit before subsidies and debt service	(4,538)	(4,464)	74	
Debt Service	(1,299)	(733)	566	
Conversion to Cash basis: Depreciation	1,335	-	(1,335)	
Conversion to Cash basis: OPEB Obligation	821	-	(821)	
Conversion to Cash basis: GASB 68 pension adjustment	1	-	(1)	
Conversion to Cash basis: Pollution & Remediation	4	-	(4)	
Total net operating surplus/(deficit) before appropriations, grants and other restricted for capital projects	\$ 792	\$ (718)	\$ (1,510)	

{1} The Financial Plan records on a cash basis while the Financial Statement records on an accrual basis.

{2} The Financial Plan records do not include other non-operating income or changes in market value.

 {3} The Financial Plan records do not include other non-operating subsidy or expense for the
 refunding of NYS Service Contract Bonds.

METROPOLITAN TRANSPORTATION AUTHORITY
 (A Component Unit of the State of New York)

SUPPLEMENTARY INFORMATION
SCHEDULE OF FINANCIAL PLAN TO FINANCIAL STATEMENTS RECONCILIATION
RECONCILING ITEMS
FOR THE PERIOD ENDED JUNE 30, 2018
 (\$ in millions)

Financial Plan Actual Operating Loss at June 30, 2018	\$ (4,538)
The Financial Plan Actual Includes:	
1 Lower other operating revenues	4
2 Higher labor expense primarily from higher OPEB expense projections	39
Higher non-labor expense primarily from higher maintenance and professional contracts	
3 projections	32
4 Other expense adjustments	(1)
Total operating reconciling items	74
Financial Statements Operating Loss at June 30, 2018	(4,464)
Financial Plan Surplus after Subsidies and Debt Service	792
The Audited Financial Statements Includes:	
1 Higher dedicated taxes and subsidies	11
2 Lower debt service expense (excludes bond principal payments)	566
3 Adjustments for non-cash liabilities:	
Depreciation	(1,335)
Unfunded OPEB Expense	(821)
Unfunded GASB 68 Pension adjustment	(1)
Unfunded Pollution Remediation Expense	(4)
4 Total operating reconciling items (from above)	74
Financial Statement Loss Before Capital Appropriations	\$ (718)

INDEPENDENT ACCOUNTANTS' REPORT ON APPLYING AGREED-UPON PROCEDURES

The Audit Committee of the
Metropolitan Transportation Authority

We have performed the procedures enumerated below, which were agreed to by the Metropolitan Transportation Authority ("MTA"), the MTA Office of the Inspector General (the "IG") and the Auditor General of MTA, related to budget accountability for the IG for the year ended December 31, 2017. The IG is responsible for its budget accountability. The sufficiency of these procedures is solely the responsibility of the parties specified in this report. Consequently, we make no representation regarding the sufficiency of the procedures enumerated below either for the purpose for which this report has been requested or for any other purpose.

The procedures and the associated findings are as follows:

1. We utilized a random number generator to randomly select five employees from the MTA Headquarters - IG payroll register for December 2017 and we compared each individual's salary to an approved Personnel Action Form.

We found no exceptions as a result of the procedures.

2. We utilized a random number generator to randomly select two terminated employees from the listing of terminated employees for the year ended December 31, 2017 and we read each individual's Personnel Action Form. We read the payroll register subsequent to each employee's termination, and noted that these employees were removed from the payroll register.

We found no exceptions as a result of the procedures.

3. We compared the IG's total payroll per the payroll register for the month of December 2017 to the MTA's monthly expense report for the month of December 2017 and noted they agreed.

We found no exceptions as a result of the procedures.

4. We utilized a random number generator to randomly select five purchases made during the year from the general ledger for the year ended December 31, 2017, and noted that the related requisitions and purchase orders contained an approver's signature, and, where applicable, the bids were obtained.

We found no exceptions as a result of the procedures.

5. We utilized a random number generator to randomly select fifteen disbursements from the IG's General Fund for the year ended December 31, 2017 and compared the selected disbursements to supporting documentation and noted that the disbursements were authorized and supported by proper documentation.

We found no exceptions as a result of the procedures.

6. During the three months ended December 31, 2017, four petty cash vouchers were generated. We selected all four petty cash vouchers from the petty cash vouchers listing for the three months ended December 31, 2017, and noted these vouchers were approved.

Last Quarter of 2017 only had 4 petty cash vouchers, therefore, D&T did not utilize random number generator and selected all four vouchers for testing. No Exception noted.

7. We obtained the IG General Fund's bank reconciliation for the month of December 2017, and noted that the bank balance per the IG's General Fund's bank reconciliation agreed to the Authority's general ledger.

We found no exceptions as a result of the procedures.

8. We utilized a random number generator to randomly select five employee reimbursements from listing of employee reimbursements for the year ended December 31, 2017 and noted the reimbursements were supported by explanations, invoices, reimbursement applications, refund requisitions, purchase orders, and payment details. We utilized a random number generator to randomly select five employee expense reports from the listing of employee expenses reports for the year ended December 31, 2017, and noted the expense reports were supported by explanations, invoices, expense reports, purchase orders, and payment details.

No Exception noted. There were only 4 employee reimbursements for 2017, therefore, D&T did not utilize Excel's random number function and selected all four reimbursements for testing.

9. Management informed us that there were no fixed asset addition purchases made during the year ended December 31, 2017 for the IG.
10. Management informed us that there were no fixed asset disposals made during the year ended December 31, 2017 for the IG.
11. Management informed us that there was no depreciation expense during the year ended December 31, 2017 for the IG.
12. We compared the depreciation expense for the month of December 2017 to the MTA's general ledger and noted they were both \$0.

We found no exceptions as a result of the procedures.

13. We read and compared the IG's monthly expense report to the MTA's monthly expense report for the month of December 2017.

We found no exceptions as a result of the procedures.

14. We compared the IG's 2017 expense budget to the actual expenditures for 2017, and noted total actual expenditures were less than the IG's 2017 expense budget by \$3,007,695.68.

This agreed-upon procedures engagement was conducted in accordance with attestation standards established by the American Institute of Certified Public Accountants. The agreed-upon procedures do not constitute an audit of financial statements or any part thereof, the objective of which is the expression of an opinion on the financial statements or a part thereof. Accordingly, we do not express such an opinion.

Had we performed additional procedures, other matters might have come to our attention that would have been reported to you.

This report is intended solely for the information and use of the MTA, the MTA Office of the IG, and the Auditor General of the MTA, and is not intended to be and should not be used by anyone other than the specified parties.

December 10, 2018

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Report on
2016 Inspection of Deloitte & Touche LLP
(Headquartered in New York, New York)

Issued by the
Public Company Accounting Oversight Board

November 28, 2017

THIS IS A PUBLIC VERSION OF A PCAOB INSPECTION REPORT
PORTIONS OF THE COMPLETE REPORT ARE OMITTED
FROM THIS DOCUMENT IN ORDER TO COMPLY WITH
SECTIONS 104(g)(2) AND 105(b)(5)(A)
OF THE SARBANES-OXLEY ACT OF 2002

PCAOB RELEASE NO. 104-2017-198



2016 INSPECTION OF DELOITTE & TOUCHE LLP

Preface

In 2016, the Public Company Accounting Oversight Board ("PCAOB" or "the Board") conducted an inspection of the registered public accounting firm Deloitte & Touche LLP ("the Firm") pursuant to the Sarbanes-Oxley Act of 2002 ("the Act").

Inspections are designed and performed to provide a basis for assessing the degree of compliance by a firm with applicable requirements related to auditing issuers. For a description of the procedures the Board's inspectors may perform to fulfill this responsibility, see Part I.D of this report (which also contains additional information concerning PCAOB inspections generally). The inspection included reviews of portions of selected issuer audits. These reviews were intended to identify whether deficiencies existed in the reviewed work, and whether such deficiencies indicated defects or potential defects in the Firm's system of quality control over audits. In addition, the inspection included a review of policies and procedures related to certain quality control processes of the Firm that could be expected to affect audit quality.

The Board is issuing this report in accordance with the requirements of the Act. The Board is releasing to the public Part I of the report, portions of Appendix A and Appendix B. Appendix A consists of the Firm's comments, if any, on a draft of the report. If the nonpublic portions of the report discuss criticisms of or potential defects in the Firm's system of quality control, those discussions also could eventually be made public, but only to the extent the Firm fails to address the criticisms to the Board's satisfaction within 12 months of the issuance of the report. Appendix B presents the text of the paragraphs of the auditing standards that are referenced in Part I.A in relation to the description of auditing deficiencies there.

Note on this report's citations to auditing standards: On March 31, 2015, the PCAOB adopted a reorganization of its auditing standards using a topical structure and a single, integrated numbering system. See *Reorganization of PCAOB Auditing Standards and Related Amendments to PCAOB Standards and Rules*, PCAOB Release No. 2015-002 (Mar. 31, 2015). The reorganization became effective as of December 31, 2016. Citations in this report reference the reorganized PCAOB auditing standards.

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APPENDIX A - RESPONSE OF THE FIRM TO DRAFT INSPECTION REPORTA-1

APPENDIX B - AUDITING STANDARDS REFERENCED IN PART IB-1

EXECUTIVE SUMMARY

This summary sets out certain key information from the 2016 inspection of Deloitte & Touche LLP ("the Firm"). The inspection procedures included reviews of portions of 54 issuer audits performed by the Firm and a review of the Firm's audit work on one other issuer audit engagement in which the Firm played a role but was not the principal auditor. Fifty-three of the 55 engagements were integrated audits of both internal control and the financial statements. Part I.C of this report provides certain demographic information about the audits inspected and Part I.D describes the general procedures applied in the PCAOB's 2016 inspections of annually inspected registered firms.

The inspection team identified matters that it considered to be deficiencies in the performance of the work it reviewed. In 13 audits, certain of the deficiencies identified were of such significance that it appeared to the inspection team that the Firm, at the time it issued its audit report, had not obtained sufficient appropriate audit evidence to support its opinion that the financial statements were presented fairly, in all material respects, in conformity with the applicable financial reporting framework and/or its opinion about whether the issuer had maintained, in all material respects, effective internal control over financial reporting ("ICFR"). These deficiencies are described in Part I.A of the report.

Effects of Audit Deficiencies on Audit Opinions

Of the 13 issuer audits that appear in Part I.A, deficiencies in 12 audits relate to testing controls for purposes of the ICFR opinion, and deficiencies in seven audits relate to the substantive testing performed for purposes of the opinion on the financial statements, as noted in the table below. Of the seven audits in which substantive testing deficiencies were identified, two audits included deficiencies in substantive testing that the inspection team determined were caused by a reliance on controls that was excessive in light of deficiencies in the testing of controls.

	Number of Audits
Audits for which deficiencies included in Part I.A related to both the financial statement audit and the ICFR audit	<u>6 Audits</u> : Issuers A, B, C, D, E, and F
Audits for which deficiencies included in Part I.A related to the ICFR audit only	<u>6 Audits</u> : Issuers G, H, I, K, L, and M

	Number of Audits
Audits for which deficiencies included in Part I.A related to the financial statement audit only	<u>1 Audit</u> : Issuer J
Total	13

Most Frequently Identified Audit Deficiencies

The following table lists, in summary form, the types of deficiencies that are included most frequently in Part I.A of this report. A general description of each type is provided in the table; the description of each deficiency in Part I.A contains more specific information about the individual deficiency. The table includes only the three most frequently identified deficiencies that are in Part I.A of this report and is not a summary of all deficiencies in Part I.A.

Issue	Part I.A Audits
Failure to sufficiently test the design and/or operating effectiveness of controls that the Firm selected for testing	<u>9 Audits</u> : Issuers A, B, C, E, F, G, H, I, and M
Failure to sufficiently evaluate significant assumptions that the issuer used in developing an estimate	<u>5 Audits</u> : Issuers A, B, C, D, and F
Failure to sufficiently test controls over or sufficiently test the accuracy and completeness of issuer-produced data or reports	<u>4 Audits</u> : Issuers A, F, G, and L

Areas in which Audit Deficiencies Were Most Frequently Identified

The following table lists, in summary form, the financial statement accounts or auditing areas in which the deficiencies that are included in Part I.A of this report most frequently occurred. The table includes only the three most frequently identified areas that are in Part I.A of this report and is not a summary of all deficiencies in Part I.A.

Area	Part I.A Audits
Investment securities, including derivatives	<u>5 Audits</u> : Issuers A, B, G, H, and I
Loans, including the allowance for loan losses	<u>3 Audits</u> : Issuers A, B, and G

Area	Part I.A Audits
Revenue, including deferred revenue	<u>3 Audits</u> : Issuers F, L, and M

PART I

INSPECTION PROCEDURES AND CERTAIN OBSERVATIONS

Members of the Board's staff ("the inspection team") conducted primary procedures¹ for the inspection from November 2015 to February 2017. The inspection team performed field work at the Firm's National Office and at 29 of its approximately 64 U.S. practice offices.

A. Review of Audit Engagements

The inspection procedures included reviews of portions of 54 issuer audits performed by the Firm and a review of the Firm's audit work on one other issuer audit engagement in which the Firm played a role but was not the principal auditor. The inspection team identified matters that it considered to be deficiencies in the performance of the work it reviewed. In one of the audits described below, after the primary inspection procedures, the Firm revised its opinion on the effectiveness of the issuer's internal control over financial reporting ("ICFR") to express an adverse opinion.

The descriptions of the deficiencies in Part I.A of this report include, at the end of the description of each deficiency, references to specific paragraphs of the auditing standards that relate to those deficiencies. The text of those paragraphs is set forth in Appendix B to this report. The references in this sub-Part include only standards that primarily relate to the deficiencies; they do not present a comprehensive list of every auditing standard that applies to the deficiencies. Further, certain broadly applicable aspects of the auditing standards that may be relevant to a deficiency, such as provisions requiring due professional care, including the exercise of professional skepticism; the accumulation of sufficient appropriate audit evidence; and the performance of procedures that address risks, are not included in the references to the auditing standards in this sub-Part, unless the lack of compliance with these standards

¹ For this purpose, the time span for "primary procedures" includes field work, other review of audit work papers, and the evaluation of the Firm's quality control policies and procedures through review of documentation and interviews of Firm personnel. The time span does not include (1) inspection planning, which may commence months before the primary procedures, and (2) inspection follow-up procedures, wrap-up, analysis of results, and the preparation of the inspection report, which generally extend beyond the primary procedures.

is the primary reason for the deficiency. These broadly applicable provisions are described in Part I.B of this report.

Certain of the deficiencies identified were of such significance that it appeared to the inspection team that the Firm, at the time it issued its audit report, had not obtained sufficient appropriate audit evidence to support its opinion that the financial statements were presented fairly, in all material respects, in conformity with the applicable financial reporting framework and/or its opinion about whether the issuer had maintained, in all material respects, effective ICFR. In other words, in these audits, the auditor issued an opinion without satisfying its fundamental obligation to obtain reasonable assurance about whether the financial statements were free of material misstatement and/or the issuer maintained effective ICFR.

The fact that one or more deficiencies in an audit reach this level of significance does not necessarily indicate that the financial statements are misstated or that there are undisclosed material weaknesses in ICFR. It is often not possible for the inspection team, based only on the information available from the auditor, to reach a conclusion on those points.

Whether or not associated with a disclosed financial reporting misstatement, an auditor's failure to obtain the reasonable assurance that the auditor is required to obtain is a serious matter. It is a failure to accomplish the essential purpose of the audit, and it means that, based on the audit work performed, the audit opinion should not have been issued.²

² Inclusion in an inspection report does not mean that the deficiency remained unaddressed after the inspection team brought it to the firm's attention. Depending upon the circumstances, compliance with PCAOB standards may require the firm to perform additional audit procedures, or to inform a client of the need for changes to its financial statements or reporting on internal control, or to take steps to prevent reliance on its previously expressed audit opinions. The Board expects that firms will comply with these standards, and an inspection may include a review of the adequacy of a firm's compliance with these requirements, either with respect to previously identified deficiencies or deficiencies identified during that inspection. Failure by a firm to take appropriate actions, or a firm's misrepresentations in responding to an inspection report about whether it has taken such actions, could be a basis for Board disciplinary sanctions.

The audit deficiencies that reached this level of significance are described in Parts I.A.1 through I.A.13, below.

Audit Deficiencies

A.1. Issuer A

In this audit of an issuer in the financial services industry, the Firm failed in the following respects to obtain sufficient appropriate audit evidence to support its audit opinions on the financial statements and on the effectiveness of ICFR –

- The Firm's procedures related to the allowance for loan losses ("ALL") were insufficient, as follows –
 - The Firm identified 17 sub-components within the three components that constituted the issuer's ALL and performed risk assessment procedures for each of the 17 sub-components; these procedures included identifying the risks of misstatement associated with each sub-component and concluding whether those risks individually represented a risk of material misstatement. For eight sub-components, the Firm concluded that the risks did not represent a risk of material misstatement for any of these sub-components individually. These eight sub-components, when combined, represented a significant portion of the issuer's total ALL. The Firm failed to perform any procedures for these sub-components, which in the aggregate presented a reasonable possibility of material misstatement. (AS 2110.59; AS 2301.08)
 - The Firm's testing of controls over the ALL for commercial loans was insufficient. The issuer assigned a risk rating for each commercial loan when it was initiated, and it reviewed each risk rating once during the year, based on its assessment of the borrower's credit quality and other characteristics. This information was retained in systems for which the Firm identified multiple deficiencies in controls over user access. The issuer used the assigned risk rating to develop a probability of default for each loan, which was a significant assumption used in the determination of a component of this ALL that represented a significant portion of the ALL. Regarding the Firm's testing of controls over this component –

- The Firm selected for testing a control that consisted of a review of the risk rating assigned to the related loans, but the Firm's testing was insufficient. The Firm's procedures to test this control consisted of inquiring of the control owners, reading the issuer's internal policy, and inspecting certain information that the issuer used in the performance of the control. In addition, in its evaluation of this control, the Firm considered the results of a substantive procedure that consisted of evaluating whether the risk rating assigned by the issuer was appropriate in accordance with the issuer's policy. The Firm, however, failed to ascertain and evaluate the specific criteria that the control owners used to assess the reasonableness of the risk rating assigned to each loan. (AS 2201.42 and .44)
- The Firm failed to identify and test any controls to address the risk that it identified that an assigned risk rating could be rendered inaccurate due to events or changes to loan data that occurred after the date of the loan risk-rating review. (AS 2201.39)
- When developing the qualitative component of the ALL, the issuer assigned an individual score to each qualitative factor it identified and grouped these factors into four categories that were then weighted using certain judgmental assumptions. The Firm's procedures to test the qualitative component of the ALL, which represented a significant portion of the issuer's total ALL, consisted of (1) obtaining an understanding of the issuer's rationale for each of the qualitative factors; (2) comparing the assigned score for each qualitative factor in the current period to the related score in prior periods; (3) inquiring of management regarding the reason for changes from prior periods; (4) inspecting supporting documentation for one change; and (5) evaluating, based on the Firm's knowledge of the issuer and economic factors, trends in the total ALL balance and certain metrics related to the ALL. The Firm failed to sufficiently evaluate the reasonableness of the qualitative component of the ALL because it did not evaluate the assigned

score and weighting assumptions described above beyond performing a directional assessment of changes. (AS 2501.11)

- The Firm's procedures related to derivatives were insufficient, as follows –
 - The Firm selected for testing a control to address an identified risk related to the completeness of derivatives with one type of counterparty; these derivatives represented a significant portion of the total derivatives. This control consisted of (1) a review of the issuer's net collateral position with its counterparties to determine the amount of collateral required and (2) a comparison of the net collateral position by counterparty to the issuer's derivative valuation systems. The Firm failed to identify that this control was not designed to address, and failed to identify and test any other controls that addressed, the risk that individual derivative transactions were not recorded in the issuer's systems. (AS 2201.39)
 - The Firm's substantive procedures to test the completeness of these derivatives were insufficient, as they were limited to comparing the terms of one derivative contract to the issuer's derivative valuation system, inquiring of management, and reading board minutes to identify any changes in management policy or strategy related to derivatives. (AS 2503.22-.23)
 - To address the risks related to the valuation of the majority of derivatives, the Firm selected a control in which the issuer used a mark-to-market report to review the value of the derivatives. Interest rate curves were an important input to the mark-to-market report, but the Firm failed to identify and test any controls over the accuracy and completeness of the interest rate curves within the system from which the report was generated. (AS 2201.39)

A.2. Issuer B

In this audit of an issuer in the financial services industry, the Firm failed in the following respects to obtain sufficient appropriate audit evidence to support its audit opinions on the financial statements and on the effectiveness of ICFR –

- For loans that the issuer assessed collectively for impairment, the issuer estimated the ALL using a model that consisted of quantitative and qualitative components. The issuer developed the qualitative component of the ALL, which represented a significant portion of the total ALL, by applying certain internal and external factors ("qualitative loss factors") to each of its classes of loans and determining the amount of the adjustments for these factors. The Firm's procedures related to the qualitative component of the ALL were insufficient, as follows –
 - The Firm selected for testing a control that consisted of management's review of the qualitative loss factors and the related adjustments. The Firm's procedures to test this control consisted of inquiring of management, observing certain meetings, and inspecting the documents that management reviewed during these meetings. The Firm's testing did not include ascertaining and evaluating the nature of the specific steps that the reviewers took in the performance of their reviews, including the criteria used to identify matters for follow up and whether the matters identified for follow up were appropriately resolved. (AS 2201.42 and .44)
 - The Firm failed to perform sufficient procedures to evaluate the reasonableness of the adjustments made for the qualitative loss factors. Specifically, the Firm limited its procedures to obtaining an understanding of the quarterly changes in the amount of the adjustments, comparing these quarterly changes to internal and external information for directional consistency, inquiring of management, and reading certain issuer-prepared presentations. (AS 2501.11)
- The Firm's procedures to test the valuation of one of the issuer's types of derivatives were insufficient in the following respects –
 - These derivatives were created in relation to individual loan arrangements that the issuer expected to enter into. When such a derivative was created, the issuer entered the loan type and certain other information related to the derivative into an information-technology system, for which a deficiency in controls over user access had been identified. If data that met certain established

parameters were entered, the system automatically calculated the fair value of the derivative. The Firm selected for testing an automated control that was designed to ensure that the data that were entered into the system met the applicable parameters, which were specific to the various loan types. The Firm failed to sufficiently test this control, as it limited its testing to only one transaction that represented only one of the issuer's many loan types. In addition, the Firm performed its testing after the year end, without performing any procedures to determine whether there had been changes in the design or operation of the control since the year end. (AS 2201.03, .42, and .44)

- The Firm designed its procedures to test the valuation of this type of derivative – including its sample size – based on a level of control reliance that was not supported due to the deficiencies in the Firm's testing of controls that are discussed above. As a result, the sample size that the Firm used to test this type of derivative was too small to provide sufficient evidence. (AS 2301.16, .18, and .37; AS 2315.19, .23, and .23A)
- During the year, the issuer acquired a significant business. The Firm selected for testing a control over the valuation of acquired loans; this control consisted of management's review of the credit quality of these loans. The Firm failed to sufficiently test the aspects of this control that related to one of the two types of acquired loans. Specifically, the Firm's testing of these aspects consisted of inquiring of management and reading a memorandum that was prepared as part of the operation of the control, without ascertaining and evaluating the nature of the specific procedures performed by the control owners, including the criteria used to identify matters for follow up and whether the matters identified for follow up were appropriately resolved. (AS 2201.42 and .44)

A.3. Issuer C

In this audit, the Firm failed to obtain sufficient appropriate audit evidence to support its audit opinions on the financial statements and on the effectiveness of ICFR. For one type of its long-lived assets, the issuer identified an indicator of potential impairment due to a significant decline in the market value of these assets. As a result,

the issuer developed undiscounted cash-flow analyses to assess the carrying value of each asset of this type for recoverability. One of the significant assumptions in each of these analyses was the rate that the issuer would receive when renting out the asset. Generally, the issuer estimated the rental rate for each asset using an average of historical rental rates over an established number of years ("historical average rate"). For those assets with a remaining useful life that was shorter than the established number of years used in developing the historical average rate, however, the issuer considered whether it would still be appropriate to use the historical average rate, and, if not, the issuer used the historical rental rates to estimate a lower rental rate ("adjusted rental rate"). The Firm's procedures related to the valuation of these assets with shorter remaining useful lives were insufficient. Specifically –

- The Firm selected for testing a control that included a review of the reasonableness of any adjusted rental rates used in the analyses for these assets. The Firm's procedures to test this control consisted of inquiring of the control owner, reperforming the control owner's test of the mathematical accuracy of the calculation of each adjusted rental rate, reading board minutes to obtain evidence about whether the issuer planned to dispose of any of these assets, and inspecting documents with signatures and notations that indicated the reviews had occurred. The Firm failed to ascertain and evaluate the specific procedures that the control owner performed to assess the reasonableness of the adjusted rental rates. (AS 2201.42 and .44)
- At year end, actual rental rates were significantly lower than historical rental rates, and the issuer noted that these lower rental rates could persist for some time. To evaluate the reasonableness of the issuer's assertion that the carrying value of all but one of the assets with a shorter remaining useful life was recoverable, the Firm tested the mathematical accuracy of the calculation used to determine the issuer's adjusted rental rate and analyzed whether the carrying value of these assets would be recoverable based on alternative rental-rate assumptions. The Firm's procedures were insufficient, as described below. (AS 2501.07)
 - To develop its first alternative rental-rate assumption, the Firm used the actual year-end rental rate for the first two years of the forecast, percentages of the historical average rate for the next two years, and the historical average rate for the remaining years. The Firm

concluded that the undiscounted cash flows calculated using this alternative rental-rate assumption exceeded the carrying values for all but one of these assets. The Firm was aware that the historical average rate that it used to develop this assumption was significantly higher than each adjusted rental rate used by the issuer, but concluded that the issuer's assertion that the carrying value of all but one of these assets was recoverable was reasonable without performing any additional procedures to support its use of the historical average rate in later years. In addition, the Firm failed to obtain any evidence to support the percentages that it applied to the historical average rate in the third and fourth years of each analysis.

- In developing its second alternative rental-rate assumption, the Firm used the actual rental rate, which was lower than all of the issuer's adjusted rental rates, for the first two years of the forecast and then calculated the rate for the remaining years that would result in the undiscounted cash flows being equal to the carrying value of the asset ("break-even" rate). The Firm was aware that these "break-even" rates exceeded the issuer's adjusted rental rate for a significant portion of these assets. The Firm also determined that, for each asset, the "break-even" rate was lower than the historical average rate. Nevertheless, without performing any additional procedures, the Firm concluded that the issuer's assertion that the carrying value of all but one of these assets was recoverable was reasonable.

A.4. Issuer D

In this audit, the Firm failed to obtain sufficient appropriate audit evidence to support its audit opinions on the financial statements and on the effectiveness of ICFR, as its procedures related to the valuation of inventory were insufficient. Specifically –

- The Firm selected for testing a control that consisted of the review of the allowance for excess and obsolete inventory. The Firm's procedures to test this control consisted of inquiring of the control owner, obtaining a checklist as evidence of approval, reading industry information used in the review, reading the control owner's explanations for changes in the allowance by inventory aging category as compared to prior periods,

inspecting the control owner's testing of the mathematical accuracy of the allowance calculation, and inspecting the control owner's comparison of the inventory balances to the inventory sub-ledger. The Firm failed to identify that this control did not address the reasonableness of the percentages that the issuer applied to each of the inventory aging categories in determining the allowance, and it did not identify and test any other control that addressed the risk related to the percentages applied. (AS 2201.39)

- The Firm failed to perform sufficient procedures to evaluate the reasonableness of the percentages that the issuer applied to each of the inventory aging categories in determining the allowance for excess and obsolete inventory. The Firm's procedures to evaluate the reasonableness of these percentages were limited to reading the issuer's methodology and inquiring of management regarding any changes in methodology; reading industry information; noting that the same percentages were used at the prior year end, an interim date, and the current year end; and comparing the total allowance as a percentage of gross inventory at an interim date to those percentages for the last three year ends. (AS 2501.11)

A.5. Issuer E

In this audit of a manufacturer, the Firm failed to obtain sufficient appropriate audit evidence to support its audit opinions on the financial statements and on the effectiveness of ICFR, as its procedures related to property, plant, and equipment ("PPE") were insufficient. Specifically –

- The Firm selected for testing a control that included the review of PPE for recoverability; an aspect of this control consisted of a review for events or changes in circumstances that the control owner considered to indicate that a test of the recoverability of PPE needed to be performed. The Firm's procedures to test this aspect of the control consisted of inquiring of management, reading certain long-term supply contracts and certain issuer communications, reading minutes of meetings of the board of directors and the audit committee, observing a meeting of the audit committee, and observing that one production facility was operating. The Firm, however, failed to evaluate whether the criteria that the control owner used in the operation of this aspect of the control were sufficient to identify all events or changes in circumstances contemplated in Financial

Accounting Standards Board ("FASB") Accounting Standard Codification ("ASC") Subtopic 360-10, *Property, Plant, and Equipment – Overall*. (AS 2201.42)

- For two production facilities, the Firm failed to sufficiently evaluate the issuer's assertion that there were no events or changes in circumstances that would require a test for recoverability. The Firm identified that both of these production facilities (1) had curtailed production by at least 50 percent during the last half of the year and (2) had an operating loss for the year, as well as a projected operating loss for the following year. Despite these circumstances that, under generally accepted accounting principles, appeared to be events or changes in circumstances that indicated that the facilities' carrying value might not have been recoverable, the Firm's procedures to evaluate the issuer's assertion that there were no such events or changes in circumstances were limited to inquiring of management; noting the existence of certain labor and long-term supply agreements for the facilities; noting that historical market prices had been volatile; and considering that the facilities had had positive operating results in the first half of the year, before they recorded the operating losses. (AS 2301.08)

A.6. Issuer F

In this audit of a government contractor, the Firm failed in the following respects to obtain sufficient appropriate audit evidence to support its audit opinions on the financial statements and on the effectiveness of ICFR –

- The Firm's procedures related to revenue were insufficient in the following respects –
 - Three of the controls related to revenue that the Firm identified and tested consisted of (1) a review of new and modified contracts to determine the appropriate method for recognizing revenue on each contract and to verify the terms and assumptions entered into the issuer's accounting system, (2) the automated calculation of revenue based on formulas that were specific to each of the issuer's six contract types, and (3) a review of invoices for consistency with the underlying contract information and for

accuracy. The Firm failed to sufficiently test these controls. Specifically –

- For the first control, the Firm failed to sufficiently test the aspect of the control related to determining the appropriate method for recognizing revenue because its procedures to test this aspect were limited to inquiring of management. (AS 2201.42 and .44)
- For the second control, the Firm's procedures consisted of inquiring of management and, for one contract, comparing information in the issuer's accounting system to the contract and recalculating the revenue recognized. These procedures were insufficient to support a conclusion that the control was designed and operating effectively with respect to all of the issuer's contract types, as the Firm tested only one contract type. (AS 2201.42 and .44)
- For the third control, the Firm failed to sufficiently test the operating effectiveness of the aspect of the control related to the comparison of invoices to the underlying contract information. Specifically, the Firm inspected evidence of review of the comparison for a sample of invoices, but reperformed this aspect of this manual control for only one invoice. In addition, the Firm failed to identify and test any controls over the accuracy and completeness of the project-cost information that the issuer used in the performance of this control. (AS 2201.39 and .44)
- The Firm's substantive procedures to test revenue included (1) selecting a small number of specific contracts for testing and (2) performing a substantive analytical procedure using an expectation that was based on the prior-year consolidated gross margin, which was adjusted based on the results of the Firm's testing of the specific contracts. The adjustment that the Firm made to its expectation of revenue represented the actual amount of the gross margin fluctuations for the small number of specific contracts selected for testing. As the selection of specific contracts for testing was not designed to be representative of the population, the Firm's

use of the results of this testing to develop its expectation for total revenue was not supported. In addition, gross margins varied significantly across the issuer's contracts, but the Firm developed its analytical procedures using a consolidated gross margin. Further, the Firm established its threshold for investigating differences based on a level of control reliance that was not supported due to the deficiencies in the Firm's testing of controls that are described above. As a result, the expectation that the Firm developed and the thresholds that the Firm used to investigate differences from those expectations were not precise enough to provide the necessary degree of assurance that misstatements that could have been material would be identified. (AS 1105.27; AS 2301.16, .18, and .37; AS 2305.17 and .20)

- The issuer performed an analysis of the possible impairment of goodwill for both of its reporting units; the analyses included cash-flow forecasts that were developed based on individual contracts. The Firm's procedures related to the valuation of goodwill for one of the issuer's reporting units were insufficient in the following respects –
 - The Firm selected for testing a control that consisted of reviews of the issuer's cash-flow forecasts. The Firm's procedures to test the operating effectiveness of the control consisted of: (1) inquiring of the control owners, (2) for one contract, inspecting the specific cash-flow forecast and supporting documents, and (3) inspecting the reporting unit's cash-flow forecast for evidence of review and approval by management. The Firm, however, failed to evaluate whether matters identified for follow up were appropriately investigated and resolved. (AS 2201.44)
 - The Firm failed to sufficiently evaluate the reasonableness of certain significant assumptions underlying the cash-flow forecasts that the issuer used in its analysis of the possible impairment of goodwill for this reporting unit. Three of the significant assumptions that the issuer used to develop its cash-flow forecasts were: (1) the likelihood that the unfunded contract value for existing contracts would be awarded in the future; (2) the likelihood of securing new contracts and extending existing contracts; and (3) the projected profit margin for new contracts. The Firm's procedures to evaluate

the reasonableness of these assumptions were insufficient, as those procedures were limited to inquiring of management. (AS 2502.26 and .28)

A.7. Issuer G

In this audit, the Firm failed in the following respects to obtain sufficient appropriate audit evidence to support its audit opinion on the effectiveness of ICFR –

- For certain investments without readily determinable fair values, the issuer elected the fair value option of accounting. The issuer determined the reported fair values of these investments using one of the following pricing methods: (1) trades and other information observed by the issuer's internal trading desk, (2) external broker quotes, or (3) internal models. The Firm selected for testing a control over the valuation of these investments, but failed to sufficiently test this control. The control consisted of the review of an analysis of fair value by the issuer's pricing committee and the resolution of certain matters identified by the pricing committee for follow-up. The Firm's procedures to test this control consisted of inquiring of management, inspecting meeting invitations, and inspecting documentation evidencing management's approval of the recorded fair values. The Firm failed to ascertain and evaluate the nature of the procedures that the control owners performed to address the matters identified by the pricing committee for follow-up. (AS 2201.42 and .44)
- The Firm's procedures to test controls over the valuation of loans were insufficient. With respect to substantially all of the issuer's loans, the Firm selected for testing a control that consisted of management's review of loan information, including loan risk-ratings, to identify potentially impaired loans. The Firm, however, failed to identify and test any controls over the accuracy and completeness of the information used in the performance of the control. (AS 2201.39)

A.8. Issuer H

In this audit of an investment company, the Firm failed to obtain sufficient appropriate audit evidence to support its audit opinion on the effectiveness of ICFR, as its procedures to test controls over the valuation of investments were insufficient. The Firm selected for testing three controls that addressed the recording of investments at

fair value. Two of these controls consisted of (1) the quarterly review of investment valuations by the issuer's chief financial officer and (2) for investments categorized as level 3 within the hierarchy set forth in FASB ASC Topic 820, *Fair Value Measurements and Disclosures*, the quarterly comparison of the issuer's fair values to the values determined by an external valuation specialist. The Firm's procedures to test these two controls consisted of inquiring of the control owner, obtaining the issuer's and external valuation specialist's fair value determinations and a summary of the differences between the values, and inspecting documents and emails that indicated the reviews and certain other actions performed as a result of the reviews had occurred. For the first control, the Firm failed to evaluate the criteria used to identify matters for follow up and, for both controls, the Firm failed to evaluate whether the matters identified for follow up were appropriately resolved. The Firm concluded that the third control was dependent on the first of these two controls and, therefore, its testing of the third control was also affected by the deficiencies in the testing of the first control. (AS 2201.42 and .44)

A.9. Issuer I

In this audit of an investment company, the Firm failed to obtain sufficient appropriate audit evidence to support its audit opinion on the effectiveness of ICFR, as its procedures to test controls over the valuation of securities without readily determinable fair values, which represented over 40 percent of the issuer's investments, were insufficient. The issuer valued these securities using an income approach and a market approach; in certain circumstances, the issuer also requested an external valuation using the same approaches. The assumptions used in these approaches included (1) assumptions underlying cash-flow forecasts and underlying the discount rate applied to the forecasts and (2) assumptions related to the selection of the companies and transactions that would be appropriate to use for comparison. The Firm selected for testing three controls that consisted of quarterly reviews of the issuer's valuation of these securities, including the review of the underlying assumptions. The Firm's procedures to test the aspect of these controls that involved the review of these assumptions consisted of (1) inquiring of the control owners; (2) for a selection of the issuer's valuation analyses, comparing assumptions to the underlying support and to the assumptions underlying the prior-quarter valuation analyses; and (3) inspecting emails and documents that indicated the reviews and certain other actions performed as a result of the reviews had occurred. For a selection of securities for which an external valuation had been performed, the Firm also compared the assumptions underlying the issuer's internal valuation analyses to those underlying the external valuations. In addition, for one of the controls, the Firm attended certain meetings held as part of the control. With respect to the control owners' reviews of the cash-flow forecasts, discount

rates, and the selection of comparable companies and transactions, the Firm failed to evaluate (1) the specific steps performed by the control owners to review the related assumptions, (2) the criteria used to identify matters for follow up, and (3) whether the matters identified for follow up were appropriately resolved. (AS 2201.42 and .44)

A.10. Issuer J

In this audit, the Firm failed in the following respects to obtain sufficient appropriate audit evidence to support its audit opinion on the financial statements –

- The Firm's procedures to test the existence of work-in-progress and finished goods inventory at the issuer's production facilities were insufficient. Specifically, the Firm's physical inventory observation procedures for this inventory included inquiring of management and comparing the quantities noted by the issuer on a selection of inventory packages to the quantities recorded in the issuer's inventory records, without performing any procedures to address whether the quantities shown were accurate. (AS 2510.09)
- During the year, the issuer announced that it would indefinitely suspend the use of a significant long-lived asset. Following the announcement and before the year end, the issuer terminated the majority of the employees associated with the asset and received bids for the asset in amounts that were significantly below the asset's carrying value. When performing its impairment analysis for the asset group that included this asset, the issuer forecasted no future production from this specific asset, but determined there was no impairment charge to be recorded for the asset group as a whole. After the year end and before the issuance of the financial statements, the issuer announced it would not resume use of this asset. The Firm failed to sufficiently evaluate the issuer's assertion that it did not cease to use the asset until after the year end and that, therefore, the asset should be reported at its carrying value, rather than its salvage value, as of the year end. Specifically, the Firm's procedures to determine whether the facts noted above indicated that the conditions constituting the cessation of the use of the asset existed as of the year end were limited to obtaining a representation from management and documenting the Firm's conclusion. (AS 2801.03 and .07)

A.11. Issuer K

In this audit, the Firm failed to obtain sufficient appropriate audit evidence to support its audit opinion on the effectiveness of ICFR, as its testing of controls related to the presentation of the consolidated statement of cash flows was insufficient. The issuer prepared its consolidated statement of cash flows by compiling and translating financial information from numerous subsidiaries, denominated in various currencies, and recording numerous manual adjustments in the process. The Firm identified that the issuer had not implemented a control that directly addressed the presentation of its consolidated statement of cash flows. The Firm selected for testing a control that it asserted mitigated this control deficiency; this control consisted of a comparison of information in the financial statements to supporting schedules and a review of certain of the supporting schedules for accuracy and completeness. The Firm failed to test any aspects of this control that addressed the presentation of the consolidated statement of cash flows. (AS 2201.68)

A.12. Issuer L

In this audit of a healthcare provider, the Firm failed to obtain sufficient appropriate audit evidence to support its audit opinion on the effectiveness of ICFR. The Firm identified control deficiencies related to the control owners' failure to compare billing rates and authorizations to provide services to supporting documentation. These deficiencies related to the majority of revenue and affected all of the controls that the Firm tested that directly addressed the occurrence and allocation of that revenue. In response to these deficiencies, the Firm identified and tested a control that it asserted mitigated the deficiencies; this control consisted of a comparison of budgeted revenue by service type and geographic location to actual revenue. The Firm, however, failed to identify and test any controls over the accuracy and completeness of significant data that the issuer used in developing and periodically updating the budgeted revenue. (AS 2201.39)

A.13. Issuer M

In this audit, the Firm failed to obtain sufficient appropriate audit evidence to support its audit opinion on the effectiveness of ICFR, as its procedures to test controls over revenue were insufficient. The issuer maintained thousands of price lists, including separate price lists for individual customers and, for many customers, separate price lists for individual locations. The control that the Firm selected to directly address the pricing of revenue transactions consisted of a comparison of the prices on each

customer's purchase order to the relevant price list that the issuer maintained for that customer. The Firm's procedures to test the operating effectiveness of this control did not include testing the control objective of verifying whether the prices on the customer's purchase order were consistent with those on the relevant price lists for the specific customer; instead, the Firm's testing consisted of comparing the prices on a sample of customers' purchase orders to invoice prices and determining that any differences were approved. (AS 2201.44)

B. Auditing Standards

Each deficiency described in Part I.A above could relate to several provisions of the standards that govern the conduct of audits. The paragraphs of the standards that are cited for each deficiency are those that most directly relate to the deficiency. The deficiencies also may relate, however, to other paragraphs of those standards and to other auditing standards, including those concerning due professional care, responses to risk assessments, and audit evidence.

Many audit deficiencies involve a lack of due professional care. Paragraphs .02, .05, and .06 of AS 1015, *Due Professional Care in the Performance of Work*, require the independent auditor to plan and perform his or her work with due professional care and set forth aspects of that requirement. AS 1015.07-.09, and paragraph .07 of AS 2301, *The Auditor's Responses to the Risks of Material Misstatement*, specify that due professional care requires the exercise of professional skepticism. These standards state that professional skepticism is an attitude that includes a questioning mind and a critical assessment of the appropriateness and sufficiency of audit evidence.

AS 2301.03, .05, and .08 require the auditor to design and implement audit responses that address the risks of material misstatement. Paragraph .04 of AS 1105, *Audit Evidence*, requires the auditor to plan and perform audit procedures to obtain sufficient appropriate audit evidence to provide a reasonable basis for the audit opinion. Sufficiency is the measure of the quantity of audit evidence, and the quantity needed is affected by the risk of material misstatement (in the audit of financial statements) or the risk associated with the control (in the audit of ICFR) and the quality of the audit evidence obtained. The appropriateness of evidence is measured by its quality; to be appropriate, evidence must be both relevant and reliable in providing support for the related conclusions.

The paragraphs of the standards that are described immediately above are not cited in Part I.A, unless those paragraphs are the most directly related to the relevant deficiency.

B.1. List of Specific Auditing Standards Referenced in Part I.A

The table below lists the specific auditing standards that are referenced in Part I.A of this report, cross-referenced to the issuer audits for which each standard is cited. For each auditing standard, the table also provides the number of distinct deficiencies for which the standard is cited for each of the relevant issuer audits. This information identifies only the number of times that the standard is referenced, regardless of whether the reference includes multiple paragraphs or relates to multiple financial statement accounts.

PCAOB Auditing Standards	Audits	Number of Deficiencies per Audit
<i>AS 1105, Audit Evidence</i>	Issuer F	1
<i>AS 2110, Identifying and Assessing Risks of Material Misstatement</i>	Issuer A	1
<i>AS 2201, An Audit of Internal Control Over Financial Reporting That Is Integrated with An Audit of Financial Statements</i>	Issuer A	4
	Issuer B	3
	Issuer C	1
	Issuer D	1
	Issuer E	1
	Issuer F	4
	Issuer G	2
	Issuer H	1
	Issuer I	1
	Issuer K	1
	Issuer L	1
<i>AS 2301, The Auditor's Responses to the Risks of Material Misstatement</i>	Issuer A	1
	Issuer B	1
	Issuer E	1
	Issuer F	1
<i>AS 2305, Substantive Analytical Procedures</i>	Issuer F	1
<i>AS 2315, Audit Sampling</i>	Issuer B	1
<i>AS 2501, Auditing Accounting Estimates</i>	Issuer A	1

PCAOB Auditing Standards	Audits	Number of Deficiencies per Audit
<i>AS 2501, Auditing Accounting Estimates (continued)</i>	Issuer B Issuer C Issuer D	1 1 1
<i>AS 2502, Auditing Fair Value Measurements and Disclosures</i>	Issuer F	1
<i>AS 2503, Auditing Derivative Instruments, Hedging Activities, and Investments in Securities</i>	Issuer A	1
<i>AS 2510, Auditing Inventories</i>	Issuer J	1
<i>AS 2801, Subsequent Events</i>	Issuer J	1

B.2. Financial Statement Accounts or Auditing Areas Related to Identified Audit Deficiencies

The table below lists the financial statement accounts or auditing areas related to the deficiencies included in Part I.A of this report and identifies the audits described in Part I.A where deficiencies relating to the respective areas were observed.

	AS 1105	AS 2110	AS 2201	AS 2301	AS 2305	AS 2315	AS 2501	AS 2502	AS 2503	AS 2510	AS 2801
Business Combinations			B								
Cash Flows			K								
Long-lived assets, including amortization			C, E	E			C				J
Impairment of goodwill			F					F			
Inventory and related reserves			D				D			J	
Investment securities,			A, B, G,	B		B			A		

	AS 1105	AS 2110	AS 2201	AS 2301	AS 2305	AS 2315	AS 2501	AS 2502	AS 2503	AS 2510	AS 2801
including derivatives			H, I								
Loans, including ALL		A	A, B, G	A			A, B				
Revenue, including deferred revenue	F		F, L, M	F	F						

B.3. Audit Deficiencies by Industry

The table below lists the industries³ of the issuers for which audit deficiencies were discussed in Part I.A of this report and cross references the issuers to the specific auditing standards related to the deficiencies.⁴

	AS 1105	AS 2110	AS 2201	AS 2301	AS 2305	AS 2315	AS 2501	AS 2502	AS 2503	AS 2510	AS 2801
Consumer Staples			M								
Financial Services		A	A, B, G, H, I	A, B		B	A, B		A		
Health Care			L								
Industrials			C, D				C, D				
Information Technology	F		F, K	F	F			F			
Materials			E	E						J	J

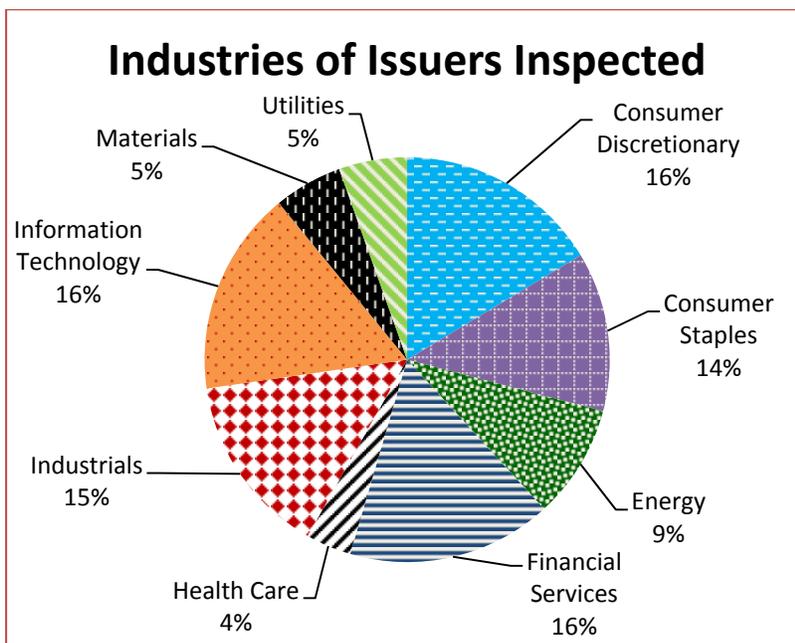
³ The majority of industry sector data is based on Global Industry Classification Standard ("GICS") data obtained from Standard & Poor's ("S&P"). In instances where GICS for an issuer is not available from S&P, classifications are assigned based upon North American Industry Classification System data.

⁴ Where identifying the industry of the issuer may enhance the understanding of the description of a deficiency in Part I.A, industry information is also provided there, unless doing so would have the effect of making the issuer identifiable.

C. Data Related to the Issuer Audits Selected for Inspection⁵

C.1. Industries of Issuers Inspected

The chart below categorizes the 55 issuers whose audits were inspected in 2016, based on the issuer's industry.⁶



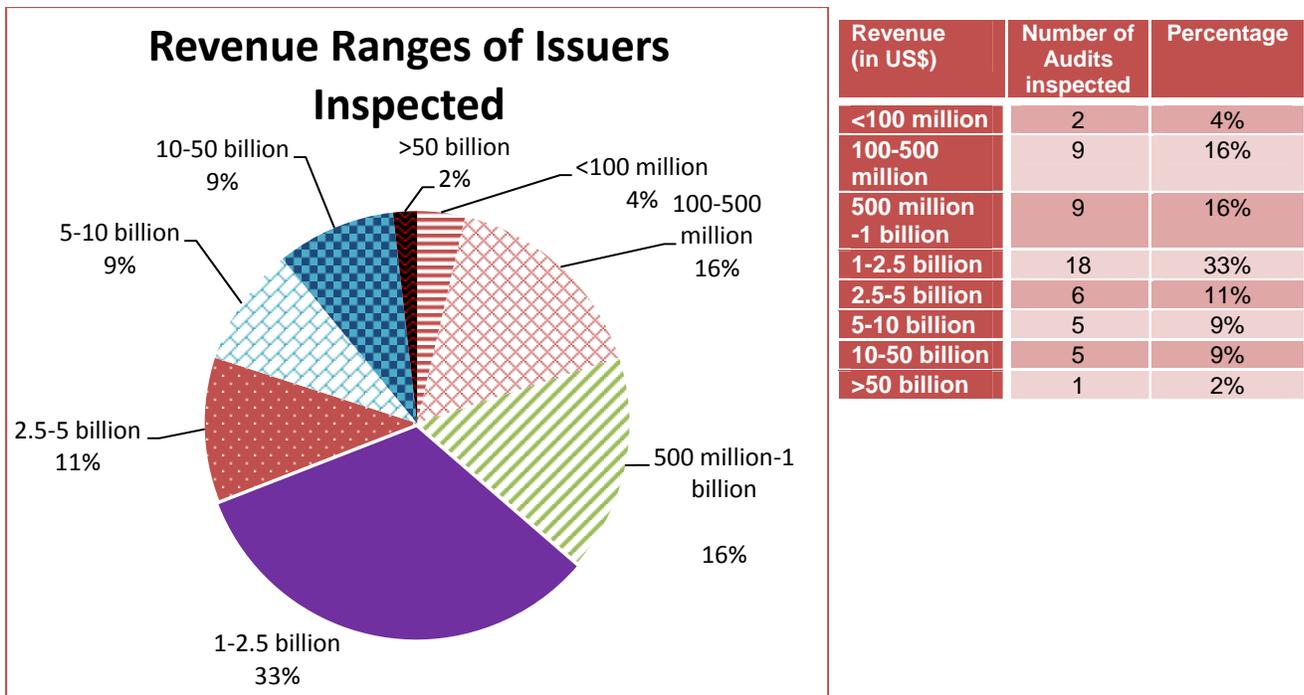
Industry	Number of Audits Inspected	Percentage
Consumer Discretionary	9	16%
Consumer Staples	7	14%
Energy	5	9%
Financial Services	9	16%
Health Care	2	4%
Industrials	8	15%
Information Technology	9	16%
Materials	3	5%
Utilities	3	5%

⁵ Where the audit work inspected related to an engagement in which the Firm played a role but was not the principal auditor, the industry and the revenue included in the tables and charts in this section are those of the entity for which an audit report was issued by the primary auditor. As discussed above, the inspection process included reviews of portions of 54 selected issuer audits completed by the Firm and the Firm's audit work on one other issuer audit engagement in which it played a role but was not the principal auditor.

⁶ See Footnote 3 for additional information on how industry sectors were classified.

C.2. Revenue Ranges of Issuers Inspected

The chart below categorizes, based upon revenue, the 55 issuers whose audits were inspected in 2016.⁷ This presentation of revenue data is intended to provide information about the size of issuer audits that were inspected and is not indicative of whether the inspection included a review of the Firm's auditing of revenue in the issuer audits selected for review.



⁷ The revenue amounts reflected in the chart are for the issuer's fiscal year end that corresponds to the audit inspected by the PCAOB. The revenue amounts were obtained from S&P and reflect a standardized approach to presenting revenue amounts.

D. Information Concerning PCAOB Inspections that is Generally Applicable to Annually Inspected Firms

Board inspections include reviews of certain portions of selected audit work performed by the inspected firm and reviews of certain aspects of the firm's quality control system. The inspections are designed to identify deficiencies in audit work and defects or potential defects in the firm's system of quality control related to the firm's audits. The focus on deficiencies, defects, and potential defects necessarily carries through to reports on inspections and, accordingly, Board inspection reports are not intended to serve as balanced report cards or overall rating tools. Further, the inclusion in an inspection report of certain deficiencies, defects, and potential defects should not be construed as an indication that the Board has made any determination about other aspects of the inspected firm's systems, policies, procedures, practices, or conduct not included within the report.

D.1. Reviews of Audit Work

Inspections include reviews of portions of selected audits of financial statements and, where applicable, audits of ICFR. The inspection team selects the audits, and the specific portions of those audits, that it will review, and the inspected firm is not allowed an opportunity to limit or influence the selections. For each specific portion of the audit that is selected, the inspection team reviews the engagement team's work papers and interviews engagement personnel regarding those portions. If the inspection team identifies a potential issue that it is unable to resolve through discussion with the firm and any review of additional work papers or other documentation, the inspection team ordinarily provides the firm with a written comment form on the matter and the firm is allowed the opportunity to provide a written response to the comment form. If the response does not resolve the inspection team's concerns, the matter is considered a deficiency and is evaluated for inclusion in the inspection report. Identified deficiencies in the audit work that exceed a significance threshold (which is described in Part I.A of the inspection report) are summarized in the public portion of the inspection report.⁸

⁸ The discussion in this report of any deficiency observed in a particular audit reflects information reported to the Board by the inspection team and does not reflect any determination by the Board as to whether the Firm has engaged in any conduct for which it could be sanctioned through the Board's disciplinary process. In addition, any references in this report to violations or potential violations of law, rules, or professional standards are not a result of an adversarial adjudicative process and do not constitute conclusive findings for purposes of imposing legal liability.

Audit deficiencies that the inspection team may identify include a firm's failure to identify, or to address appropriately, financial statement misstatements, including failures to comply with disclosure requirements,⁹ as well as a firm's failure to perform, or to perform sufficiently, certain necessary tests of controls and substantive audit procedures. An inspection of an annually inspected firm does not involve the review of all of the firm's audits, nor is it designed to identify every deficiency in the reviewed audits. Accordingly, a Board inspection report should not be understood to provide any assurance that a firm's audit work, or the relevant issuers' financial statements or reporting on ICFR, are free of any deficiencies not specifically described in an inspection report.

In reaching its conclusions about whether a deficiency exists, an inspection team considers whether audit documentation or any other evidence that a firm might provide to the inspection team supports the firm's contention that it performed a procedure, obtained evidence, or reached an appropriate conclusion. In some cases, the conclusion that a firm did not perform a procedure may be based on the absence of documentation and the absence of persuasive other evidence, even if the firm claimed to have performed the procedure. AS 1215, *Audit Documentation*, provides that, in various circumstances including PCAOB inspections, a firm that has not adequately documented that it performed a procedure, obtained evidence, or reached an appropriate conclusion must demonstrate with persuasive other evidence that it did so, and that oral assertions and explanations alone do not constitute persuasive other evidence. In the case of every matter cited in the public portion of a final inspection report, the inspection team has carefully considered any contention by the firm that it did so but just did not document its work, and the inspection team has concluded that the

⁹ When it comes to the Board's attention that an issuer's financial statements appear not to present fairly, in a material respect, the financial position, results of operations, or cash flows of the issuer in conformity with the applicable financial reporting framework, the Board's practice is to report that information to the Securities and Exchange Commission ("SEC" or "the Commission"), which has jurisdiction to determine proper accounting in issuers' financial statements. Any description in this report of financial statement misstatements or failures to comply with SEC disclosure requirements should not be understood as an indication that the SEC has considered or made any determination regarding these issues unless otherwise expressly stated.

available evidence does not support the contention that the firm sufficiently performed the necessary work.

The Board cautions against extrapolating from the results presented in the public portion of a report to broader conclusions about the frequency of deficiencies throughout the firm's practice. Individual audits and areas of inspection focus are most often selected on a risk-weighted basis and not randomly. Areas of focus vary among selected audits, but often involve audit work on the most difficult or inherently uncertain areas of financial statements. Thus, the audit work is generally selected for inspection based on factors that, in the inspection team's view, heighten the possibility that auditing deficiencies are present, rather than through a process intended to identify a representative sample.

D.2. Review of a Firm's Quality Control System

QC 20, *System of Quality Control for a CPA Firm's Accounting and Auditing Practice*, provides that an auditing firm has a responsibility to ensure that its personnel comply with the applicable professional standards. This standard specifies that a firm's system of quality control should encompass the following elements: (1) independence, integrity, and objectivity; (2) personnel management; (3) acceptance and continuance of issuer audit engagements; (4) engagement performance; and (5) monitoring.

The inspection team's assessment of a firm's quality control system is derived both from the results of its procedures specifically focused on the firm's quality control policies and procedures, and also from inferences that can be drawn from deficiencies in the performance of individual audits. Audit deficiencies, whether alone or when aggregated, may indicate areas where a firm's system has failed to provide reasonable assurance of quality in the performance of audits. Even deficiencies that do not result in an insufficiently supported audit opinion or a failure to obtain sufficient appropriate audit evidence to fulfill the objectives of the firm's role in an audit may indicate a defect or potential defect in a firm's quality control system.¹⁰ If identified deficiencies, when accumulated and evaluated, indicate defects or potential defects in the firm's system of quality control, the nonpublic portion of this report would include a discussion of those

¹⁰ Not every audit deficiency suggests a defect or potential defect in a firm's quality control system, and this report does not discuss every audit deficiency the inspection team identified.

issues. When evaluating whether identified deficiencies in individual audits indicate a defect or potential defect in a firm's system of quality control, the inspection team considers the nature, significance, and frequency of deficiencies;¹¹ related firm methodology, guidance, and practices; and possible root causes.

Inspections also include a review of certain of the firm's practices, policies, and processes related to audit quality, which constitute a part of the firm's quality control system. The inspection team customizes the procedures it performs with respect to the firm's practices, policies, and processes related to audit quality, bearing in mind the firm's structure, procedures performed in prior inspections, past and current inspection observations, an assessment of risk related to each area, and other factors. The areas generally considered for review include (1) management structure and processes, including the tone at the top; (2) practices for partner management, including allocation of partner resources and partner evaluation, compensation, admission, and disciplinary actions; (3) policies and procedures for considering and addressing the risks involved in accepting and retaining issuer audit engagements, including the application of the firm's risk-rating system; (4) processes related to the firm's use of audit work that the firm's foreign affiliates perform on the foreign operations of the firm's U.S. issuer audits; and (5) the firm's processes for monitoring audit performance, including processes for identifying and assessing indicators of deficiencies in audit performance, independence policies and procedures, and processes for responding to defects or potential defects in quality control. A description of the procedures generally applied to these areas is below.

¹¹ An evaluation of the frequency of a type of deficiency may include consideration of how often the inspection team reviewed audit work that presented the opportunity for similar deficiencies to occur. In some cases, even a type of deficiency that is observed infrequently in a particular inspection may, because of some combination of its nature, its significance, and the frequency with which it has been observed in previous inspections of the firm, be cause for concern about a quality control defect or potential defect.

D.2.a. Review of Management Structure and Processes, Including the Tone at the Top

Procedures in this area are designed to focus on (1) how management is structured and operates the firm's business, and the implications that the management structure and processes have on audit performance and (2) whether actions and communications by the firm's leadership – the tone at the top – demonstrate a commitment to audit quality. To assess this area, the inspection team may interview members of the firm's leadership and review significant management reports, communications, and documents, as well as information regarding financial metrics and other processes that the firm uses to plan and evaluate its business.

D.2.b. Review of Practices for Partner Management, Including Allocation of Partner Resources and Partner Evaluation, Compensation, Admission, and Disciplinary Actions

Procedures in this area are designed to focus on (1) whether the firm's processes related to partner evaluation, compensation, admission, termination, and disciplinary actions could be expected to encourage an appropriate emphasis on audit quality and technical competence, as distinct from marketing or other activities of the firm; (2) the firm's processes for allocating its partner resources; and (3) the accountability and responsibilities of the different levels of firm management with respect to partner management. The inspection team may interview members of the firm's management and review documentation related to certain of these topics. In addition, the inspection team's evaluation may include the results of interviews of audit partners regarding their responsibilities and allocation of time. Further, the inspection team may review a sample of partners' personnel files.

D.2.c. Review of Policies and Procedures for Considering and Addressing the Risks Involved in Accepting and Retaining Issuer Audit Engagements, Including the Application of the Firm's Risk-Rating System

The inspection team may consider the firm's documented policies and procedures in this area. In addition, the inspection team may select certain issuer audits to (1) evaluate compliance with the firm's policies and procedures for identifying and assessing the risks involved in accepting or continuing the issuer audit engagements and (2) observe whether the audit procedures were responsive to the risks of material misstatement identified during the firm's process.

D.2.d. Review of Processes Related to a Firm's Use of Audit Work that the Firm's Foreign Affiliates Perform on the Foreign Operations of the Firm's U.S. Issuer Audits

The inspection team may review the firm's policies and procedures related to its supervision and control of work performed by foreign affiliates on the firm's U.S. issuer audits, review available information relating to the most recent internal inspections of foreign affiliated firms, interview members of the firm's leadership, and review the U.S. engagement teams' supervision concerning, and procedures for control of, the audit work that the firm's foreign affiliates performed on a sample of audits.

D.2.e. Review of a Firm's Processes for Monitoring Audit Performance, Including Processes for Identifying and Assessing Indicators of Deficiencies in Audit Performance, Independence Policies and Procedures, and Processes for Responding to Defects or Potential Defects in Quality Control

D.2.e.i. Review of Processes for Identifying and Assessing Indicators of Deficiencies in Audit Performance

Procedures in this area are designed to identify and assess the monitoring processes that the firm uses to monitor audit quality for individual engagements and for the firm as a whole. The inspection team may interview members of the firm's management and review documents relating to the firm's identification and evaluation of, and response to, possible indicators of deficiencies in audit performance. In addition, the inspection team may review documents related to the design, operation, and evaluation of findings of the firm's internal inspection program, and may compare the results of its review of audit work to those from the internal inspection's review of the same audit work.

D.2.e.ii. Review of Response to Defects or Potential Defects in Quality Control

The inspection team may review steps the firm has taken to address possible quality control deficiencies and assess the design and effectiveness of the underlying processes. In addition, the inspection team may inspect audits of issuers whose audits had been reviewed during previous PCAOB inspections of the firm to ascertain whether the audit procedures in areas with previous deficiencies have improved.

D.2.e.iii. Review of Certain Other Policies and Procedures Related to Monitoring Audit Quality

The inspection team may assess policies, procedures, and guidance related to aspects of independence requirements and the firm's consultation processes, as well as the firm's compliance with these requirements and processes. In addition, the inspection team may review documents, including certain newly issued policies and procedures, and interview firm management to consider the firm's methods for developing audit policies, procedures, and methodologies, including internal guidance and training materials.

END OF PART I



Public Company Accounting Oversight Board

PCAOB Release No. 104-2017-198
Inspection of Deloitte & Touche LLP
November 28, 2017
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PARTS II AND III OF THIS REPORT ARE NONPUBLIC
AND ARE OMITTED FROM THIS PUBLIC DOCUMENT

APPENDIX A

RESPONSE OF THE FIRM TO DRAFT INSPECTION REPORT

Pursuant to section 104(f) of the Act, 15 U.S.C. § 7214(f), and PCAOB Rule 4007(a), the Firm provided a written response to a draft of this report. Pursuant to section 104(f) of the Act and PCAOB Rule 4007(b), the Firm's response, minus any portion granted confidential treatment, is attached hereto and made part of this final inspection report.¹²

¹² The Board does not make public any of a firm's comments that address a nonpublic portion of the report unless a firm specifically requests otherwise. In some cases, the result may be that none of a firm's response is made publicly available. In addition, pursuant to section 104(f) of the Act, 15 U.S.C. § 7214(f), and PCAOB Rule 4007(b), if a firm requests, and the Board grants, confidential treatment for any of the firm's comments on a draft report, the Board does not include those comments in the final report at all. The Board routinely grants confidential treatment, if requested, for any portion of a firm's response that addresses any point in the draft that the Board omits from, or any inaccurate statement in the draft that the Board corrects in, the final report.

August 3, 2017

Mr. John Fiebig
Senior Deputy Director
Division of Registration and Inspections
Public Company Accounting Oversight Board
1666 K Street NW
Washington, DC 20006

Re: Deloitte & Touche LLP – Response to Part I of Draft Report on 2016 Inspection

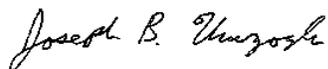
Dear Mr. Fiebig:

Deloitte & Touche LLP is pleased to submit this response to the draft Report on the 2016 Inspection of Deloitte & Touche LLP (the Draft Report) of the Public Company Accounting Oversight Board (the PCAOB or the Board). We believe that the PCAOB's inspection process serves an important role in the achievement of our shared objectives of improving audit quality and serving investors and the public interest. We are committed to continuing to work with the PCAOB to further strengthen trust in the integrity of the independent audit.

We have evaluated the matters identified by the Board's inspection team for each of the issuer audits described in Part I of the Draft Report and have taken actions as appropriate in accordance with PCAOB standards to comply with our professional responsibilities under AU 390, *Consideration of Omitted Procedures After the Report Date*, and AU 561, *Subsequent Discovery of Facts Existing at the Date of the Auditor's Report*.

Executing high quality audits is our number one priority. In order to drive continuous improvements in quality, we are transforming the audit to leverage innovative technologies, along with enhancing the skillsets of our talent to prepare them for a digitally driven future. We are confident that our ongoing digital transformation, along with the investments we continue to make in our audit processes, policies, and quality controls, are resulting in significant enhancements to our audit quality.

Sincerely,



Joseph B. Ucuzoglu
Chairman and Chief Executive Officer
Deloitte & Touche LLP



Catherine M. Engelbert
Chief Executive Officer
Deloitte

In the United States, Deloitte refers to one or more of the US member firms of Deloitte Touche Tohmatsu Limited, their related entities that operate using the "Deloitte" name in the United States and their respective affiliates. Please see www.deloitte.com/us/about for a detailed description of our legal structure.

APPENDIX B

AUDITING STANDARDS REFERENCED IN PART I

This appendix provides the text of the auditing standard paragraphs that are referenced in Part I.A of this report. Footnotes that are included in this appendix, and any other Notes, are from the original auditing standards that are referenced. While this appendix contains the specific portions of the relevant standards cited with respect to the deficiencies in Part I.A of this report, other portions of the standards (including those described in Part I.B of this report) may provide additional context, descriptions, related requirements, or explanations; the complete standards are available on the PCAOB's website at <http://pcaobus.org/STANDARDS/Pages/default.aspx>.

AS 1105, <i>Audit Evidence</i>		
Selecting Specific Items		
AS 1105.27	The application of audit procedures to items that are selected as described in paragraphs .25-.26 of this standard does not constitute audit sampling, and the results of those audit procedures cannot be projected to the entire population. ¹²	Issuer F
<u>Footnote to AS 1105.27</u>		
¹² If misstatements are identified in the selected items, see AS 2810.12 - .13 and AS 2810.17 - .19.		

AS 2110, <i>Identifying and Assessing Risks of Material Misstatement</i>		
PERFORMING RISK ASSESSMENT PROCEDURES		
IDENTIFYING AND ASSESSING THE RISKS OF MATERIAL MISSTATEMENT		
AS 2110.59	The auditor should identify and assess the risks of material misstatement at the financial statement level and the assertion level. In identifying and assessing risks of material misstatement, the auditor should: <ul style="list-style-type: none"> a. Identify risks of misstatement using information obtained from performing risk assessment procedures (as discussed in paragraphs .04-.58) and considering the characteristics of the 	Issuer A

AS 2110, Identifying and Assessing Risks of Material Misstatement

	<p>accounts and disclosures in the financial statements.</p> <p>Note: Factors relevant to identifying fraud risks are discussed in paragraphs .65–.69 of this standard.</p> <p>b. Evaluate whether the identified risks relate pervasively to the financial statements as a whole and potentially affect many assertions.</p> <p>c. Evaluate the types of potential misstatements that could result from the identified risks and the accounts, disclosures, and assertions that could be affected.</p> <p>Note: In identifying and assessing risks at the assertion level, the auditor should evaluate how risks at the financial statement level could affect risks of misstatement at the assertion level.</p> <p>d. Assess the likelihood of misstatement, including the possibility of multiple misstatements, and the magnitude of potential misstatement to assess the possibility that the risk could result in material misstatement of the financial statements.</p> <p>Note: In assessing the likelihood and magnitude of potential misstatement, the auditor may take into account the planned degree of reliance on controls selected to test.³²</p> <p>e. Identify significant accounts and disclosures³³ and their relevant assertions³⁴ (paragraphs .60–.64 of this standard).</p> <p>Note: The determination of whether an account or disclosure is significant or whether an assertion is a relevant assertion is based on inherent risk, without regard to the effect of controls.</p> <p>f. Determine whether any of the identified and assessed risks of material misstatement are significant risks (paragraphs .70–.71 of this standard).</p>	
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Footnotes to AS 2110.59

³² AS 2301.16-.35.

³³ AS 2201.A10 states:

An account or disclosure is a significant account or disclosure if there is a reasonable possibility that the account or disclosure could contain a misstatement that, individually or when aggregated with others, has a material effect on the financial statements, considering the risks of both overstatement and understatement. The determination of whether an account or disclosure is significant is based on inherent risk, without regard to the effect of controls.

AS 2110, Identifying and Assessing Risks of Material Misstatement

³⁴ AS 2201.A9 states:

A relevant assertion is a financial statement assertion that has a reasonable possibility of containing a misstatement or misstatements that would cause the financial statements to be materially misstated. The determination of whether an assertion is a relevant assertion is based on inherent risk, without regard to the effect of controls.

AS 2201, An Audit of Internal Control Over Financial Reporting That Is Integrated with An Audit of Financial Statements

INTRODUCTION		
AS 2201.03	The auditor's objective in an audit of internal control over financial reporting is to express an opinion on the effectiveness of the company's internal control over financial reporting. Because a company's internal control cannot be considered effective if one or more material weaknesses exist, to form a basis for expressing an opinion, the auditor must plan and perform the audit to obtain appropriate evidence that is sufficient to obtain reasonable assurance ⁵ about whether material weaknesses exist as of the date specified in management's assessment. A material weakness in internal control over financial reporting may exist even when financial statements are not materially misstated.	Issuer B
Footnote to AS 2201.03		
⁵ See AS 1015, <i>Due Professional Care in the Performance of Work</i> , for further discussion of the concept of reasonable assurance in an audit.		
USING A TOP-DOWN APPROACH		
Selecting Controls to Test		
AS 2201.39	The auditor should test those controls that are important to the auditor's conclusion about whether the company's controls sufficiently address the assessed risk of misstatement to each relevant assertion.	Issuers A, D, F, G, and L
TESTING CONTROLS		
Testing Design Effectiveness		
AS 2201.42	The auditor should test the design effectiveness of controls by determining whether the company's controls, if they are operated as prescribed by persons possessing the necessary authority and competence to perform the control	Issuers A, B, C, E, F, G, H, and I

AS 2201, An Audit of Internal Control Over Financial Reporting That Is Integrated with An Audit of Financial Statements		
	<p>effectively, satisfy the company's control objectives and can effectively prevent or detect errors or fraud that could result in material misstatements in the financial statements.</p> <p>Note: A smaller, less complex company might achieve its control objectives in a different manner from a larger, more complex organization. For example, a smaller, less complex company might have fewer employees in the accounting function, limiting opportunities to segregate duties and leading the company to implement alternative controls to achieve its control objectives. In such circumstances, the auditor should evaluate whether those alternative controls are effective.</p>	
Testing Operating Effectiveness		
AS 2201.44	<p>The auditor should test the operating effectiveness of a control by determining whether the control is operating as designed and whether the person performing the control possesses the necessary authority and competence to perform the control effectively.</p> <p>Note: In some situations, particularly in smaller companies, a company might use a third party to provide assistance with certain financial reporting functions. When assessing the competence of personnel responsible for a company's financial reporting and associated controls, the auditor may take into account the combined competence of company personnel and other parties that assist with functions related to financial reporting.</p>	Issuers A, B, C, F, G, H, I, and M
EVALUATING IDENTIFIED DEFICIENCIES		
AS 2201.68	<p>The auditor should evaluate the effect of compensating controls when determining whether a control deficiency or combination of deficiencies is a material weakness. To have a mitigating effect, the compensating control should operate at a level of precision that would prevent or detect a misstatement that could be material.</p>	Issuer K

AS 2301, <i>The Auditor's Responses to the Risks of Material Misstatement</i>		
RESPONSES INVOLVING THE NATURE, TIMING, AND EXTENT OF AUDIT PROCEDURES		
AS 2301.08	The auditor should design and perform audit procedures in a manner that addresses the assessed risks of material misstatement for each relevant assertion of each significant account and disclosure.	Issuers A and E
TESTING CONTROLS		
Testing Controls in an Audit of Financial Statements		
AS 2301.16	<i>Controls to be Tested.</i> If the auditor plans to assess control risk at less than the maximum by relying on controls, ¹² and the nature, timing, and extent of planned substantive procedures are based on that lower assessment, the auditor must obtain evidence that the controls selected for testing are designed effectively and operated effectively during the entire period of reliance . ¹³ However, the auditor is not required to assess control risk at less than the maximum for <i>all</i> relevant assertions and, for a variety of reasons, the auditor may choose not to do so.	Issuers B and F
<u>Footnotes to AS 2301.16</u>		
<p>¹² Reliance on controls that is supported by sufficient and appropriate audit evidence allows the auditor to assess control risk at less than the maximum, which results in a lower assessed risk of material misstatement. In turn, this allows the auditor to modify the nature, timing, and extent of planned substantive procedures.</p> <p>¹³ Terms defined in Appendix A, <i>Definitions</i>, are set in boldface type the first time they appear.</p>		
AS 2301.18	<i>Evidence about the Effectiveness of Controls in the Audit of Financial Statements.</i> In designing and performing tests of controls for the audit of financial statements, the evidence necessary to support the auditor's control risk assessment depends on the degree of reliance the auditor plans to place on the effectiveness of a control. The auditor should obtain more persuasive audit evidence from tests of controls the greater the reliance the auditor places on the effectiveness of a control. The auditor also should obtain more persuasive evidence about the effectiveness of controls for each relevant assertion for which the audit approach consists	Issuers B and F

AS 2301, <i>The Auditor's Responses to the Risks of Material Misstatement</i>		
	primarily of tests of controls, including situations in which substantive procedures alone cannot provide sufficient appropriate audit evidence.	
SUBSTANTIVE PROCEDURES		
AS 2301.37	As the assessed risk of material misstatement increases, the evidence from substantive procedures that the auditor should obtain also increases. The evidence provided by the auditor's substantive procedures depends upon the mix of the nature, timing, and extent of those procedures. Further, for an individual assertion, different combinations of the nature, timing, and extent of testing might provide sufficient appropriate evidence to respond to the assessed risk of material misstatement.	Issuers B and F

AS 2305, <i>Substantive Analytical Procedures</i>		
ANALYTICAL PROCEDURES USED AS SUBSTANTIVE TESTS		
Precision of the Expectation		
AS 2305.17	The expectation should be precise enough to provide the desired level of assurance that differences that may be potential material misstatements, individually or when aggregated with other misstatements, would be identified for the auditor to investigate (see paragraph .20). As expectations become more precise, the range of expected differences becomes narrower and, accordingly, the likelihood increases that significant differences from the expectations are due to misstatements. The precision of the expectation depends on, among other things, the auditor's identification and consideration of factors that significantly affect the amount being audited and the level of detail of data used to develop the expectation.	Issuer F
Investigation and Evaluation of Significant Differences		
AS 2305.20	In planning the analytical procedures as a substantive test, the auditor should consider the amount of difference from the expectation that can be accepted without	Issuer F

AS 2305, Substantive Analytical Procedures		
	further investigation. This consideration is influenced primarily by materiality and should be consistent with the level of assurance desired from the procedures. Determination of this amount involves considering the possibility that a combination of misstatements in the specific account balances, or class of transactions, or other balances or classes could aggregate to an unacceptable amount.	
AS 2315, Audit Sampling		
SAMPLING IN SUBSTANTIVE TESTS OF DETAILS		
Planning Samples		
AS 2315.19	After assessing and considering the levels of inherent and control risks, the auditor performs substantive tests to restrict detection risk to an acceptable level. As the assessed levels of inherent risk, control risk, and detection risk for other substantive procedures directed toward the same specific audit objective decreases, the auditor's allowable risk of incorrect acceptance for the substantive tests of details increases and, thus, the smaller the required sample size for the substantive tests of details. For example, if inherent and control risks are assessed at the maximum, and no other substantive tests directed toward the same specific audit objectives are performed, the auditor should allow for a low risk of incorrect acceptance for the substantive tests of details. ³ Thus, the auditor would select a larger sample size for the tests of details than if he allowed a higher risk of incorrect acceptance.	Issuer B
Footnote to AS 2315.19		
<p>³ Some auditors prefer to think of risk levels in quantitative terms. For example, in the circumstances described, an auditor might think in terms of a 5 percent risk of incorrect acceptance for the substantive test of details. Risk levels used in sampling applications in other fields are not necessarily relevant in determining appropriate levels for applications in auditing because an audit includes many interrelated tests and sources of evidence.</p>		
AS 2315.23	To determine the number of items to be selected in a sample for a particular substantive test of details, the auditor should take into account tolerable misstatement for the population; the allowable risk of incorrect acceptance (based on the assessments of inherent risk, control risk, and the detection risk related to the substantive analytical procedures or other relevant substantive tests); and the characteristics of the population, including the expected size and frequency of	Issuer B

AS 2315, Audit Sampling		
	misstatements.	
AS 2315.23A	<p>Table 1 of the Appendix describes the effects of the factors discussed in the preceding paragraph on sample sizes in a statistical or nonstatistical sampling approach. When circumstances are similar, the effect on sample size of those factors should be similar regardless of whether a statistical or nonstatistical approach is used. Thus, when a nonstatistical sampling approach is applied properly, the resulting sample size ordinarily will be comparable to, or larger than, the sample size resulting from an efficient and effectively designed statistical sample.</p>	Issuer B

AS 2501, Auditing Accounting Estimates		
EVALUATING ACCOUNTING ESTIMATES		
AS 2501.07	<p>The auditor's objective when evaluating accounting estimates is to obtain sufficient appropriate evidential matter to provide reasonable assurance that—</p> <ul style="list-style-type: none"> a. All accounting estimates that could be material to the financial statements have been developed. b. Those accounting estimates are reasonable in the circumstances. c. The accounting estimates are presented in conformity with applicable accounting principles² and are properly disclosed.³ 	Issuer C
<p><u>Footnotes to AS 2501.07</u></p> <p>² AS 2815, <i>The Meaning of "Present Fairly in Conformity With Generally Accepted Accounting Principles,"</i> discusses the auditor's responsibility for evaluating conformity with generally accepted accounting principles.</p> <p>³ See paragraph .31 of AS 2810, <i>Evaluating Audit Results</i>.</p>		
EVALUATING REASONABLENESS		
AS 2501.11	<p>Review and test management's process. In many situations, the auditor assesses the reasonableness of an accounting estimate by performing procedures to test the process used by management to make the estimate. The following are procedures the auditor may consider performing</p>	Issuers A, B, and D

AS 2501, Auditing Accounting Estimates		
	<p>when using this approach:</p> <ol style="list-style-type: none"> a. Identify whether there are controls over the preparation of accounting estimates and supporting data that may be useful in the evaluation. b. Identify the sources of data and factors that management used in forming the assumptions, and consider whether such data and factors are relevant, reliable, and sufficient for the purpose based on information gathered in other audit tests. c. Consider whether there are additional key factors or alternative assumptions about the factors. d. Evaluate whether the assumptions are consistent with each other, the supporting data, relevant historical data, and industry data. e. Analyze historical data used in developing the assumptions to assess whether the data is comparable and consistent with data of the period under audit, and consider whether such data is sufficiently reliable for the purpose. f. Consider whether changes in the business or industry may cause other factors to become significant to the assumptions. g. Review available documentation of the assumptions used in developing the accounting estimates and inquire about any other plans, goals, and objectives of the entity, as well as consider their relationship to the assumptions. h. Consider using the work of a specialist regarding certain assumptions (AS 1210, <i>Using the Work of a Specialist</i>). i. Test the calculations used by management to translate the assumptions and key factors into the accounting estimate. 	

AS 2502, Auditing Fair Value Measurements and Disclosures		
TESTING THE ENTITY'S FAIR VALUE MEASUREMENTS AND DISCLOSURES		
Testing Management's Significant Assumptions, the Valuation Model, and the Underlying Data		

AS 2502, Auditing Fair Value Measurements and Disclosures		
AS 2502.26	<p>The auditor's understanding of the reliability of the process used by management to determine fair value is an important element in support of the resulting amounts and therefore affects the nature, timing, and extent of audit procedures. When testing the entity's fair value measurements and disclosures, the auditor evaluates whether:</p> <ul style="list-style-type: none"> a. Management's assumptions are reasonable and reflect, or are not inconsistent with, market information (see paragraph .06). b. The fair value measurement was determined using an appropriate model, if applicable. c. Management used relevant information that was reasonably available at the time. 	Issuer F
AS 2502.28	<p>Where applicable, the auditor should evaluate whether the significant assumptions used by management in measuring fair value, taken individually and as a whole, provide a reasonable basis for the fair value measurements and disclosures in the entity's financial statements.</p>	Issuer F

AS 2503, Auditing Derivative Instruments, Hedging Activities, and Investments in Securities		
DESIGNING SUBSTANTIVE PROCEDURES BASED ON RISK ASSESSMENTS		
Financial Statement Assertions		
Completeness		
AS 2503.22	<p>Completeness assertions address whether all of the entity's derivatives and securities are reported in the financial statements through recognition or disclosure. They also address whether all derivatives and securities transactions are reported in the financial statements as a part of earnings, other comprehensive income, or cash flows or through disclosure. The extent of substantive procedures for completeness may properly vary in relation to the assessed level of control risk. In addition, the auditor should consider that since derivatives may not involve an initial exchange of tangible consideration, it may be difficult to limit audit risk for assertions about the completeness of derivatives to an acceptable level with an assessed level of control risk at the maximum. Paragraph .19 provides guidance on the auditor's determination of the nature, timing, and extent of substantive</p>	Issuer A

AS 2503, Auditing Derivative Instruments, Hedging Activities, and Investments in Securities		
	<p>procedures to be performed. Examples of substantive procedures for completeness assertions about derivatives and securities are—</p> <ul style="list-style-type: none"> ▪ Requesting the counterparty to a derivative or the holder of a security to provide information about it, such as whether there are any side agreements or agreements to repurchase securities sold. ▪ Requesting counterparties or holders who are frequently used, but with whom the accounting records indicate there are presently no derivatives or securities, to state whether they are counterparties to derivatives with the entity or holders of its securities.¹³ ▪ Inspecting financial instruments and other agreements to identify embedded derivatives. ▪ Inspecting documentation in paper or electronic form for activity subsequent to the end of the reporting period. ▪ Performing analytical procedures. For example, a difference from an expectation that interest expense is a fixed percentage of a note based on the interest provisions of the underlying agreement may indicate the existence of an interest rate swap agreement. ▪ Comparing previous and current account detail to identify assets that have been removed from the accounts and testing those items further to determine that the criteria for sales treatment have been met. ▪ Reading other information, such as minutes of meetings of the board of directors or finance, asset/liability, investment, or other committees. 	
<p><u>Footnote to AS 2503.22</u></p> <p>¹³ AS 2310.17 discusses the blank form of positive confirmation in which the auditor does not state the amount or other information but instead asks the respondent to provide information.</p>		
AS 2503.23	<p>One of the characteristics of derivatives is that they may involve only a commitment to perform under a contract and not an initial exchange of tangible consideration. Therefore, auditors designing tests related to the completeness assertion should not focus exclusively on evidence relating to cash receipts and disbursements. When testing for completeness, auditors should consider making inquiries, inspecting agreements, and reading other information, such as minutes of meetings of the board of directors or finance, asset/liability, investment, or other</p>	Issuer A

AS 2503, Auditing Derivative Instruments, Hedging Activities, and Investments in Securities		
	<p>committees. Auditors should also consider making inquiries about aspects of operating activities that might present risks hedged using derivatives. For example, if the entity conducts business with foreign entities, the auditor should inquire about any arrangements the entity has made for purchasing foreign currency. Similarly, if an entity is in an industry in which commodity contracts are common, the auditor should inquire about any commodity contracts with fixed prices that run for unusual durations or involve unusually large quantities. The auditor also should consider inquiring as to whether the entity has converted interest-bearing debt from fixed to variable, or vice versa, using derivatives.</p>	

AS 2510, Auditing Inventories		
INVENTORIES		
AS 2510.09	<p>When inventory quantities are determined solely by means of a physical count, and all counts are made as of the balance-sheet date or as of a single date within a reasonable time before or after the balance-sheet date, it is ordinarily necessary for the independent auditor to be present at the time of count and, by suitable observation, tests, and inquiries, satisfy himself respecting the effectiveness of the methods of inventory-taking and the measure of reliance which may be placed upon the client's representations about the quantities and physical condition of the inventories.</p>	Issuer J

AS 2801, Subsequent Events		
AS 2801.03	<p>The first type consists of those events that provide additional evidence with respect to conditions that existed at the date of the balance sheet and affect the estimates inherent in the process of preparing financial statements. All information that becomes available prior to the issuance of the financial statements should be used by management in its evaluation of the conditions on which the estimates were based. The financial statements should be adjusted for any changes in estimates resulting from the use of such evidence.</p>	Issuer J
AS 2801.07	<p>Subsequent events affecting the realization of assets such as receivables and inventories or the settlement of estimated liabilities ordinarily will require adjustment of the financial statements (see paragraph .03) because such events typically represent the culmination of</p>	Issuer J

AS 2801, <i>Subsequent Events</i>		
	conditions that existed over a relatively long period of time. Subsequent events such as changes in the quoted market prices of securities ordinarily should not result in adjustment of the financial statements (see paragraph .05) because such changes typically reflect a concurrent evaluation of new conditions.	