# Manhattan and Bronx Surface Transit Operating Authority Pension Plan

(A Fiduciary Component Unit of the Metropolitan Transportation Authority)

Financial Statements as of and for the
Years Ended December 31, 2019 and 2018,
Supplemental Schedules, and
Independent Auditors' Report

## MANHATTAN AND BRONX SURFACE TRANSIT OPERATING AUTHORITY PENSION PLAN

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# INDEPENDENT AUDITORS' REPORT

To the Board of Administration of
The Manhattan and Bronx Surface Transit Operating Authority Pension Plan:

**Report on the Financial Statements**

We have audited the accompanying statements of plan net position of The Manhattan and Bronx Surface Transit Operating Authority Pension Plan (the "Plan") as of December 31, 2019 and 2018, and the related statements of changes in plan net position for the years then ended, and the related notes to the financial statements, which collectively comprise the Plan's basic financial statements as listed in the table of contents.

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

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

**Auditors' Responsibility**

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

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

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

**Opinion**

In our opinion, the financial statements referred to above present fairly, in all material respects, the Plan's net position as of December 31, 2019 and 2018, and the changes in Plan net position for the years then ended in accordance with accounting principles generally accepted in the United States of America.

## Other Matters

*Required Supplementary Information*

Accounting principles generally accepted in the United States of America require that the Management's Discussion and Analysis on pages 3 through 9 and the Changes in the Employers' Net Pension Liability and Related Ratios-Schedule I on page 54; Employer Contributions and Notes to Schedule-Schedule II on pages 55–57; and the Investment Returns-Schedule III on page 58 be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Deloitte & Touche LLP

July 22, 2020

This management's discussion and analysis of The Manhattan and Bronx Surface Transit Operating Authority Pension Plan (the "Plan") financial performance provides an overview of the Plan's financial activities for the years ended December 31, 2019 and 2018. It is meant to assist the reader in understanding the Plan's financial statements by providing an overall review of the financial activities during the two years and the effects of significant changes, as well as a comparison with the prior years' activity and results. This discussion and analysis may contain opinions, assumptions, or conclusions by MTA management that should not be considered a replacement for and is intended to be read in conjunction with the plan's financial statements which begin on page 10.

**Overview of Basic Financial Statements**

The following discussion and analysis is intended to serve as an introduction to the Plan's financial statements. The basic financial statements are:

- **The Statements of Plan Net Position —** presents the financial position of the Plan at fiscal yearend. It provides information about the nature and amounts of resources with present service capacity that the Plan presently controls (assets), consumption of net assets by the Plan that is applicable to a future reporting period (deferred outflow of resources), present obligations to sacrifice resources that the Plan has little or no discretion to avoid (liabilities), and acquisition of net assets by the Plan 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. Investments are shown at fair value. All other assets and liabilities are determined on an accrual basis.

- **The Statements of Changes in Plan Net Position—** presents the results of activities during the year. All changes affecting the assets and liabilities of the Plan are reflected on an accrual basis when the activity occurred regardless of the timing of the related cash flows. In that regard, changes in the fair values of investments are included in the year's activity as net appreciation (depreciation) in fair value of investments.

- **The Notes to Financial Statements—** provides additional information that is essential to a full understanding of the data provided in the financial statements. The notes present information about the Plan's accounting policies, significant account balances and activities, material risks, obligations, contingencies, and subsequent events, if any.

- **Required Supplementary Information—** as required by the Government Accounting Standards Board ("GASB") includes the Schedule of Changes in the Employer's Net Pension Liability and Related Ratios, Schedule of Employer Contributions, and Schedule of Investment returns.

The accompanying financial statements of the Plan are presented in conformity with accounting principles generally accepted in the United States of America as prescribed by the GASB.

## CONDENSED FINANCIAL INFORMATION AND ANALYSIS

### FINANCIAL ANALYSIS

**Plan Net Position**
**As of December 31, 2019, 2018, and 2017**
**(Dollars in thousands)**

| | | | | Increase / Decrease | | | |
|---|---|---|---|---|---|---|---|
| | | | | 2019-2018 | | 2018-2017 | |
| | 2019 | 2018 | 2017 | $ | % | $ | % |
| Cash and investments | $ 3,268,404 | $ 2,818,963 | $ 2,894,950 | $ 449,441 | 15.9% | $ (75,987) | (2.6)% |
| Receivables and other assets | 42,546 | 38,807 | 39,628 | 3,739 | 9.6 | (821) | (2.1) |
| **Total assets** | **$ 3,310,950** | **$ 2,857,770** | **$ 2,934,578** | **$ 453,180** | **15.9** | **$ (76,808)** | **(2.6)** |
| Payable for investment securities purchased | 3,425 | 2,148 | 2,250 | 1,277 | 59.5 | (102) | (4.5) |
| Other liabilities | 10,795 | 11,220 | 13,339 | (425) | (3.8) | (2,119) | (15.9) |
| **Total liabilities** | **14,220** | **13,368** | **15,589** | **852** | **6.4** | **(2,221)** | **(14.2)** |
| **Plan net position restricted for pensions** | **$ 3,296,730** | **$ 2,844,402** | **$ 2,918,989** | **$ 452,328** | **15.9%** | **$ (74,587)** | **(2.6)%** |

<u>December 31, 2019 versus December 31, 2018</u>

Cash and investments at December 31, 2019, were $3,268.4 million, an increase of $449.4 million or 15.9% from 2018. This increase is a result of strong investment activity in 2019 and plan contributions net of benefit payments and expenses during 2019.

Receivables and other assets less plan liabilities at December 31, 2019 increased by $2.9 million or 11.3%. The increase is a result of higher year end receivables for 2019 compared with 2018 and continued payments on post retirement death benefits and additional members contribution liabilities for Tiers 3 and 4 – 25 year and age 55 retirement programs.

The plan net position restricted for pensions increased by $452.3 million or 15.9% in 2019 as a result of the various changes noted above.

<u>December 31, 2018 versus December 31, 2017</u>

Cash and investments at December 31, 2018, were $2,819.0 million, a decrease of $76.0 million or 2.6% from 2017. This decrease is a result of weak investment activity in the fourth quarter of 2018 and plan contributions net of benefit payments and expenses during 2018.

Receivables and other assets less plan liabilities at December 31, 2018 decreased by $3.0 million or 12.6%. The decrease is a result of lower year end accrued expense for 2018 compared with 2017 and continued payments on post retirement death benefits and additional members contribution liabilities for Tiers 3 and 4 – 25 year and age 55 retirement programs.

The plan net position restricted for pensions decreased by $74.6 million or 2.6% in 2018 as a result of the various changes noted above.

**Changes in Plan Net Position**
**For the Years Ended December 31, 2019, 2018 and 2017**
**(Dollars in thousands)**

| | | | | Increase / Decrease | | | |
|---|---|---|---|---|---|---|---|
| | | | | 2019-2018 | | 2018-2017 | |
| | 2019 | 2018 | 2017 | $ | % | $ | % |
| **Additions:** | | | | | | | |
| Net investment income | $ 443,827 | $ (87,952) | $ 350,186 | $ 531,779 | 604.6% | $ (438,138) | (125.1)% |
| Transfers and contributions | 229,941 | 227,388 | 222,397 | 2,553 | 1.1 | 4,991 | 2.2 |
| **Total net additions** | **673,768** | **139,436** | **572,583** | **534,332** | **383.2** | **(433,147)** | **(75.6)** |
| **Deductions:** | | | | | | | |
| Benefit payments | 221,221 | 213,827 | 209,121 | $ 7,394 | 3.5 | $ 4,706 | 2.3 |
| Administrative expenses | 219 | 196 | 208 | 23 | 11.7 | (12) | (5.8) |
| **Total deductions** | **221,440** | **214,023** | **209,329** | **7,417** | **3.5** | **4,694** | **2.2** |
| **Net increase** | **452,328** | **(74,587)** | **363,254** | **526,915** | **706.4** | **(437,841)** | **(120.5)** |
| Plan net position restricted for pensions: | | | | | | | |
| Beginning of year | 2,844,402 | 2,918,989 | 2,555,735 | (74,587) | (2.6) | 363,254 | 14.2 |
| **End of year** | **$ 3,296,730** | **$ 2,844,402** | **$ 2,918,989** | **$ 452,328** | **15.9%** | **$ (74,587)** | **(2.6)%** |

<u>December 31, 2019 versus December 31, 2018</u>

Net investment income increased by $531.8 million in 2019 due to net investment gains of $443.8 million in 2019 versus net investment losses of $88.0 million in 2018.

Contributions increased by $2.6 million or 1.1% in 2019 compared to 2018, as a result of the Actuarial Determined Contributions ("ADC") and member contributions.

Benefit payments increased by $7.4 million or 3.5% over the prior year due to a continuing trend of an increase in the number of retirees and cost-of-living adjustments provided to retirees and beneficiaries.

Administrative expenses increased by $23 thousand or 11.7% over 2018. This increase was due to an increase in fees for services provided to the Plan.

<u>December 31, 2018 versus December 31, 2017</u>

Net investment income decreased by $438.1 million in 2018 due to net investment loss of $88.0 million in 2018 versus net gains of $350.2 million in 2017.

Contributions increased by $5.0 million or 2.2% in 2018 compared to 2017, as a result of the Actuarial Determined Contributions ("ADC") and member contributions from 2017 to 2018.

Benefit payments increased by $4.7 million or 2.3% over the prior year due to a continuing trend of an increase in the number of retirees and cost-of-living adjustments provided to retirees and beneficiaries.

Administrative expenses decreased by $0.012 million or 5.8% over 2017. This decrease was due to a decrease in fees for services provided to the Plan.

**Economic Factors**

***Market Overview and Outlook – 2019***

In 2019 international markets turned cautiously optimistic, in contrast to 2018, when stocks were buffeted by uncertainty surrounding United States ("U.S.")-China trade negotiations. Equity markets ended a remarkable 2019 rally on a strong note, with major stock indexes reaching new all-time highs. Among growth assets, global equities outperformed high yield and emerging market debt. The U.S. dollar weakened broadly, most significantly against the Swiss franc, British pound and emerging market currencies. Equity, bond and currency volatility continued to ease in December to historically low levels. Investors favored riskier assets following declining trade tensions and easing geo-political headwinds. United Kingdom ("UK") and emerging markets, specifically China, Russia and Latin American, led the December rally, while the U.S. along with other developed markets lagged the Morgan Stanley Capital International All Country World Index ("MSCI ACWI"). Developed markets outperformed emerging markets overall in 2019.

The global economy slowed in 2019 and is now growing below trend. This was primarily driven by the trade war weighing on capital spending and the lagging effect from monetary tightening in 2018. While monetary policies were generally left unchanged in December-- which partly accounts for the stellar returns to both equities and bonds in 2019—further impetus to economic growth may have to come from fiscal measures: policy makers have recently paused easing efforts to evaluate the effect of prior rate cuts, and officials have indicated that monetary policy may have reached its limits. They are therefore considering greater use of fiscal tools to manage business cycles and to support economic growth. A recession in the U.S. appears unlikely in the near term while low interest rates and tame inflation levels continue to power higher equity valuations

Geo-political risks faded after the U.S. and China reached a preliminary trade agreement. Also, Brexit uncertainties fell after Prime Minister Boris Johnson's Conservative Party obtained a solid majority in Parliament. The UK parliament has passed a withdrawal agreement and will start the exit process at the end of January 2020. Markets looked past the political turmoil in the U.S., where a deeply divided House of Representatives passed two articles of impeachment against President Trump. However, macroeconomic stress related to tighter financial conditions in Argentina, geo-political tensions in Iran, and social unrest in Hong Kong, Venezuela, Libya, and Yemen still persisted. Additionally, climate concerns took center stage amid extreme weather around the globe, and protests against the political establishment reverberated through Hong Kong, Lebanon, Chile, Ecuador and many other places.

While current market dynamics may appear to favor equities over fixed income, one should be cognizant that valuations have been trending higher, creating limited attractive investment opportunities. To this end, many long-term forecasts for investment return, encompassing a 10-year time horizon, remain relatively muted. To prepare portfolios for this new decade, it may be essential for investors to start the year with a renewed emphasis on strategic asset allocation, heeding geo-political and portfolio risks to ensure that their investment horizon and governance structure are aligned with portfolio mission statements and return objectives. Even if the investment landscape encourages risk taking, uncertainties remain, making it critical for investors to reassess and rebalance their portfolio holdings considering their robust gains in 2019.

***Macro Themes***

- Asset allocation and portfolio implementation.
- Late stage of a market cycle.
- China's complex transition into a service and consumption-oriented economy from the manufacturing behemoth.
- The backlash against globalization—expressed through populism and trade wars—is here to stay.
- Central banks permanent interventions have created a new normal, where accommodative monetary policies and fiscal debt growth appear to exist in perpetuity, supporting equities relative to fixed income.

***United States***

2019 represented a triumphant year the U.S. capital markets compared to 2018 underperformance. Accommodative monetary policies, falling interest rates and subdued inflation helped investors not only to meet their return objectives, but, in many instances, to exceed them. Adding to this impressive string of wins: the U.S. economy completed a calendar decade without a recession—a historical first. While investors would love more of the same, it is unlikely this period of windfall gains and low market volatility will persist for the next decade.

Large Cap stocks were strongly positive, with the S&P 500 and Russell 1000 indices posting returns of (+31.5%) and (+31.3%), respectively. Small Cap and Mid Cap indices underperformed large cap. Small Cap, as measured by the Russell 2500 Index, returned (+27.6%). The Russell Mid Cap Index measured by the Russell 2000 Index lagged the Small Cap and posted a return of (+25.4%). Of note, growth oriented investments outperformed the value counterpart with the Russell 1000 Growth (+36.2%) outpacing the Russell 1000 Value (+26.4%).

Fixed income securities markets ended 2019 in the black, reversing declines experienced in 2018. Treasuries returned (+14.8%) for the year, with the assets strongest quarter coming in the first and second quarters of 2019. Municipal credit posted a return of (+7.5%) while the Bloomberg Barclays High Yield Index gained (+14.3%) in 2019. Spreads on high-yield credit narrowed for most part of 2019, but segments in the high-yield and bank loan markets showed signs of stress towards the end of 2019. On the other hand, the S&P LSTA Leveraged Loan Index returned (+10.6%) during the same period.

***International Developed***

International equity markets posted very strong results in 2019 and lagged behind U.S. equity markets, returning (+26.5%) as measured by the MSCI. In U.S. dollars, both Europe and Japan equities posted positive performance in 2019 with MSCI Europe returning (+23.7%) and MSCI Japan returning (+19.5%). Very strong returns in Europe were driven by the global positive market performance during 2019 unlike 2018 when Europe returned (-14.9%). The Small Cap portion of international developed markets posted even stronger returns in 2019, (+24.9%) compared with 2018, (-17.9%).

Fixed income markets in Europe and Japan are largely centered on government bonds, with corporate and asset-backed issuance making up a fraction of the overall markets. Global Treasuries were positive in 2019, following a negative year in 2018.

***Emerging Markets***

Emerging markets posted very strong returns in 2019, with performance lower than both U.S. and international developed markets across equity and debt. The broad MSCI emerging markets index returned
(+18.3%) for the year. Emerging markets gained sharply in December, driven by hopes that the People's Bank of China will continue to ease its monetary policy to support growth.

The bond markets of emerging markets performed well in 2019 compared to its underperformance in 2018. Both hard currency and local currency bond posted a very strong year in performance. Hard currency bonds, which are predominately issued in U.S. dollars, returned (+12.6%) in 2019. Local currency bonds, which are issued in the local currency, returned (+13.5%) for the year.

***Commodities***

The Bloomberg Commodity Index rose (+7.7%) for the year while the New York Mercantile Exchange West Texas Index Crude Spot rose (+35.3%) and Midstream energy ended the year up more than (+24.0%). Residential gas prices in the Midwest are forecast to be nearly (+8.0%) higher this winter than last, and prices in the South and West are seen about (+5.0%) and (+3.0%) higher, respectively, while Northeast prices are forecast to decline (6.0%), helped by relatively low global prices for Liquefied Natural Gas and lower household natural gas consumption. The overall slight decline in heating expenses is aided by generally declining commodity prices.

***Market Outlook***

Central banks and governments have demonstrated, to varying degrees, their willingness to administer monetary and fiscal stimulus. That accommodative stance should continue in 2020. The U.S. Federal Reserve has already signaled its intention to keep interest rates on hold, providing more certainty for businesses. The re-convergence of U.S. interest rates with other developed markets will reduce upward pressure on the dollar. In addition, the impact of looser monetary policy, combined with a better trade backdrop, could spur the necessary investment and reform to fuel increased labor force participation and renewed productivity improvements.

Political risk, both at national and international levels, remains the great unknown. The long-term path of U.S.-China trade and cooperation is uncertain. A damaging "no-deal Brexit" is not entirely off the table. Tensions in the Middle East could risk sparking full-blown conflict. At the same time, 2020 primaries and Presidential elections in the U.S. will create uncertainty and could cause volatility as markets react to the policies and promises of the various candidates. Notwithstanding all of this, however, the current improvement in geo-political backdrop as compared with 2018, together with stimulus measures should support a modest acceleration in global growth in 2020. That growth, in turn, should lead to a moderate increase in demand for oil, putting a floor under the price, especially when global demand is met with sensible supply-side control from Organization of the Petroleum Exporting Countries.

Many analysts continue to believe emerging markets offer the most investment value, especially following the recent truce in trade relations between the U.S. and China. Furthermore, the opportunities for active management and excess returns appear more abundant in emerging economies. As a result, investors may be encouraged to overweight emerging market equities relative to developed market stocks. They may also opt to reduce exposure to high-yield and return-seeking credit in 2020, since market returns do not offer adequate compensation for the risk they hold. Safe-haven fixed income for instance, Treasuries and core bonds, despite low yields—remain vital for balancing risks within a diversified portfolio.

***Impact of Covid-19***

Covid-19 has continued to spread at a rapid pace around the world and has now been declared a global pandemic by the World Health Organization. This has caused a severe shock to the global economy pushing it into a deep and far reaching recession. Financial markets have responded with a huge drop in equities values, a rise in credit spreads and a flight to the safety of governments bonds.

In anticipation of the economic growth fallout, Standards & Poor's Global ratings lowered its forecast for global growth to just (+0.4%) this year and predicts a rebound to (+) in 2021. According to Bloomberg, the current second Quarter Gross Domestic Product average estimate of (-11.2%) annualized would be the worst post World War II quarter on record. However, worldwide central banks and governments announced fiscal and monetary rescue packages to soften the economic impact of the virus and the associated business disruptions. Geo-political tensions such as the trade war issues between the U.S. and China have moved into the background.

The Covid-19 outbreak has resulted in a significant decline in ridership and vehicle crossings for the Metropolitan Transportation Authority ("MTA"). The decline in ridership and vehicle crossings have caused a material impact on the MTA's results of operations, financial position, and cash flows in fiscal 2020. In response to the adverse conditions, the MTA has secured funding under the "Coronavirus Aid, Relief and Economic Security Act" or "CARES Act"; received State of New York authorization to increase debt issuing capacity, including $10 billion in deficit bonds; received State of New York authorization to use the Central Business District Tolling lockbox monies to fund COVID-19 operating costs; and has been granted flexibility to apply existing FTA grant program proceeds to operating costs or other purposes to address COVID-19 impacts. In addition, the volatility and uncertainty of the financial market have negatively affected the investment earnings of retirement plans. Although the long-term impact of the Covid-19 outbreak on the financial market is still unpredictable, it could have a negative impact on the market value of the Plan in future years.

**Contact Information**

This financial report is designed to provide a general overview of the Manhattan and Bronx Surface Transit Operating Authority Pension Plan's finances. Questions concerning any data provided in this report or requests for additional information should be directed to the Comptroller, Metropolitan Transportation Authority, 2 Broadway, 16th Floor, New York, NY 10004.

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## MANHATTAN AND BRONX SURFACE TRANSIT OPERATING AUTHORITY PENSION PLAN

### STATEMENTS OF PLAN NET POSITION
### AS OF DECEMBER 31, 2019 AND 2018
### (In thousands)

| | 2019 | 2018 |
|---|---|---|
| ASSETS: | | |
| Cash | $ 6,494 | $ 5,977 |
| Receivables: | | |
| Investment securities sold | 1,036 | 672 |
| Interest and dividends | 1,419 | 1,331 |
| Employee loans | 40,091 | 36,804 |
| Total receivables | 42,546 | 38,807 |
| Investments at fair market value (Notes 2 and 3): | | |
| Investments measured at readily determinable fair value | 531,620 | 433,543 |
| Investments measured at net asset value | 2,730,290 | 2,379,443 |
| Total investments | 3,261,910 | 2,812,986 |
| Total assets | 3,310,950 | 2,857,770 |
| LIABILITIES: | | |
| Accounts payable | 1,629 | 1,380 |
| Payable for investment securities purchased | 3,425 | 2,148 |
| Accrued benefits payable | 19 | 937 |
| Accrued Post Retirement Death Benefits (PRDB) payable | 3,360 | 2,921 |
| Accrued 55/25 Additional Members Contribution (AMC) payable | 5,787 | 5,982 |
| Total liabilities | 14,220 | 13,368 |
| PLAN NET POSITION RESTRICTED FOR PENSIONS | $ 3,296,730 | $ 2,844,402 |

See notes to financial statements.

# MANHATTAN AND BRONX SURFACE TRANSIT OPERATING AUTHORITY PENSION PLAN

## STATEMENTS OF CHANGES IN PLAN NET POSITION FOR THE YEARS ENDED DECEMBER 31, 2019 AND 2018 (In thousands)

| | 2019 | 2018 |
|---|---|---|
| ADDITIONS: | | |
| Investment income: | | |
| Interest income | 10,534 | 7,891 |
| Dividend income | 31,364 | 37,259 |
| Net appreciation/(depreciation) in fair value of investments | 429,459 | (97,896) |
| Total investment income/(loss) | 471,357 | (52,746) |
| Less investment expenses | 27,530 | 35,206 |
| Net investment income/(loss) | 443,827 | (87,952) |
| Contributions (Note 4): | | |
| Employee contributions | $ 23,551 | $ 21,955 |
| Employer contributions | 206,390 | 205,433 |
| Total contributions | 229,941 | 227,388 |
| Total additions | 673,768 | 139,436 |
| DEDUCTIONS: | | |
| Benefit payments and withdrawals | 221,221 | 213,827 |
| Administrative expenses | 219 | 196 |
| Total deductions | 221,440 | 214,023 |
| NET INCREASE/(DECREASE) IN PLAN NET POSITION | 452,328 | (74,587) |
| PLAN NET POSITION RESTRICTED FOR PENSIONS: | | |
| Beginning of year | 2,844,402 | 2,918,989 |
| End of year | $ 3,296,730 | $ 2,844,402 |

See notes to financial statements.

## 1. PLAN DESCRIPTION

Effective January 1, 1989, the Manhattan and Bronx Surface Transit Operating Authority (MaBSTOA) adopted a defined benefit qualified pension plan known as the MaBSTOA Pension Plan (the "Plan"). Prior to the adoption of the Plan, MaBSTOA pension benefits were funded on a pay-as-you-go basis.

The Plan is a single-employer public employee retirement system. MaBSTOA employees are specifically excluded from participating in the New York City Employees' Retirement System (NYCERS). Effective January 1, 1999, in order to afford managerial and non-represented MaBSTOA employees the same pension rights as like title employees in the Transit Authority, membership in the MaBSTOA Plan is optional.

The Board of Administration, established in 1963, determines eligibility of employees and beneficiaries for retirement and death benefits. The Board is composed of five members: two representatives from the Transport Workers Union, Local 100 (TWU) and three employer representatives.

Membership of the Plan consisted of the following as of January 1, 2019 and 2018, respectively, the date of the latest actuarial valuation:

| | 2019 | 2018 |
|---|---|---|
| Active and inactive members | 9,087 | 8,918 |
| Retirees and beneficiaries currently receiving benefits | 5,779 | 5,661 |
| Vested formerly active members not yet receiving benefits | 1,023 | 1,000 |
| Total members | 15,889 | 15,579 |

The Plan provides retirement, death, accident and disability benefits. The benefits provided by the Plan are generally similar to the benefits provided to participants in NYCERS. A participant may receive a vested benefit in accordance with the requirements of his or her Tier.

NYCERS has determined that Tier 4 employees are and have been eligible for a post retirement death benefit retroactive to members who retired no earlier than 1986. In June 2012, the Metropolitan Transportation Authority ("MTA") Board approved an amendment to the MaBSTOA Plan to provide for incorporation of this benefit. As of December 31, 2012, the Plan had estimated that $6 million is owed to beneficiaries of retirees who were deceased prior to January 1, 2013. As of December 31, 2019, the Plan has paid $13.7 million in post-retirement benefits and accrued an additional $3.4 million based on the updated valuation.

**Funding Policy**—Contribution requirements of 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 provides for actuarially determined amounts that are designed to accumulate sufficient assets to pay benefits when due. It is MaBSTOA's policy to fund to the pension trust, at a minimum, the current year's normal cost plus amortization of the unfunded actuarial accrued liability.

The MaBSTOA Pension Plan includes the following retirement programs: (i) Tier 1 Age 50 and 20 Year, Age 55 and 1/100; (ii) Tier 2 Age 55 and 25 Year, Tier 2 Age 55 and 1/100; (iii) Tier 3 and Tier 4 Age 62 and 5 Year; (iv) Tier 6 Age 63 and 10 Year; (v) Tier 4 and Tier 6 25 Year and Age 55; (vi)

Tier 4 25 Year Early Retirement; (vii) Tier 4 Age 57 and 5 Year, and (viii) the Year 2000 amendments, which are all under the same terms and conditions as NYCERS.

The Plan may require mandatory employee contributions, 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). Prior to adoption of Tier 6, operating employees entering qualifying service on or after July 27, 1976, are required to contribute 2% of their salary and non-operating employees pay 3% of their salary for a 10-year period plus an additional member contribution of 1.85% of their salary. See Note 4 for 2000 Plan amendments.

Individuals joining the MaBSTOA Pension Plan on or after April 1, 2012 are members of Tier 6. 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 is 63 and includes early retirement penalties, which reduce pension allowances by 6.5 percent for each year of retirement prior to age 63 (excluding Transit Operating Employees).

- Vesting after 10 years of credited service; increased from 5 years of credited service under Tier 3 and Tier 4.

- Changes to the pension multiplier for calculating pension benefits (excluding Transit Operating Employees) for participants who retire with greater than 20 years of credited service is 35% of FAS for the first 20 years of credited service plus 2% times FAS for each year of credited service in excess of 20.

- Adjustments to the Final Average Salary (FAS) calculation changed from an average of the final 3 years to an average of the final 5 years. Pensionable overtime capped at $15,000 per year plus an inflation factor ($16,406 for 2018 and $16,779 for 2019).

- Pension buyback in Tier 6 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.

## SUMMARY OF PRINCIPAL PLAN PROVISIONS ELIGIBILITY AND BENEFITS

### All Tiers

| | |
|---|---|
| 1. Type of Plan | The Plan is a contributory, defined benefit plan. Contributions are not required for Tier 1 and Tier 2 members and vary for other members. Details can be found in the following sections. |
| 2. Effective Date of Plan Qualification | January 1, 1989. |
| 3. Compensation | The wages earned by the employee. Compensation is limited by Section 401(a)(17) of the Code. This limit is $275,000 for 2018 and $280,000 for 2019. |
| 4. Credited Service | Credited Service is credited full-time employment from date of hire. |

5. Pensioner Supplementations

(a) 1998 Supplement

Eligibility: Date of retirement is prior to 1993 for all disability pensioners and other pensioners who have attained (or will attain) age 62 or who have attained (or will attain) age 55 and have been retired for at least 10 years.

Benefit: Commencing with the payment for the month of September 1998, the cost-of-living adjustment is applied to the first $13,500 of the maximum retirement allowance, computed without option modification. If not eligible by September 1998, payment will commence first of the month following eligibility.

(b) 1999 Supplement

Eligibility: Date of retirement is prior to 1994 for all disability pensioners and other pensioners who have attained (or will attain) age 62 or who have attained (or will attain) age 55 and have been retired for at least 10 years.

Benefit: Commencing with the payment for the month of September 1999, the cost-of-living adjustment is applied to the first $14,000 of the maximum retirement allowance, computed without option modification. If not eligible by September 1999, payment will commence first of the month following eligibility.

(c) 2000 Supplement

Eligibility: Date of retirement is prior to 1997 and one of the following conditions is met:

(i) All disability pensioners who have been retired for at least 5 years,

(ii) Other pensioners who have attained (or will attain) age 62 and have been retired for at least 5 years,

(iii) Other pensioners who have attained (or will attain) age 55 and have been retired for at least 10 years and

(iv) All recipients of an accidental death benefit who have been in receipt of payments for at least 5 years.

Benefit: Commencing with the payment for the month of September 2000, the cost-of-living adjustment is applied to the first $18,000 of the maximum retirement allowance, computed without option modification. The cost-of-living adjustment is equal to the change in the CPI-U measured from year of retirement through 1997 multiplied by 50% (greater percentages exist if date of retirement is prior to 1968). If not eligible by September 2000, payment will commence first of the month following eligibility.

Surviving Spouse Eligibility: The surviving spouse of a deceased retired member who chose any joint and survivor option.

Surviving Spouse Benefit: Commencing with the payment for the month of September 2000, the benefit is equal to 50% of the 2000 supplementation which the pensioner would be receiving if living.

(d) Automatic Cost-of-Living Adjustment (COLA)

Eligibility: One of the following conditions is met:

(i) All disability pensioners who have been retired for at least 5 years,

(ii) Other pensioners who have attained (or will attain) age 62 and have been retired for at least 5 years,

(iii) Other pensioners who have attained (or will attain) age 55 and have been retired for at least 10 years and

(iv) All recipients of an accidental death benefit who have been in receipt of payments for at least 5 years.

Benefit: Commencing with the payment for the month of September 2001 and continuing each September thereafter, the COLA is applied to the first $18,000 of the maximum retirement allowance, computed without option modification plus any prior COLAs or supplementations. The cost-of-living adjustment is equal to the change in the CPI-U for the year ending March 31 multiplied by 50%. The resulting percentage is then rounded up to the next higher 0.1% and shall not exceed 3.0% nor be less than 1.0%. If not eligible by September 2001 or each September thereafter, payment will commence first of the month following eligibility.

Surviving Spouse Eligibility: The surviving spouse of a deceased retired member who chose any joint and survivor option.

Surviving Spouse Benefit: The benefit is equal to 50% of the automatic COLA benefit which the pensioner would be receiving if living and commence in the month following the death of the deceased member.

6. Normal and Optional Forms of Payment

The basic benefits described in the following sections are payable in the form of a life annuity. Other options are 100% and 50% contingent annuities with and without a popup feature, 5-year and 10-year certain and life annuities, and single life annuities with an insurance feature.

Benefits payable under the optional forms are actuarially adjusted to reflect the anticipated longer payment stream.

7. Maximum Benefit

Maximum benefits payable conforms to those legislated by the Tax Reform Act of 1986. For 2018, the maximum benefit is $220,000 and for 2019 it is $225,000.

8. Changes in Plan Provisions Since Prior Valuation

The deadline for filing a Notice of Participation in the World Trade Center Rescue, Recovery or Clean-Up Operations was further extended until September 11, 2022.

Effective December 18, 2017, certain members can use any surplus basic or additional member contributions to offset any deficits in such other contribution account.

## I. Tier 1 Employees

| | |
|---|---|
| 1. Eligibility | Members hired before July 1, 1973. |
| 2. Pensionable Compensation | |
| (a) Compensation | Greater of earned or earnable salary during the year prior to retirement. |
| (b) Final Compensation | Highest average earnings over five consecutive years. |
| (c) Compensation Limit | If hired after June 17, 1971, earnings in a year are limited to 120% of the preceding year. |
| 3. Benefits | |
| (a) Service Retirement | Eligibility: Attainment of age 50 and completion of 20 years of credited service.<br>Benefit:<br>1.5% for service before March 1, 1962, plus<br>2.0% for service from March 1, 1962 to June 30, 1970, plus<br>2.5% for service after June 30, 1970<br>The accumulated percentage above, up to a maximum of 50%, is multiplied by the member's Compensation. Once the accumulated percentage reaches 50%, the percentage for each further year of service reverts back to 1.5%. The percentage in excess of 50% is multiplied by the Final Compensation. |
| (b) Termination Benefits | Eligibility: Completion of 20 years of credited service.<br>Benefit: The Service Retirement Benefit with compensation and service calculated as of the date of termination. The benefit is deferred until age 50. |
| (c) Ordinary Death Benefits | Active Members<br>Eligibility: Completion of 6 months of credited service, but the benefit described below requires completion of 20 years of credited service.<br>Benefit: A lump sum equal to the present value of the retirement benefit under the Return of Reserve option.<br>Terminated Vested Members<br>If a member dies before age 50, a lump sum equal to the present value of the retirement benefit under the Return of Reserve option is payable (Death Gamble). |
| (d) Accidental Death Benefits | Eligibility: Death caused by on-the-job accident. World Trade Center Presumption may apply if certain criteria are met.<br>Benefit: The benefit equals 50% of Final Compensation. |

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| (e) Ordinary Disability Benefits | Eligibility: Completion of 10 years of credited service.<br><br>Benefit: The benefit equals the greater of the Service Retirement percentages described (a) above or 25% multiplied by Final Compensation. If eligible for a service retirement benefit, the greater of this benefit and the Service Retirement benefit is payable. |
| (f) Accidental Disability Benefits | Eligibility: Disability caused by on-the-job accident. World Trade Center Presumption may apply if certain criteria are met.<br><br>Benefit: The benefit equals 75% of the Final Compensation reduced by 100% of any worker's compensation payments. If eligible for a service retirement benefit, the greater of this benefit and the Service Retirement benefit is payable. |
| 4. Member Contributions | None |
| 5. Changes in Plan Provisions Since Prior Valuation | None |

## II. Tier 2 Employees

| | |
|---|---|
| 1. Eligibility | Members hired on or after July 1, 1973, and before July 27, 1976. |
| 2. Final Average Compensation | |
| (a) Final 3-Year Average Compensation: | Highest average earnings over three consecutive years. |
| (b) Final 5-Year Average Compensation: | Highest average earnings over five consecutive years. |
| (c) Compensation Limit: | Earnings in a year cannot exceed 120% of the average of the two preceding years. |
| 3. Benefits | |
| (a) Service Retirement | Eligibility: Attainment of age 55 and completion of 25 years of credited service.<br>Benefit: The benefit equals 50% of Final 3-Year Average Compensation for the first 20 years of credited service, plus 1.5% of Final 5-Year Average Compensation per year of credited service in excess of 20 years. |
| (b) Early Retirement | Eligibility: Attainment of age 50 and completion of 20 years of credited service.<br>Benefit: Determined in the same manner as the Service Retirement benefit but no greater than 2.0% of the Final 3-Year Average Compensation per year of credited service. |
| (c) Termination Benefits | Eligibility: Completion of 20 years of credited service.<br>Benefit: The benefit equals the Early Retirement benefit, with compensation and service calculated as of the date of termination. The benefit is deferred until age 50. If a member dies before age 50, 50% of the ordinary death benefit (below) is payable. |
| (d) Ordinary Death Benefit | Eligibility: Completion of 90 days of credited service.<br>Benefit: The benefit equals a lump sum equal to 3 times salary, raised to the next multiple of $1,000. |
| (e) Accidental Death Benefit | Eligibility: Death caused by on-the-job accident. World Trade Center Presumption benefits may apply if certain criteria are met.<br>Benefit: The benefit equals 50% of the Final 5-Year Average Compensation. |
| (f) Ordinary Disability Benefits | Eligibility: Completion of 10 years of credited service<br>Benefit: The benefit equals the greater of the Service Retirement percentage calculated in (a) above and 25% multiplied by Final 5-Year Average Compensation. If eligible for an Early or Service Retirement benefit, the greater of this benefit and the Early or Service Retirement benefit is payable. |

| | | |
|---|---|---|
| | (g) Accidental Disability Benefits | Eligibility: Disability caused by on-the-job accident. World Trade Center Presumption may apply if certain criteria are met.<br><br>Benefit: The benefit equals 75% of the Final 5-Year Average Compensation reduced by any worker's compensation payments. If eligible for an Early or Service Retirement benefit, the greater of this benefit and the Early or Service Retirement benefit is payable. |
| 4. | Member Contributions | None |
| 5. | Changes in Plan Provisions Since Prior Valuation | None |

**III. Tier 3 and Tier 4—Basic Age 62 & 5 Year Retirement Program**

1. Eligibility

Non-operating Members hired prior to June 28, 1995, who have not elected the 55 & 25 Plan. Members hired on or after July 27, 1976, and before September 1, 1983, are in Tier 3. Members hired on or after September 1, 1983, are in Tier 4.

2. Final Average Compensation

Highest average earnings during any three consecutive calendar-year~~s~~ periods, or the final 36 months immediately preceding the member's retirement date. Earnings used in the calculation cannot exceed 110% of the average of the two preceding years.

3. Benefits

(a) Service Retirement

Eligibility: Attainment of age 62 and completion of at least 5 years of credited service.

Benefit: If at least 20 years of credited service is completed, the benefit equals 2.0% of Final Average Compensation for first 30 years of credited service plus 1.5% of Final Average Compensation for years of credited service in excess of 30. If completed less than 20 years of credited service, the benefit equals 1-2/3% of Final Average Compensation multiplied by years of credited service.

(b) Early Retirement

Eligibility: Attainment of age 55 and completion of at least 5 years of credited service.

Benefit: 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.

(c) Termination Benefits

(i) Refund of Contributions

Eligibility: Completion of less than 10 years of Credited Service.

Benefit: The benefit equals a refund of the member's contributions accumulated with interest at a rate of 5.0%.

(ii) Vested Benefit

Eligibility: Completion of at least 5 years of credited service.

Benefit: The benefit equals the Service Retirement benefit with compensation and service calculated as of the date of termination. The benefit is deferred until age 62. A vested participant with less than 10 years of credited service may elect to receive the benefit in (i) above in lieu of this benefit. If a member with at least 10 years of credited service dies before commencing benefits, 50% of the ordinary death benefit (below) is payable. All accumulated regular contributions with interest are payable.

| | |
|---|---|
| (d) Ordinary Death Benefits | Eligibility: all members.<br><br>Pre-retirement Death Benefit: The benefit equals a lump sum of annual salary times completed years of credited service up to 3 years of service. After age 60, the benefit is reduced 5% per year, to a maximum reduction of 50%. Accumulated regular member contributions with interest. Post-retirement Death Benefit: Upon retirement, the pre-retirement benefit shall be 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.<br><br>Spouse Benefit (Tier 3 only)<br><br>Eligibility: Vested and spouse is beneficiary.<br><br>Benefit: In lieu of the ordinary death benefit above, the spouse may elect 1/3 of the ordinary death benefit plus an annuity of 1.0% of Final Average Compensation per year of credited service, payable for life, or until remarriage. If the surviving spouse is more than 10 years younger, the annuity is actuarially reduced. The total of all payments will at least equal the amount of the full lump sum benefit. |
| (e) Accidental Death Benefits | Eligibility: Death caused by on-the-job accident. World Trade Center Presumption may apply if certain criteria are met.<br><br>Benefit: The benefit equals 50% of compensation paid to eligible beneficiary as defined by priority:<br><br>(i) Spouse, until remarriage<br><br>(ii) Children, to age 25<br><br>(iii) Dependent parents<br><br>(iv) Any other dependent survivors, to age 21.<br><br>Total of all payments will at least equal the amount of the full ordinary death lump sum benefit |

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|---|---|
| (f) Ordinary and Accidental Disability Benefits | Eligibility: Completion of 10 years of credited service for ordinary. No minimum years of credited service required for accidental.<br><br>Benefit: The benefit equals the greater of 1-2/3% of Final Average Compensation per year of credited service and 1/3 of Final Average Compensation. If eligible for a Service Retirement benefit, the greater of this benefit and the Service Retirement benefit is payable. |
| 4. Member Contributions | Regular contribution rate of 3.0%. Regular contributions cease at the later of October 1, 2000, or the later of 10 years of membership or 10 years of credited service. |
| 5. Changes in Plan Provisions Since Prior Valuation | None |

**IV. Tier 3 and Tier 4—25 Year and Age 55 Retirement Programs**

1. Eligibility

All operating members hired prior to April 1, 2012 and non-operating members hired prior to July 26, 1994, who elected this program. Members hired on or after July 27, 1976, and before September 1, 1983, are in Tier 3. Members hired on or after September 1, 1983 and before April 1, 2012 are in Tier 4.

2. Final Average Compensation

Highest average earnings during any three consecutive calendar-year~~s~~ periods, or the final 36 months immediately preceding the member's retirement date. Earnings used in the calculation cannot exceed 110% of the average of the two preceding years.

3. Benefits

(a) Service Retirement

Eligibility: Attainment of age 55 and completion of at least 25 years of credited service, or attainment of age 62 and completion of at least 5 years of credited service.

Benefit: If completed less than 20 years of credited service, the benefit upon attainment of age 62 equals 1-2/3% of Final Average Compensation multiplied by years of credited service. If completed between 20 and 25 years of service, the benefit upon attainment of age 62 equals 2% of Final Average Compensation multiplied by years of credited service. If at least 25 years of credited service is completed, the benefit equals 2.0% of Final Average Compensation for the first 30 years of credited service plus 1.5% of Final Average Compensation for years of credited service in excess of 30. If age 62 with at least 20 years of credited service is completed, the benefit equals 2.0% of Final Average Compensation for the first 30 years of credited service plus 1.5% of Final Average Compensation for years of credited service in excess of 30. For non-operating employees who have attained age 62, a refund of one-half of the member's additional contributions accumulated at a rate of 5.0% is also payable.

(b) Termination Benefits

(i) Refund of Contributions

Eligibility: Less than 10 years of credited service.

Benefit: The benefit equals a refund of the basic member's accumulated contributions. All contributions are refunded with interest at a rate of 5.0% also payable.

(ii) Vested Benefit

Eligibility: Completion of at least 5 years of credited service.

Benefit: The benefit equals the Service Retirement benefit with compensation and service calculated as of the date of termination. The benefit is deferred until age 62 if credited service is less than 25 years, else the benefit is deferred until age 55 for operating employees only. For non-operating employees the benefit is payable at age 62 with less than 25 years or if both age and service has not been fulfilled. A vested participant with less than 10 years of credited service may elect to receive the benefit in (i) above in lieu of this benefit. If a member with at least 10 years of credited service dies before commencing benefits, 50% of the salary-related ordinary death benefit (below) plus accumulated regular contributions with interest and one-half of accumulated additional member contributions with interest are payable.

(c) Ordinary Death Benefits

Eligibility: All members.

Pre-retirement Death Benefit: The benefit equals a lump sum of annual salary times the completed years of credited service up to 3 years of service. 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.

Post-retirement Death Benefit: Upon retirement, the pre-retirement benefit shall be 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.

Spouse Benefit (Tier 3 only)

Eligibility: Vested and spouse is beneficiary.

Benefit: In lieu of the ordinary death benefit above, the spouse may elect 1/3 of the ordinary death benefit plus an annuity of 1.0% of Final Average Compensation per year of credited service, payable for life, or until remarriage. If the surviving spouse is more than 10 years younger, the annuity is actuarially reduced. The total of all payments will at least equal the amount of the full lump sum benefit.

| | |
|---|---|
| (d) Accidental Death Benefits | Eligibility: Death caused by on-the-job accident. World Trade Center Presumption may apply if certain criteria are met.<br><br>Benefit: The benefit equals 50% of compensation paid to eligible beneficiary as defined by priority:<br><br>(i) Spouse, until remarriage<br><br>(ii) Children, to age 25<br><br>(iii) Dependent parents<br><br>(iv) Any other dependent survivors, to age 21.<br><br>Total of all payments will at least equal the amount of the full ordinary death lump sum benefit. |
| (e) Ordinary and Accidental Disability Benefits | Eligibility: Completion of 10 years of credited service for ordinary. No minimum years of credited service requirement for accidental.<br><br>Benefit: The benefit equals the greater of 1-2/3% of Final Average Compensation per year of credited service and 1/3 of Final Average Compensation. If eligible for a Service Retirement benefit, the greater of this benefit and the Service Retirement benefit is payable. For non-operating employees, a refund of one-half of the member's additional contributions accumulated plus interest at a rate of 5.0% is also payable. |
| 4. Member Contributions | Operating Employees: Regular contribution rate of 2.0%. Additional 55/25 contributions were made through 2000. These contributions may be refunded effective November 2007 for TWU Local 100 and April 2008 for TSO Local 106.<br><br>Non-operating Employees: Regular contribution rate of 3.0%. Regular contributions cease at the later of October 1, 2000 or after the later of 10 years of membership or 10 years of credited service. Additional contribution rates were 4.35%, 2.85% and 1.85%, of which 1.85% ceases after 30 years of credited service. |
| 5. Changes in Plan Provisions Since Prior Valuation | None |

## V. Tier 4—Age 57 & 5 Year Retirement Program

| | |
|---|---|
| 1. Eligibility | Non-operating members hired on or after June 28, 1995 and prior to April 1, 2012. Members hired on or after September 1, 1983 and before April 1, 2012 are in Tier 4. |
| 2. Final Average Compensation | Highest average earnings during any three consecutive calendar-years periods, or the final 36 months immediately preceding the member's retirement date. Earnings used in the calculation cannot exceed 110% of the average of the two preceding years. |
| 3. Benefits | |
| (a) Service Retirement | Eligibility: Attainment of age 57 and completion of at least 5 years of credited service.<br><br>Benefit: If less than 20 years of credited service are completed, the benefit equals 1.67% of Final Average Compensation multiplied by years of credited service. If between 20 and 30 years of credited service are completed, the benefit equals 2% of Final Average Compensation multiplied by years credited service. If more than 30 years are completed, 2% of Final Average Compensation multiplied by years of credited service plus 1.5% of Final Average Compensation multiplied by years of credited service in excess of 30. For non-operating employees who have attained age 62, a refund of one-half of the member's additional contributions accumulated plus interest at a rate of 5.0% is also payable. |
| (b) Termination Benefits | (i) Refund of Contributions<br><br>Eligibility: Completion of less than 10 years of credited service.<br><br>Benefit: The benefit equals a refund of the member's basic accumulated contributions and 50% of additional member contributions plus interest at a rate of 5.0%.<br><br>(ii) Vested Benefit<br><br>Eligibility: Completion of at least 5 years of credited service.<br><br>Benefit: The benefit equals the Service Retirement benefit with compensation and service calculated as of the date of termination. The benefit is deferred until age 57. A vested participant with less than 10 years of credited service may elect to receive the benefit in (i) above in lieu of this benefit. If a member with at least 10 years of credited service dies before commencing benefits, 50% of the salary-related ordinary death benefit (below) is payable. All accumulated regular contributions with interest and one-half of accumulated additional member contributions with interest are payable. |

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|---|---|
| (c) Ordinary Death Benefits | Eligibility: All members<br><br>Pre-retirement Death Benefit: The benefit equals a lump sum of annual salary times completed years of credited service up to 3 years of service. 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.<br><br>Post-retirement Death Benefit: Upon retirement, the pre-retirement benefit shall be 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. |
| (d) Accidental Death Benefits | Eligibility: Death caused by on-the-job accident. World Trade Center Presumption may apply if certain criteria are met.<br><br>Benefit: The benefit equals 50% of final 1-year compensation paid to eligible beneficiary as defined by priority:<br><br>(i) Spouse, until remarriage<br><br>(ii) Children, to age 25<br><br>(iii) Dependent parents<br><br>(iv) Any other dependent survivors, to age 21.<br><br>Total of all payments will at least equal the amount of the full ordinary death lump sum benefit. |
| (e) Ordinary and Accidental Disability Benefits | Eligibility: Completion of 10 years of credited service for ordinary. No minimum years of credited service requirement for accidental.<br><br>Benefit: The benefit equals the greater of 1-2/3% of Final Average Compensation per year of credited service and 1/3 of Final Average Compensation. If eligible for Service Retirement benefit, the greater of this benefit and the Service Retirement benefit is payable. For non-operating employees, a refund of one-half of the member's additional contributions accumulated at a rate of 5.0% is also payable. |
| 4. Member Contributions | Regular contribution rate of 3.0%. Regular contributions cease at the later of October 1, 2000, or after the later of 10 years of membership or 10 years of credited service. Additional contribution rates were 4.35%, 2.85% and 1.85% of which 1.85%, ceases after 30 years of credited service. |
| 5. Changes in Plan Provisions Since Prior Valuation | None |

## VI. Tier 6—25 and Age 55 Retirement Program

1. Eligibility

   All operating members hired on or after April 1, 2012.

2. Final Average

   Highest average pensionable earnings over five consecutive years. Pensionable earnings exclude any overtime earnings, defined as compensation paid at a rate greater than the standard rate, in excess of the overtime cap. The overtime cap is indexed annually and is $16,048 for 2017. Pensionable earnings also exclude wages in excess of the annual salary paid to the Governor of New York, lump sum payments for sick leave, accumulated vacation and other credits for time not worked, termination pay and any additional compensation paid in anticipation of retirement. Pensionable earnings in a year cannot exceed 110% of the average of the four preceding years.

3. Benefits

   (a) Service Retirement

   Eligibility: Attainment of age 55 and completion of at least 25 years of credited service, or attainment of age 63 and completion of at least 10 years of credited service.

   Benefit: If completed at least 25 years of credited service, the benefit equals 2.0% of Final Average Salary for the first 30 years of credited service plus 1.5% of Final Average Salary for years of credited service in excess of 30. If completed less than 20 years of credited service, 1.67% of Final Average Salary multiplied by years of credited service. If completed between 20 to 25 of credited service, 35% of Final Average Salary for first 20 years of credited service, plus 2% of Final Average Salary for years of credited service in excess of 20.

   (b) Termination Benefits

   (i) Refund of Contributions

   Eligibility: Completion of less than 10 years of credited service.

   Benefit: The benefit equals a refund of the member's contributions accumulated plus interest at a rate of 5.0%.

   (ii) Vested Benefit

   Eligibility: Completion of at least 10 years of credited service.

   Benefit: The benefit equals the Service Retirement benefit with compensation and service calculated as of the date of termination. The benefit equals the Service Retirement benefit with compensation and service calculated as of the date of termination. The vested benefit is deferred until age 63 if credited service is less than 25 years, else the benefit is deferred until age 55. If a member with at least 10 years of credited service dies before commencing benefits, 50% of the salary-related ordinary death benefit (below) plus accumulated regular contributions with interest are payable.

(c) Ordinary Death Benefits

Eligibility: All members

Pre-retirement Death Benefit: The benefit equals a lump sum of annual salary times completed years of credited service up to 3 years of service. 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.

Post-retirement Death Benefit: Upon retirement, the pre-retirement benefit shall be 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.

(d) Accidental Death Benefits

Eligibility: Death caused by on-the-job accident. World Trade Center Presumption may apply if certain criteria are met.

Benefit: The benefit equals 50% of wages earned during last year of service or annual wage rate if less than one year of service, paid to eligible beneficiary as defined by priority:

(i) Spouse, until remarriage

(ii) Children, to age 25

(iii) Dependent parents

(iv) Any other dependent survivors, to age 21.

Total of all payments will at least equal the amount of the full ordinary death lump sum benefit.

(e) Ordinary and Accidental Disability Benefits

Eligibility: Completion of 10 years of credited service for ordinary. No minimum years of credited service requirement for accidental.

Benefit: The benefit equals the greater of 1-2/3% of Final Average Salary per year of credited service and 1/3 of Final Average Salary. If eligible for a Service Retirement benefit, the greater of this benefit and the Service Retirement benefit is payable.

4. Member Contributions

Regular contribution rate varies based on gross wages earned during two plan years (January 1 to December 31) prior to applicable plan year based on following table. For first three years, a projection of annual wages will be used. The rate for the plan year ending March 31, 2013 for all Tier 6 employees is 2%.

| Annual Wages Earned During Plan Year | Contribution Rate |
|---|---|
| Up to $45,000 | 3.00% |
| $45,001–$55,000 | 3.50% |
| $55,001–$75,000 | 4.50% |
| $75,001–$100,000 | 5.75% |
| Greater than $100,000 | 6.00% |

5. Changes in Plan Provisions Since Prior Valuation

None

## VII. Tier 6—Age 63 and 10 Year Retirement Program

1. Eligibility

All non-operating members hired on or after April 1, 2012.

2. Final Average Compensation

Highest average pensionable earnings over five consecutive years. Pensionable earnings exclude any overtime earnings, defined as compensation paid at a rate greater than the standard rate, in excess of the overtime cap. The overtime cap is indexed annually and is $16,048 for 2017. Pensionable earnings also exclude wages in excess of the annual salary paid to the Governor of New York, lump sum payments for sick leave, accumulated vacation and other credits for time not worked, termination pay and any additional compensation paid in anticipation of retirement. Pensionable earnings in a year cannot exceed 110% of the average of the four preceding years.

3. Benefits

(a) Service Retirement

Eligibility: Attainment of age 63 and completion of at least 10 years of credited service.

Benefit: If completed less than 20 years of credited service, the benefit equals 1.67%% of Final Average Salary multiplied by years of credited service. If completed at least 20 years of credited service, 35% of Final Average Salary for the first 20 years of credited service, plus 2% of Final Average Salary times each year of credited service in excess of 20.

(b) Early Retirement

Eligibility: Attainment of age 55 and completion of at least 10 years of credited service.

Benefit: The benefit equals the Service Retirement benefit reduced by 6.5% for each year prior to age 63.

(c) Termination Benefits

(i) Refund of Contributions

Eligibility: Completion of less than 10 years of credited service.

Benefit: The benefit equals a refund of the member's contributions accumulated plus interest at a rate of 5.0%.

(ii) Vested Benefit

Eligibility: Completion of at least 10 years of credited service.

Benefit: The benefit equals the Service Retirement benefit with compensation and service calculated as of the date of termination. The benefit is deferred until age 63. If a member with at least 10 years of credited service dies before commencing benefits, 50% of the salary-related ordinary death benefit (below) plus accumulated regular contributions with interest are payable.

| | |
|---|---|
| (d) Ordinary Death Benefits | Eligibility: All members<br><br>Pre-retirement Death Benefit: The benefit equals a lump sum of annual salary times the completed years of credited service up to 3 years of service. 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.<br><br>Post-retirement Death Benefit: Upon retirement, the pre-retirement benefit shall be 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. |
| (e) Accidental Death Benefits | Eligibility: Death caused by on-the-job accident. World Trade Center Presumption may apply if certain criteria are met.<br><br>Benefit: The benefit equals 50% of wages participant earned during last year of service or annual wage rate if less than one year of service, paid to eligible beneficiary as defined by priority:<br><br>(i) Spouse, until remarriage<br><br>(ii) Children, to age 25<br><br>(iii) Dependent parents<br><br>(iv) Any other dependent survivors, to age 21.<br><br>Total of all payments will at least equal the amount of the full ordinary death lump sum benefit. |
| (f) Ordinary and Accidental Disability Benefits | Eligibility: Completion of 10 years of credited service for ordinary. No minimum years of credited service requirement for accidental.<br><br>Benefit: The benefit equals the greater of 1-2/3% of Final Average Salary per year of credited service and 1/3 of Final Average Salary. If eligible for Service Retirement benefit, the greater of this benefit and the Service Retirement benefit is payable. |

4. Member Contributions

Regular contribution rate varies based on gross wages earned during two plan years (January 1 to December 31) prior to applicable plan year based on following table. For first three years, a projection of annual wages will be used. The rate for the plan year ending March 31, 2013 for all Tier 6 employees is 3%.

| Annual Wages Earned During Plan Year | Contribution Rate |
|---|---|
| Up to $45,000 | 3.00% |
| $45,001–$55,000 | 3.50% |
| $55,001–$75,000 | 4.50% |
| $75,001–$100,000 | 5.75% |
| Greater than $100,000 | 6.00% |

5. Changes in Plan Provisions Since Prior Valuation

None

## 2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES AND PLAN ASSET MATTERS

**Basis of Accounting**—The Plan is accounted for on the accrual basis of accounting under which deductions are recorded when the liability is incurred and additions are recognized in the accounting period in which they are earned. Benefits and refunds are recognized when due and payable in accordance with the terms of the Plan. Contributions from members are recorded when the employer makes payroll deductions from plan members. Employer contributions are recognized when due in accordance with the terms of the Plan. Additions to the Plan consist of contributions (member and employer) and net investment income.

The accounting and reporting policies of the Plan conform to accounting principles generally accepted in the United States of America (GAAP).

**New Accounting Standards Adopted** – The Plan adopted the following GASB Statement for the year-ended December 31, 2019:

GASB Statement No. 84, *Fiduciary Activities*, improves guidance regarding the identification of fiduciary activities for accounting and financial reporting purposes and how those activities should be reported. The requirements of GASB Statement No. 84 are effective for reporting periods beginning after December 15, 2019. The adoption of this Statement had no impact on the Plan's financial statements.

GASB Statement No. 95, *Postponement of Effective Dates of Certain Authoritative Guidance,* provides temporary relief to government and other stakeholders in light of the COVID-19 pandemic. This objective is accomplished by postponing the effective dates of certain accounting and financial reporting provisions in Statements and Implementation Guides that first became effective for periods beginning after June 15, 2018 and later. GASB Statement No. 95 is effective immediately. The adoption of this Statement had no impact on the Plan's financial statements. However, the Plan did update the required year of adoption for GASB Statement No. 92. Refer to Accounting Standards Issued but Not Yet Adopted for further details.

**Accounting Standards Issued but Not Yet Adopted**

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

| GASB Statement No. | GASB Accounting Standard | MaBSTOA Pension Plan Required Year of Adoption |
|---|---|---|
| 92 | *Omnibus 2020* | 2022 |

**Methods Used to Value Investments**—Investments are stated at fair value or Net Asset Value ("NAV") which approximates fair value. Fair value is the amount that the Plan can reasonably expect to receive for an investment in a current sale between a willing buyer and a willing seller, that is, other than a forced or liquidation sale. All investments, with the exception of alternative investments are valued based on closing market prices or broker quotes.

Traded securities are stated at the last reported sales price on a national securities exchange on the last business day of the fiscal year. Securities purchased pursuant to agreements to resell are carried at the contract price, exclusive of interest, at which the securities will be resold. Alternative investments are valued based on the most current net asset values.

Purchases and sales of securities are reflected on the trade date.

Dividend income is recorded on the ex-dividend date. Interest income is recorded as earned on an accrual basis.

**Use of Estimates—**The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires the Authority to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosures of contingent assets and liabilities at the date of the financial statements and reported amounts of revenues and expenses during the reporting period. Accordingly, actual results could differ from these estimates.

**Risks and Uncertainties—**The Plan's investments are exposed to various risks, such as interest rate, market, and credit risk. Due to the level of risk associated with certain investment securities and level of uncertainty related to changes in the value of investment securities, it is possible that changes in risks in the near term would materially affect the amounts reported in the Plan's financial statements.

**Income Taxes**—The Plan is designed to satisfy the applicable requirements for governmental plans under Section 401(a) of the Internal Revenue Code. Accordingly, the Plan is tax-exempt and is not subject to the provisions of ERISA. Therefore, income retained by the Plan is not subject to Federal income tax.

## 3. CASH AND INVESTMENTS

**Investment Committee**—The Plan's policy statement is issued for the guidance of fiduciaries, including the members of the Board and investment managers, in the course of investing the assets of the Trust. The investments of the Trust will be made for the exclusive benefit of the Plan participants and their beneficiaries. Policy guidelines may be amended by the Board upon consideration of the advice and recommendations of the investment professionals.

In order to have a reasonable probability of achieving the target return at an acceptable risk level, the Board has adopted the asset allocation policy outlined below. The actual asset allocation will be reviewed on, at least, a quarterly basis and will be readjusted when an asset class weighting is outside its target range. The following was the MaBSTOA Pension Plan Board adopted asset allocation policy as at December 31, 2019.

| Asset Class | Target Allocation (%) | Target Range (%) | Policy Benchmark |
|---|---|---|---|
| Equities | 29.0 | 24-34 | |
| Domestic Large Cap | 10.0 | 5-15 | S&P 500 |
| Domestic Small Cap | 5.5 | 2-10 | Russell 2000 |
| International Developed Markets Equities | 10.0 | 5-15 | MSCI EAFE |
| Emerging Markets Equities | 3.5 | 2-6 | MSCI Emerging Markets |
| Fixed Income | 15.0 | 9-21 | Manager Specific |
| Global Asset Allocation* | 20.0 | 15-33 | 50% World Equity/ 50% Citigroup WGBI unhedged |
| Opportunistic Investments | 6.0 | 0-15 | Manager Specific |
| Absolute Return | 15.0 | 10-22 | Manager Specific |
| Real Assets | 5.0 | 0-10 | Manager Specific |
| Real Estate | 3.0 | 0-10 | Manager Specific |
| Private Equity | 7.0 | 0-10 | Venture Economics |
| **Total** | **100.0** | | |

* The Global Asset Allocation managers will invest across numerous liquid asset classes including: stocks, bonds, commodities, TIPS and REITs.

**Investment Objective** — The investment objective of Plan is to achieve the actuarial return target with an appropriate risk position.

**Investment Guidelines** — The Board of Pension Managers executes investment management agreements with professional investment management firms to manage the assets of the Plan. The fund managers must adhere to guidelines that have been established to limit exposure to risk.

The overall capital structure targets and permissible ranges for eligible asset classes of the Trust are detailed within the Investment Policy Statement. Full discretion, within the parameters of the guidelines described herein and in any individual investment policy associated with that allocation, is granted to the investment managers regarding the asset allocation, the selection of securities, and the timing of transactions. It is anticipated that the majority of investment managers will be funded through commingled funds, however, in some cases (likely equity and fixed income mandates) separate account vehicles may be utilized. For separate accounts, individual manager guidelines and/or exemptions are specified in each approved investment management agreement (IMA). Should there be conflicts, the individual manager guidelines set forth in the IMA supersede the general guidelines in the Investment Policy Statement. For commingled funds, investment guidelines and/or exemptions are specified in such vehicle's offering documents. Should there be conflicts, the individual vehicle's investment guidelines supersede the general guidelines in the Investment Policy Statement.

Individual investment manager benchmarks and performance requirements are specified within the Investment Policy Statement. Performance of the Trust will be evaluated on a regular basis. Evaluation will include the degree to which performance results meet the goals and objectives as herewith set forth.

Toward that end, the following standards will be used in evaluating investment performance:

1. The compliance of each investment manager with the guidelines as expressed herein, and
2. The extent to which the total rate of return performance of the Trust achieves or exceeds the targeted goals.

**Fixed Income Investment Managers**

- Domestic fixed income investments are permitted, subject to the guidelines reflected in Investment Policy Statement. Yankee bonds, which are dollar denominated foreign securities, may be held by each domestic manager in proportions which each manager shall deem appropriate.

- International fixed income securities are permitted, subject to the guidelines reflected in Investment Policy Statement. Generally defined, the Citigroup World Government Bond Index represents the opportunity set for international developed markets. The J.P. Morgan Emerging Markets Bond Index-Global represents the opportunity set for international emerging markets denominated in USD. The J.P. Morgan GBI-EM Global Diversified Index represents the opportunity set for international emerging markets denominated in local currency. These index references are guidelines and do not prohibit investment in securities outside those indexes.

- Investment managers are responsible for making an independent analysis of the credit worthiness of securities and their suitability as investments regardless of the classifications provided by rating agencies.

- The average duration (interest rate sensitivity) of an actively managed fixed income portfolio shall range within two years of the benchmark's duration.

- For domestic fixed income portfolios, individual manager account for the securities of an individual issuer, excepting the U.S. government and U.S. government agencies, shall not constitute more than 5% at market at any time.

- For international bond portfolios, individual manager account for the securities of any non-governmental issuer shall not constitute more than 5% at market at any time.

**Equity Investment Managers**

- Domestic equity investments are permitted, subject to the guidelines. American Depository Receipts (ADRs), which are dollar denominated foreign securities traded on the domestic U.S. stock exchanges (e.g., Reuters, Nestle, Sony) may be held by each domestic stock manager in proportions which each manager shall deem appropriate.

- International equities are permitted, subject to the guidelines. Generally defined, the Morgan Stanley EAFE (Europe, Australasia and the Far East) Index represents the opportunity set for international developed markets. The Morgan Stanley Emerging Markets Free Index represents the opportunity set for international emerging markets. These index references are guidelines and do not prohibit investment in securities outside those indexes.

- The equity specialists may vary equity commitment from 90% to 100% of assets under management.

- Individual manager account may hold no more than 8% at market or 1.5x the manager's benchmark weight (whichever is greater) of any single company's stock.

**Overlay Manager(s)**

- For a variety of reasons, the investment program may carry large amounts of cash throughout the year. In order to achieve the actuarial assumed returns on the total investment program, the Board may retain a futures overlay manager. The overlay manager shall use exchange traded futures contracts to expose the cash to the long-term target asset allocation.

- In addition, the overlay manager may be utilized for the following:
  a) Expose un-invested assets of domestic and international equity investment managers to their respective equity benchmarks through the use of futures contracts,
  b) Assist the Board in rebalancing, transitions, and/or gaining exposure to approved asset classes,
  c) Provide the market (or "beta") exposures in a portable alpha program.
  d) The overlay manager shall ensure that all futures positions are fully collateralized and the manager is prohibited from leveraging any portion of the portfolio.

**Alternative Investments Managers**

Alternative investments are broadly categorized into the following categories:
- Opportunistic
- Real assets
- Real estate
- Absolute return
- Private equity

Common features of alternative investments are limited liquidity, the use of derivatives, leverage and shorting, lower regulatory oversight, limited transparency, and high fees. Compensating for these risks, these investments offer the potential of diversification and/or higher rates of return over time.

**Derivatives Policy**

Where appropriate, investment managers may use derivative securities for the following reasons:
- Hedging. To the extent that the portfolio is exposed to clearly defined risks and there are derivative contracts that can be used to reduce those risks, the investment managers are permitted to use such derivatives for hedging purposes, including cross-hedging of currency exposures.

- Creation of Market Exposures. Investment managers are permitted to use derivatives to replicate the risk/return profile of an asset or asset class provided that the guidelines for the investment manager allow for such exposures to be created with the underlying assets themselves.

- Management of Country and Asset Allocation Exposure. Investment managers charged with tactically changing the exposure of their portfolio to different countries and/or asset classes are permitted to use derivative contracts for these purposes.

- Additional uses of derivatives shall be approved by the Board or set forth in the individual investment guidelines or the offering documents prior to implementation and shall be restricted to those specific investment managers.

**Ineligible Investments (Separately Managed Accounts)**

Unless specifically approved by the Board or set forth in the individual investment guidelines, certain securities, strategies and investments are ineligible for inclusion within separately managed accounts. Among these are:

- Privately-placed or other non-marketable debt, except securities issued under Rule 144a,
- Lettered, legend or other so-called restricted stock,
- Commodities
- Short sales, and,
- Direct investments in private placements, real estate, oil and gas and venture capital, or funds comprised thereof.

**Exceptions:**

The Board of Managers, in recognition of the benefits of commingled funds as investment vehicles (i.e., the ability to diversify more extensively than in a small, direct investment account and the lower costs which can be associated with these funds) may, from time to time, allow investment in such funds. The Board recognizes that it cannot give specific policy directives to a fund; therefore, the Board, with assistance of the investment advisor, will assess and monitor the investments of any funds used by the Plan to ascertain whether they are appropriate.

**Investment Valuation and Income Recognition** — Investments are presented at fair value based on information provided by JP Morgan Chase (the "trustee"), New England Pension Consultant ("NEPC"), and the investment managers. The fair value of investments is based on published market prices and quotations from major investment brokers at current exchange rates, as available, or net asset value, which is determined to be a practical expedient for measuring fair value. Many factors are considered in arriving at that value. All investments are registered, with securities held by the Plan's trustee, in the name of the Plan. Gains and losses on investments that were sold during the year are included in in the statement of plan net position.

**Risks and Uncertainties** — The Plan's investments are exposed to various risks, such as interest rate, market, and credit risk. Due to the level of risk associated with certain investment securities and level of uncertainty related to changes in the value of investment securities, it is possible that changes in risks in the near term would materially affect the amounts reported in the Plan's financial statements.

The financial markets, both domestically and internationally, have demonstrated significant volatility on a daily basis, which affects the valuation of investments. The Plan utilizes asset allocation strategies that are intended to optimize investment returns over time in accordance with investment objectives and with acceptable levels of risk.

**Investments measured at readily determined fair value (FV)**
**(In thousands)**

| | December 31, 2019 | Quoted Price in Active Markets for Identical Assets Level 1 | Significant Other Observable Inputs Level 2 | Significant Unobservable Inputs Level 3 |
|---|---|---|---|---|
| Equity Securities: | | | | |
| Separate account large-cap equity funds | $ 118,621 | $ 118,621 | $ - | $ - |
| Separate account small-cap equity funds | 172,206 | 172,206 | - | - |
| Separate account real estate investment trust funds | 31,279 | 31,279 | - | - |
| Total equity investments | 322,106 | 322,106 | - | |
| Debt Securities | | | | - |
| Separate account debt funds | 209,514 | - | 209,514 | - |
| Total debt investments | 209,514 | - | 209,514 | - |
| Total investments at readily determined FV | $ 531,620 | $ 322,106 | $ 209,514 | $ - |

**Investments measured at the net asset value (NAV)**
**(In thousands)**

| | December 31, 2019 | Unfunded Commitments | Redemption Frequency | Redemption Notice Period |
|---|---|---|---|---|
| Equity Securities: | | | | |
| Commingled large cap equity funds | $ 257,946 | $ - | Daily | None |
| Commingled international equity funds | 413,068 | - | Daily | None |
| Commingled emerging market equity funds | 142,108 | - | Daily, monthly | None |
| Total equity investments measured at the NAV | 813,122 | - | | |
| Debt Securities | | | | |
| Commingled debt funds | 143,605 | - | Daily, monthly, quarterly | None |
| Mutual fund | 47,234 | - | Daily | None |
| Total debt investments measured at the NAV | 190,839 | - | | |
| Absolute return: | | | | |
| Directional | 115,404 | - | Monthly | 3-60 days |
| Direct lending | 148,369 | 29,019,538 | Bi-annually | 60 plus days |
| Distressed securities | 40,435 | - | Not eligible | N/A |
| Credit long | 35,268 | - | Quarterly | 3-30 days |
| Credit long/short | 64,127 | - | Quarterly | 3-60 days |
| Equity long/short | 41,680 | - | Quarterly | 3-60 days |
| Event driven | 56,173 | 2,093,427 | Quarterly, Bi-annually | 60-120 days |
| Global macro | 97,028 | - | Monthly | 3-30 days |
| Global tactical asset allocation | 123,807 | - | Daily, monthly | 3-30 days |
| Multistrategy | 86,768 | - | Quarterly | 3-60 days |
| Risk parity | 273,031 | - | Monthly | 3-30 days |
| Structured credit | 1,997 | - | Not eligible | N/A |
| Total absolute return measured at the NAV | 1,084,087 | 31,112,965 | | |
| Private equity - private equity partnerships | 259,111 | 157,623,294 | Not eligible | N/A |
| Real assets | | | | N/A |
| Commingled commodities fund | 58,905 | - | Not eligible | N/A |
| Commingled real estate funds | 93,813 | - | Not eligible | N/A |
| Energy | 89,898 | 50,462,022 | Not eligible | N/A |
| Infrastructure | 19,395 | 3,059,682 | Not eligible | N/A |
| Total real assets measured at the NAV | 262,011 | 53,521,704 | | |
| Short term investments measured at the NAV | 121,120 | - | | |
| Total investments measured at the NAV | 2,730,290 | $ 242,257,963 | | |
| Total investments at fair value | $ 3,261,910 | | | |

**Investments measured at readily determined fair value (FV)**
**(In thousands)**

| | December 31, 2018 | Quoted Price in Active Markets for Identical Assets Level 1 | Significant Other Observable Inputs Level 2 | Significant Unobservable Inputs Level 3 |
|---|---|---|---|---|
| Equity Securities: | | | | |
| Separate account large-cap equity funds | $ 85,650 | $ 85,650 | $ - | $ - |
| Separate account small-cap equity funds | 136,628 | 136,628 | - | - |
| Separate account real estate investment trust funds | 24,296 | 24,296 | - | - |
| Total equity investments | 246,574 | 246,574 | - | |
| Debt Securities | | | | - |
| Separate account debt funds | 186,969 | - | 186,969 | - |
| Total debt investments | 186,969 | - | 186,969 | - |
| Total investments at readily determined FV | $ 433,543 | $ 246,574 | $ 186,969 | $ - |

**Investments measured at the net asset value (NAV)**
**(In thousands)**

| | December 31, 2018 | Unfunded Commitments | Redemption Frequency | Redemption Notice Period |
|---|---|---|---|---|
| Equity Securities: | | | | |
| Commingled large cap equity funds | $ 174,270 | $ - | Daily | None |
| Commingled international equity funds | 326,065 | - | Daily | None |
| Commingled emerging market equity funds | 81,142 | - | Daily, monthly | None |
| Total equity investments measured at the NAV | 581,477 | - | | |
| Debt Securities | | | | |
| Commingled debt funds | 161,192 | - | Daily, monthly, quarterly | None |
| Mutual fund | 43,662 | - | Daily | None |
| Total debt investments measured at the NAV | 204,854 | - | | |
| Absolute return: | | | | |
| Directional | 89,472 | - | Monthly | 3-60 days |
| Direct lending | 134,954 | 9,046,957 | Bi-annually | 60 plus days |
| Distressed securities | 43,766 | - | Not eligible | N/A |
| Credit long | 32,728 | - | Quarterly | 3-30 days |
| Credit long/short | 59,953 | - | Quarterly | 3-60 days |
| Equity long/short | 38,792 | - | Quarterly | 3-60 days |
| Event driven | 53,418 | 2,093,427 | Quarterly, Bi-annually | 60-120 days |
| Global macro | 96,755 | - | Monthly | 3-30 days |
| Global tactical asset allocation | 162,712 | - | Daily, monthly | 3-30 days |
| Multistrategy | 75,956 | - | Quarterly | 3-60 days |
| Risk parity | 232,379 | - | Monthly | 3-30 days |
| Structured credit | 5,277 | - | Not eligible | N/A |
| Total absolute return measured at the NAV | 1,026,162 | 11,140,384 | | |
| Private equity - private equity partnerships | 222,078 | 148,578,605 | Not eligible | N/A |
| Real assets | | | | N/A |
| Commingled commodities fund | 51,738 | - | Not eligible | N/A |
| Commingled real estate funds | 102,439 | - | Not eligible | N/A |
| Energy | 67,528 | 14,156,595 | Not eligible | N/A |
| Infrastructure | 19,466 | 5,526,340 | Not eligible | N/A |
| Total real assets measured at the NAV | 241,171 | 19,682,935 | | |
| Short term investments measured at the NAV | 103,701 | - | | |
| Total investments measured at the NAV | 2,379,443 | $ 179,401,924 | | |
| Total investments at fair value | $ 2,812,986 | | | |

**Concentration of Credit Risk** – Individual investments held by the Plan that represents 5.0% or more of the Plan's net assets available for benefits at December 31, 2019 and 2018 are as follows:

| **(In thousands)** | | **2019** | | **2018** |
|---|---|---|---|---|
| Investments at fair value as determined by quoted market prices: | | | | |
| Johnston International | $ | 164,632 | $ | - |
| Robert W. Baird and Company | | 177,380 | | 158,405 |

**Credit Risk** — At December 31, 2019 and 2018, the following credit quality rating has been assigned by a nationally recognized rating organization:

| **(In thousands)**<br>**Quality Rating** | | **2019 Fair Value** | **Percentage of Fixed Income Portfolio** | | **2018 Fair Value** | **Percentage of Fixed Income Portfolio** |
|---|---|---|---|---|---|---|
| AAA | $ | 296,012 | 25.49 % | $ | 90,620 | 9.02 % |
| AA | | 77,508 | 6.67 | | 142,058 | 14.14 |
| A | | 111,021 | 9.56 | | 56,656 | 5.64 |
| BBB | | 92,029 | 7.92 | | 67,683 | 6.73 |
| BB | | 98,600 | 8.49 | | 83,413 | 8.30 |
| B | | 68,800 | 5.92 | | 58,869 | 5.86 |
| CCC | | 18,536 | 1.60 | | 12,902 | 1.28 |
| CC | | 4,482 | 0.39 | | 113 | 0.01 |
| C | | 2,785 | 0.24 | | 993 | 0.10 |
| D | | 5,032 | 0.43 | | 4,544 | 0.45 |
| Not Rated | | 235,827 | 20.30 | | 253,222 | 25.20 |
| Credit risk debt securities | | 1,010,632 | 87.01 | | 771,073 | 76.73 |
| U.S. Government bonds | | 150,818 | 12.99 | | 233,849 | 23.27 |
| Total fixed income securities | | 1,161,450 | 100.00 % | | 1,004,922 | 100.00 % |
| Other securities not rated — equity, international funds and foreign corporate bonds | | 2,100,460 | | | 1,808,064 | |
| Total investments | $ | 3,261,910 | | $ | 2,812,986 | |

**Interest Rate Risk Exceptions** — 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 sensitivity to 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. Modified duration is an indicator of bond price's sensitivity to a parallel 100 basis point change in interest rates.

| (In thousands) | 2019 | | 2018 | |
|---|---|---|---|---|
| Investment Fund | Fair Value | Duration | Fair Value | Duration |
| Chase | $ 209,514 | 6.30 | $ 186,969 | 12.81 |
| Wellington Blended Emerging Market Debt | 46,412 | 6.44 | 42,167 | 5.44 |
| Allianz Structured Alpha Fund | 115,404 | 0.13 | 89,472 | 0.13 |
| GAM Unconstrained Bond Fund | - | - | 20,702 | 0.10 |
| Bridgewater All Weather Fund | 120,924 | 5.60 | 66,694 | 8.30 |
| Wellington Opportunistic | - | - | 39,390 | 1.52 |
| Wellington Fixed Income | 1,681 | 5.80 | - | - |
| Bridgewater Pure Alpha | 40,478 | 1.30 | 164,759 | (0.90) |
| Northern Trust William Capital | 10,537 | - | 10,272 | - |
| Park Square Capital Credit Opportunities Fund II | 23,300 | 0.18 | 25,529 | - |
| Park Square Capital Credit Opportunities Fund III | 25,280 | 0.13 | 10,009 | - |
| Crescent Capital High Income Fund | 28,908 | 2.92 | 37,893 | 2.56 |
| EIG Energy Fund XV | 2,083 | - | 2,761 | - |
| EIG Energy Fund XVI | 1,389 | - | 3,863 | - |
| Libremax Partners Fund | 98,967 | 2.82 | 59,954 | 2.63 |
| Gramercy Distressed Opportunistic Fund | 29,060 | (0.07) | 16,017 | 0.26 |
| Makuria Credit Fund | 13,253 | 5.38 | 12,182 | 5.38 |
| Orchard Landmark Fund | 76,747 | 1.18 | 70,511 | 1.44 |
| PIMCO Distressed Credit Opportunities Fund | 35,268 | 2.83 | 32,728 | 2.18 |
| Wellington Global Managed Fund | 168,843 | 10.70 | 55,285 | 6.20 |
| State Street Real Asset Fund | 58,905 | 4.67 | 12,947 | 5.84 |
| State Street Long US Treasury Index Fund | 22,603 | 18.06 | 19,682 | 17.38 |
| Riverstone Credit Partners Fund | 16,675 | 4.00 | 12,144 | 4.00 |
| Riverstone Credit Partners Syndication Fund | 3,603 | 4.00 | 1,202 | 4.00 |
| Canyon Value | 11,616 | 2.44 | 11,790 | 3.26 |
| Total fixed income securities | 1,161,450 | | 1,004,922 | |
| Portfolio modified duration | | 4.82 | | 4.43 |
| Investments with no duration reported | $ 2,100,460 | | $ 1,808,064 | |
| Total investments | $ 3,261,910 | | $ 2,812,986 | |

**Foreign Currency Risk —** Foreign currency risk is the risk that changes in exchange rates will adversely affect the fair value of an investment or a deposit. Some of the Plan's investment managers will have foreign currency exposure through holdings of foreign securities, currency derivatives or private investments whose revenue will be non-USD based. The Plan also holds investments in American Depository Receipts ("ADRs") which are not included in the below schedule since they are denominated in U.S. dollars and accounted for at fair market value.

The Plan's foreign currency exposures as of December 31, 2019 and 2018 are as follows (amounts in U.S. dollars, in thousands):

.

| Foreign Currency Holdings in US $ (In thousands) | December 31, 2019 | December 31, 2018 |
|---|---|---|
| Argentina Peso | $ 724 | $ 12,417 |
| Dollar (Australian) | 27,123 | 18,820 |
| Bahraini Dinar | - | 325 |
| Bangladesh (Taka) | 441 | 312 |
| Bermudian Dollar | - | 2,084 |
| Botswana Pula | 507 | 138 |
| Brazil Cruzeiro Real | 36,483 | 22,971 |
| Bulgarian Lev | 23 | 12 |
| Dollar (Canadian) | 14,915 | 25,792 |
| Dollar (Caymanian) | 224 | 591 |
| Chilean Peso | 5,350 | 6,308 |
| China (Yuan Renminbi) | 11,086 | 12,140 |
| Colombian Peso | 1,841 | 3,436 |
| Croatia Kuna | 520 | 408 |
| Czech Koruna | (937) | 416 |
| Dominican Peso | 365 | 6 |
| Krone (Danish) | 7,359 | 5,039 |
| Egyptian Pound | 1,420 | 809 |
| Euro | 72,441 | 81,204 |
| Georgian Lari | 772 | 607 |
| Ghanaian Cedi | 120 | 130 |
| Dollar (Hong Kong) | 13,357 | 6,266 |
| Hungary (Forint) | 2,600 | 2,731 |
| Icelandic Krona | 1,197 | 2,118 |
| Indian Rupee | 21,729 | 16,044 |
| Indonesia Rupiah | 12,904 | 5,103 |
| Israeli (Shekel) | 510 | 1,083 |
| Yen (Japan) | 9,156 | 6,297 |
| Jordanian Dinar | 506 | 310 |
| Kazakhstani Tenge | 55 | 342 |
| Kenyan Shilling | 539 | 325 |
| Kuwait Dinar | 1,506 | 657 |
| Lebanese Pound | - | 41 |
| Laos Kip | 126 | 332 |
| Malaysian (Ringgit) | 5,177 | 2,973 |
| Mauritius (Rupee) | 522 | 719 |
| Mexican New Peso | 4,847 | (1,694) |
| Morocco Dirham | 540 | 301 |
| Dollar (New Zealand) | 3,314 | 519 |
| Nigerian Naira | 811 | 327 |
| Krone (Norwegian) | 8,716 | 787 |
| Omanian Rial | 495 | 270 |
| Pakistani Rupee | 1,062 | 709 |
| Panamanian Balboa | 30 | 129 |
| Peru Sol | 909 | 1,365 |
| Philippines Peso | 5,555 | 2,399 |
| Polish (New Zloty) | (1,043) | (2,316) |
| Pound (Sterling) | 57,635 | 36,157 |
| Qatar Riyal | 1,137 | 802 |
| Romanian Leu | 1,156 | 1,201 |
| Russian Federation Rouble | 9,572 | (3,505) |
| Saudi Riyal | 2,215 | 665 |
| Singapore Dollar | 11,564 | (7,183) |
| South Africa Rand | 8,059 | 8,888 |
| South Korean Won | 27,366 | 13,882 |
| Sri Lankan Rupee | 495 | 273 |
| Krona (Swedish) | 4,976 | 6,157 |
| Swiss Franc | 7,171 | 14,221 |
| Thai (Bhat) | 7,070 | 3,738 |
| Dollar (Taiwan, New) | 16,794 | 7,055 |
| Tunisian Dinar | 278 | 122 |
| Turkish Lira | (2,180) | (2,259) |
| Ukrainian Hryvnia | 260 | 40 |
| UAE Dirham | 1,358 | 986 |
| Uruguayan Pesos | 10 | 11 |
| Vietnamese Dong | 346 | 600 |
| Other | (556) | 10,652 |
| **Total** | **$ 430,623** | **$ 334,605** |

## 4. CONTRIBUTIONS

The financial objective of the Plan is to fund, on an actuarial basis, the retirement and death benefits for eligible MaBSTOA employees and beneficiaries. MaBSTOA contributions to the fund are made annually. Contributions to MaBSTOA require the approval of the MaBSTOA Board.

Employer contributions amounted to $206.4 million and $205.4 million for the years ended December 31, 2019 and 2018, respectively. Employee contributions amounted to $23.6 million and $22.0 million for the years ended December 31, 2019 and 2018, respectively. Contributions made by employees are accounted for in separate accounts. Annually, these accounts are credited with interest at 5%. Effective April 1, 1990, MaBSTOA began to deduct employee contributions as pretax contributions under Section 414(h) of the Internal Revenue Code.

Pursuant to Section 7.03 of the MaBSTOA Plan, active plan members are permitted to borrow up to 75% of their contributions with interest. Their 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. The Plan granted $19.0 million and $15.7 million in loans to members during 2019 and 2018, respectively. Loan repayments by members amounted to $13.8 million and $14.1 million in 2019 and 2018, respectively.

Upon termination of employment before retirement, certain participants are entitled to refunds of their own contributions including accumulated interest less any loans outstanding.

## 5. NET PENSION LIABILITY

The components of the net pension liability of the Plan at December 31, 2019 and 2018 were as follows (in thousands):

| | December 31, 2019 | December 31, 2018 |
|---|---|---|
| Total pension liability | $ 4,122,934 | $ 3,811,124 |
| Fiduciary net position | 3,296,730 | 2,844,402 |
| Net pension liability | $ 826,204 | $ 966,722 |
| Fiduciary net position as a percentage of the total pension liability | 79.96 % | 74.63 % |

**Actuarial Methods and Assumptions—**The total pension liability as of December 31, 2019 was determined by an actuarial valuation date of January 1, 2019, that was updated to roll forward the total pension liability to the respective year-end. Actuarial valuations are performed annually as of January 1.

Additional information of the latest actuarial valuation follows:

| | | |
|---|---|---|
| Valuation date | January 1, 2019 | January 1, 2018 |
| Actuarial cost method | Frozen initial liability (FIL) (1) | Frozen initial liability (FIL) (1) |
| Amortization method | For 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 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 |
| Actuarial 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 |
| 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 |
| Actuarial Assumptions: | | |
| Investment rate of return | 6.50%, net of investment related expenses | 7.00%, net of investment related expenses |
| Projected salary increases | Reflecting general wage, merit and promotion increases of 3.5% to 4.0% per year for operating and nonoperating employees, respectively. Larger increases are assumed in the first 5 years of a member's career. | Reflecting general wage, merit and promotion increases of 3.5% to 4.0% per year for operating and nonoperating employees, respectively. Larger increases are assumed in the first 5 years of a member's career. |
| Overtime | Except for managerial employees, 8.5% of base salary for operating employees and 2.0% of base salary for nonoperating employees, with different assumptions used in the year before retirement | Except for managerial employees, 8.5% of base salary for operating employees and 2.0% of base salary for nonoperating employees, with different assumptions used in the year before retirement |
| Cost-of-living adjustments | 60% of inflation assumption or 1.35% per annum, if applicable | 55% of inflation assumption or 1.375% per annum, if applicable |
| Inflation | 2.25% per annum | 2.50% per annum |

(1) Under this actuarial method, the initial liability has been established by the Entry Age Actuarial Cost Method for determining changes in the Unfunded Actuarial Accrued Liability (UAAL) due to plan provision and assumption changes.

Until the inception of the Tier 6 provisions in 2012, amendments enacted by State legislation in 2000 reflected the most significant changes to the plan and are summarized as follows:

For operating employees (Chapter 10 of the Laws of 2000):

- All operating employees are automatically included in the 2000 55/25 plan.
- Elimination of the 2.3% additional employees’ contributions applicable to members of the 55/25 plan.
- Reduction in the Tier 3 and 4 employee contribution rate from 3.0% to 2.0%.

For managerial and non-operating employees (Chapter 126 of the Laws of 2000):

- Vesting under the Age 57 plan required only five years of service versus ten.
- As of October 1, 2000, regular Tier 3 and 4 employee contributions ceased after the completion of ten years of service.

For retired members (Chapter 125 of the Laws of 2000):

- Automatic cost-of-living adjustments (COLAs). The COLAs apply to retired members as follows:

| **Retirees at Least age** | **Retired or Receiving Benefits for at Least** |
|---|---|
| 62 | 5 years |
| 55 | 10 |
| Disabled retirees | 5 |
| Accidental death beneficiaries | 5 |

- Initial COLA payable September 30, 2000, based on the first $18,000 of the maximum retirement allowance.
- Thereafter, annual COLAs of 50% of the increase in the consumer price index (CPI), but not less than 1% or more than 3%, of the first $18,000 of maximum retirement allowance will be payable.

The benefit enhancements, as well as the automatic COLA for retirees, were reflected in the actuarial valuation beginning with the January 1, 2000, valuation.

The Plan adopted several amendments during 2002 as a result of state legislation. Amendments included changes to the definition of active service for Tier 1 and Tier 2 members, extension of the phase-in period from five years to ten years for funding liabilities created by Chapter 125 of the Laws of 2000 and increased accidental disability benefits for Tier 3 and Tier 4 members.

The Plan also adopted the legislative provisions of Chapter 379, which allow current and former members of the Transport Workers Union, Local 100 and Transit Supervisors Organization, Local 106, with an accumulated balance of additional member contributions (AMC) made in accordance with the MaBSTOA 55/25 Plan enacted in 1994, to apply for a refund of such contributions. The MaBSTOA Board additionally adopted legislative provisions of Chapter 428 of 2016, which provided eligible members a refund of the employee Additional Member Contributions made in the Tier 4 Age 57 and 5 Year Program and the Tier 4 Age 25 and Year 55 Early Retirement Program. AMC refunds amounted to approximately $871 thousand and $773 thousand as of December 31, 2019 and 2018, respectively.

At December 31, 2019 and 2018, assets were available to fund 79.9% and 74.6%, respectively, of the unfunded actuarial accrued liability (UAAL) when measured using the Entry Age Normal Cost Method per GASB 67 and the market value of assets.

### Calculation on Money-Weighted Rate of Return

The money-weighted rate of return considers the changing amounts actually invested during a period and weights the amount of pension plan investments by the proportion of time they are available to earn a return during that period. External cash flows are determined on a monthly basis and are assumed to occur at the middle of each month. External cash inflows are netted with external cash outflows, resulting in a net external cash flow in each month.

**Schedule of Calculations of Money-Weighted Rate of Return**

**(In thousands)**

| | Net External Cash Flows | Periods Invested | Period Weight | Net External Cash Flows With Interest |
|---|---|---|---|---|
| Beginning Value - January 1, 2019 | $2,844,402 | 12.00 | 1.00 | $3,287,751 |
| Monthly net external cash flows: | | | | |
| January | 141 | 11.50 | 0.96 | 162 |
| February | 141 | 10.50 | 0.88 | 160 |
| March | 141 | 9.50 | 0.79 | 158 |
| April | 1,762 | 8.50 | 0.71 | 1,952 |
| May | 546 | 7.50 | 0.63 | 598 |
| June | 546 | 6.50 | 0.54 | 590 |
| July | 546 | 5.50 | 0.46 | 584 |
| August | 546 | 4.50 | 0.38 | 577 |
| September | 546 | 3.50 | 0.29 | 569 |
| October | 546 | 2.50 | 0.21 | 563 |
| November | 546 | 1.50 | 0.13 | 556 |
| December | 2,495 | 0.50 | 0.04 | 2,510 |
| Ending Value - December 31, 2019 | | | | $3,296,730 |
| Money-Weighted Rate of Return | 15.59% | | | |

## Schedule of Calculations of Money-Weighted Rate of Return

| (In thousands) | Net External Cash Flows | Periods Invested | Period Weight | Net External Cash Flows With Interest |
|---|---|---|---|---|
| Beginning Value - January 1, 2018 | $2,918,989 | 12.00 | 1.00 | $2,831,240 |
| Monthly net external cash flows: | | | | |
| January | 1,114 | 11.50 | 0.96 | 1,082 |
| February | 1,114 | 10.50 | 0.88 | 1,084 |
| March | 1,114 | 9.50 | 0.79 | 1,087 |
| April | 1,114 | 8.50 | 0.71 | 1,090 |
| May | 1,114 | 7.50 | 0.63 | 1,092 |
| June | 1,114 | 6.50 | 0.54 | 1,095 |
| July | 1,114 | 5.50 | 0.46 | 1,098 |
| August | 1,114 | 4.50 | 0.38 | 1,101 |
| September | 1,114 | 3.50 | 0.29 | 1,104 |
| October | 1,114 | 2.50 | 0.21 | 1,107 |
| November | 1,114 | 1.50 | 0.13 | 1,110 |
| December | 1,114 | 0.50 | 0.04 | 1,112 |
| Ending Value - December 31, 2018 | | | | $2,844,402 |
| Money-Weighted Rate of Return | -3.01% | | | |

**Expected Rate of Return on Investments—**The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. The target allocation and best estimates of arithmetic real rates of return for each major asset class included in the pension plan's target asset allocation as of the December 31, 2019 and 2018 actuarial valuations are summarized in the following table:

## SCHEDULE OF LONG TERM EXPECTED RATE OF RETURN FOR 2019

| Asset Class | Index | Target Allocation | Long-Term Expected Real Rate of Return |
|---|---|---|---|
| US Core Fixed Income | Barclays Aggregate | 9.00% | 1.51% |
| US Long Bonds | Barclays Long Term Government/Credit | 1.00% | 2.41% |
| US Bank/Leveraged Loans | Credit Suisse Leveraged Loan | 7.00% | 2.74% |
| US Inflation-Indexed Bonds | Barclays US TIPS | 2.00% | 0.71% |
| US High Yield Bonds | BAML High Yield | 4.00% | 3.13% |
| Emerging Market Bonds | JPM EMBI Plus | 2.00% | 3.36% |
| US Large Caps | S&P 500 | 12.00% | 4.33% |
| US Small Caps | Russell 2000 | 6.00% | 5.65% |
| Foreigh Developed Equity | MSCI EAFE NR | 12.00% | 5.95% |
| Emerging Market Equity | MSCI EM NR | 5.00% | 8.05% |
| Global REITS | FTSE EPRA/NAREIT Developed | 1.00% | 5.50% |
| Private Real Estate Property | NCREIF Property | 4.00% | 3.80% |
| Private Equity | Cambridge Private Equity | 9.00% | 9.50% |
| Commodities | Commodity | 1.00% | 2.79% |
| Hedge Funds - MultiStrategy | HFRI: Fund Wtd Composite | 16.00% | 3.26% |
| Hedge Funds - Event Driven | HFRI Event Driven | 6.00% | 3.41% |
| Hedge Funds - Equity Hedge | HFRI Equity Driven | 3.00% | 3.82% |
| Total | | 100.00 % | |
| Assumed Inflation - Mean | | | 2.25% |
| Assumed Inflation - Standard Deviation | | | 1.65% |
| Portfolio Nominal Mean Return | | | 6.73% |
| Portfolio Standard Deviation | | | 10.94% |
| Long-Term Expected Rate of Return selected by MTA | | | 6.50% |

* Based on March 2014 Investment Policy

**SCHEDULE OF LONG TERM EXPECTED RATE OF RETURN FOR 2018**

| Asset Class | Index | Target Allocation | Long-Term Expected Real Rate of Return |
|---|---|---|---|
| US Core Fixed Income | Barclays Aggregate | 9.00% | 2.03% |
| US Long Bonds | Barclays Long Term Government/Credit | 1.00% | 2.44% |
| US Bank/Leveraged Loans | Credit Suisse Leveraged Loan | 7.00% | 3.08% |
| US Inflation-Indexed Bonds | Barclays US TIPS | 2.00% | 1.16% |
| US High Yield Bonds | BAML High Yield | 4.00% | 3.93% |
| Emerging Market Bonds | JPM EMBI Plus | 2.00% | 3.76% |
| US Large Caps | S&P 500 | 12.00% | 4.71% |
| US Small Caps | Russell 2000 | 6.00% | 5.93% |
| Foreigh Developed Equity | MSCI EAFE NR | 12.00% | 6.15% |
| Emerging Market Equity | MSCI EM NR | 5.00% | 8.22% |
| Global REITS | FTSE EPRA/NAREIT Developed | 1.00% | 5.80% |
| Private Real Estate Property | NCREIF Property | 4.00% | 3.69% |
| Private Equity | Cambridge Private Equity | 9.00% | 9.50% |
| Commodities | Commodity | 1.00% | 2.85% |
| Hedge Funds - MultiStrategy | HFRI: Fund Wtd Composite | 16.00% | 3.28% |
| Hedge Funds - Event Driven | HFRI Event Driven | 6.00% | 3.38% |
| Hedge Funds - Equity Hedge | HFRI Equity Driven | 3.00% | 3.85% |
| Total | | 100.00 % | |
| Assumed Inflation - Mean | | | 2.50% |
| Assumed Inflation - Standard Deviation | | | 1.65% |
| Portfolio Nominal Mean Return | | | 7.19% |
| Portfolio Standard Deviation | | | 10.87% |
| Long-Term Expected Rate of Return selected by MTA | | | 7.00% |

* Based on March 2014 Investment Policy

**Discount Rate—**The discount rate used to measure the total liability as of December 31, 2019 and 2018 was 6.5% and 7.0%, respectively. The projection of cash flows used to determine the discount rate assumed that plan member contributions will be made at the current contribution rate and that the Plans' contributions will be made in accordance with the statutory contributions determined by the Actuary. Based on those assumptions, the 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.

**Sensitivity of the Net Pension Liability to Changes in the Discount Rate—**The following presents the net pension liability of the Plan, calculated using the discount rates as of 2019 and 2018; as well as what the Plan's net pension would be if it were calculated using a discount rate that is 1-percentage point lower or 1-percentage point higher than the current rate for years 2019 and 2018 respectively:

| 2019 (in thousands) | 1% Decrease 5.50% | Current Discount Rate 6.50% | 1% Increase 7.50% |
|---|---|---|---|
| Net pension liability | $ 1,297,413 | $ 826,204 | $ 426,297 |

| 2018 (in thousands) | 1% Decrease 6.00% | Current Discount Rate 7.00% | 1% Increase 8.00% |
|---|---|---|---|
| Net pension liability | $ 1,388,193 | $ 966,722 | $ 607,684 |

## 6. CUSTODIAL AND OTHER PROFESSIONAL SERVICES

JP Morgan Chase Bank is custodian and trustee of plan assets with the exception of Mellon asset management investments in which Mellon Bank N.A. is the custodian. JP Morgan Chase also provides cash receipt and cash disbursement services to the Plan. NEPC reviews the Plan's portfolio, the investment policies as adopted by the Investment Committee and the performance of the Investment Managers. NEPC also provides audit services for the Plan's equity portfolios. Actuarial services were provided to the Plan by Milliman Inc.

## 7. SUBSEQUENT EVENTS

On March 25, 2020, Allianz Global Investors U.S. LLC ("AllianzGI), managing member of AllianzGI Structured Alpha 1000 LLC (the "Fund"), informed the Plan that it was in the best interest of its investors to terminate the Fund and pursue an orderly liquidation program. AllianzGI stated that the Fund suffered significant losses due to the severe and tumultuous market volatility as a result, in part, of the coronavirus pandemic. No redemptions were permitted after the announcement of the Fund closure. The Plan lost nearly all of its investment. Fund investors will receive a pro-rata distribution of the remaining assets after accounting for Fund expenses and liabilities. So far, the Fund has returned $3.1 million.  The Plan is exploring all options to recover its losses.

The COVID-19 pandemic during 2020 has significantly disrupted financial markets, economies and other events subsequent to December 31, 2019. As noted in the risk and uncertainties note, investment securities are exposed to various risks, such as interest rate, market and credit risks. Due to the level of risk associated with certain investment securities and the level of uncertainty related to changes in the value of investment securities, it is at least reasonably possible that changes in risks in the near term would materially affect the amounts reported in the statements of net assets available for benefits and the statement of changes in net assets available for benefits.

The actuarial present value of plan benefits is reported based on certain assumptions pertaining to interest rates and employee demographics. Due to the changing nature of these assumptions, it is at least reasonably possible that changes in these assumptions will occur in the near term and, due to the uncertainties inherent in setting assumptions, that the effect of such changes could be material to the value of plan benefits.

Subsequent to December 31, 2019, the impact to the Plan of the COVID-19 pandemic during 2020 has resulted in significant reductions in values to many investments of the Plan. It has also significantly decreased interest rates and could impact employee demographics which could change assumption utilized in the future for the actuarial present value of plan benefits.

While management of the Plan currently expects to be able to continue to meet immediate contribution requirements, the long-term impact of the effects of the COVID-19 pandemic to the Plan and Plan sponsor as well as any relief from regulatory authorities are currently not known.  The extent of the adverse impact of the COVID-19 pandemic on the Plan's net assets available for benefits and actuarial present value of plan benefits cannot be reasonably estimated at this time.

The Covid-19 outbreak has resulted in a significant decline in ridership and vehicle crossings. The decline in ridership and vehicle crossings have caused a material impact on the MTA's results of operations, financial position, and cash flows in fiscal 2020. In response to the adverse conditions, the MTA has secured funding under the "Coronavirus Aid, Relief and Economic Security Act" or "CARES

Act”; received State of New York authorization to increase debt issuing capacity, including $10 billion in deficit bonds; received State of New York authorization to use the Central Business District Tolling lockbox monies to fund COVID-19 operating costs; and has been granted flexibility to apply existing FTA grant program proceeds to operating costs or other purposes to address COVID-19 impacts. In addition, the volatility and uncertainty of the financial market have negatively affected the investment earnings of retirement plans. Although the long-term impact of the Covid-19 outbreak on the financial market is still unpredictable, it could have a negative impact on the market value of the Plan in future years.

* * * * * *

# REQUIRED SUPPLEMENTARY INFORMATION
# (UNAUDITED)

SCHEDULE I

# MANHATTAN AND BRONX SURFACE TRANSIT OPERATING AUTHORITY PENSION PLAN

## REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)
## SCHEDULE OF CHANGES IN THE EMPLOYERS' NET PENSION LIABILITY AND RELATED RATIOS
## (in millions)

| | 2019 | 2018 | 2017 | 2016 | 2015 | 2014 |
|---|---|---|---|---|---|---|
| Total pension liability: | | | | | | |
| Service cost | $ 90 | $ 87 | $ 85 | $ 82 | $ 77 | $ 72 |
| Interest | 265 | 256 | 246 | 237 | 232 | 224 |
| Changes of benefit terms | - | - | 6 | - | - | - |
| Differences between expected and actual experience | 9 | 6 | 12 | 14 | (69) | (2) |
| Benefit payments and withdrawals | (221) | (214) | (209) | (188) | (180) | (175) |
| Net change in total pension liability | 312 | 135 | 140 | 145 | 60 | 119 |
| Total pension liability—beginning | 3,811 | 3,676 | 3,536 | 3,391 | 3,331 | 3,212 |
| Total pension liability—ending (a) | 4,123 | 3,811 | 3,676 | 3,536 | 3,391 | 3,331 |
| Plan fiduciary net position: | | | | | | |
| Employer contributions | 206 | 205 | 203 | 221 | 215 | 226 |
| Employee contributions | 24 | 22 | 20 | 18 | 16 | 15 |
| Net investment income | 444 | (88) | 350 | 212 | (24) | 105 |
| Benefit payments and withdrawals | (221) | (214) | (209) | (188) | (180) | (175) |
| Net change in plan fiduciary net position | 453 | (75) | 364 | 263 | 27 | 171 |
| Plan fiduciary net position—beginning | 2,844 | 2,919 | 2,555 | 2,292 | 2,265 | 2,094 |
| Plan fiduciary net position—ending (b) | 3,297 | 2,844 | 2,919 | 2,555 | 2,292 | 2,265 |
| Employer's net pension liability—ending (a)-(b) | $ 826 | $ 967 | $ 757 | $ 981 | $ 1,099 | $ 1,066 |
| Plan fiduciary net position as a percentage of the total pension liability | 79.96 % | 74.63 % | 79.40 % | 72.26 % | 67.58 % | 68.00 % |
| Covered payroll | 771 | 767 | 748 | 713 | 686 | 672 |
| Employer's net pension liability as a percentage of covered payroll | 107.13 % | 126.11 % | 101.32 % | 137.54 % | 160.30 % | 158.74 % |

Note: Information for periods prior to 2014 was not readily available.

# MANHATTAN AND BRONX SURFACE TRANSIT OPERATING AUTHORITY PENSION PLAN

## REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)
## SCHEDULE OF EMPLOYER CONTRIBUTIONS
## (in thousands)

| Fiscal Year Ending December 31, | Actuarially Determined Contribution | Actual Employer Contribution | Contribution Deficiency/ (Excess) | Covered Payroll | Contributions as a Percentage of Covered Payroll |
|---|---|---|---|---|---|
| 2019 | $ 209,314 | $ 206,390 | $ 2,924 | $ 771,201 | 26.76 % |
| 2018 | 202,509 | 205,433 | (2,924) | 766,562 | 0.27 |
| 2017 | 202,897 | 202,684 | 213 | 747,651 | 27.11 |
| 2016 | 220,486 | 220,697 | (211) | 713,280 | 30.94 |
| 2015 | 214,881 | 214,881 | - | 685,998 | 31.32 |
| 2014 | 226,374 | 226,374 | - | 671,633 | 33.70 |
| 2013 | 234,474 | 234,474 | - | 582,081 | 40.28 |
| 2012 | 228,918 | 228,918 | - | 575,989 | 39.74 |
| 2011 | 186,454 | 186,454 | - | 579,696 | 32.16 |
| 2010 | 200,633 | 200,633 | - | 591,073 | 33.94 |

## REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)
## SCHEDULE OF EMPLOYER CONTRIBUTIONS

Note to Schedule II:
The more significant actuarial assumptions and methods used in the calculation of employer contributions to the Plan are as follows:

| | | | |
|---|---|---|---|
| Valuation Dates | January 1, 2019 | January 1, 2018 | January 1, 2017 |
| Actuarial cost method | Frozen initial liability (FIL) (1) | Frozen initial liability (FIL) (1) | Frozen initial liability (FIL) (1) |
| Amortization method | For FIL bases, period specified in current valuation report. 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 report. 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 report. 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 |
| Actuarial 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 |
| Interest rate | Net rate of 6.5% for 2019, per annum, net of investment expenses | Net rate of 7.0% for 2018, per annum, net of investment expenses | Net rate of 7.0% for 2017, per annum, net of investment expenses |
| Inflation | 2.25% per annum | 2.5% per annum | 2.5% per annum |
| Deaths after retirement | Tables based on recent experience | Tables based on recent experience | Tables based on recent experience |
| Separations other than for normal retirement | Tables based on recent experience | Tables based on recent experience | Tables based on recent experience |
| Rates of normal retirement | Tables based on recent experience. Rates vary by age, years of service at retirement and Tier/Plan. All members are assumed to retire by age 80 | Tables based on recent experience. Rates vary by age, years of service at retirement and Tier/Plan. All members are assumed to retire by age 80 | Tables based on recent experience. Rates vary by age, years of service at retirement and Tier/Plan. All members are assumed to retire by age 80 |
| Salary increases | Reflecting general, merit and promotion increases of 3.5% to 4.0% per year for operating and non-operating employees, repectively. Larger increases are assured in the first 5 years of a member's career. | Reflecting general, merit and promotion increases of 3.5% to 4.0% per year for operating and non-operating employees, repectively. Larger increases are assured in the first 5 years of a member's career. | Reflecting general, merit and promotion increases of 3.5% to 4.0% per year for operating and non-operating employees, repectively. Larger increases are assured in the first 5 years of a member's career. |
| Overtime | Except for managerial employees, 8.5% of base salary for operating employees and 2.0% of base salary for nonoperating employees, with different assumptions used in the year before retirement. For Tier 6 members, all overtime was assumed to be less than overtime cap | Except for managerial employees, 8.5% of base salary for operating employees and 2.0% of base salary for nonoperating employees, with different assumptions used in the year before retirement. For Tier 6 members, all overtime was assumed to be less than overtime cap | Except for managerial employees, 8.5% of base salary for operating employees and 2.0% of base salary for nonoperating employees, with different assumptions used in the year before retirement. For Tier 6 members, all overtime was assumed to be less than overtime cap |
| Cost-of-living adjustments | 60% of inflation assumption or 1.35% per annum if applicable (2) | 55% of inflation assumption or 1.375% per annum if applicable (2) | 55% of inflation assumption or 1.375% per annum if applicable (2) |
| Provision for expenses | An average of the prior two years' administrative charges added to the normal cost | An average of the prior two years' administrative charges added to the normal cost | An average of the prior two years' administrative charges added to the normal cost |

(1) Under this actuarial method, the initial liability has been established by the Entry Age Actuarial Cost Method for determining changes in the Unfunded Actuarial Accrued Liability (UAAL) due to plan provision and assumption changes.
(2) Assumes a long-term consumer price inflation assumption of 2.5% per annum, compounded annually.

# MANHATTAN AND BRONX SURFACE TRANSIT OPERATING AUTHORITY PENSION PLAN

**SCHEDULE II (continued)**

## REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)
## SCHEDULE OF EMPLOYER CONTRIBUTIONS

Note to Schedule II:
The more significant actuarial assumptions and methods used in the calculation of employer contributions to the Plan are as follows:

| | | | |
|---|---|---|---|
| Valuation Dates | January 1, 2016 | January 1, 2015 | January 1, 2014 |
| Actuarial cost method | Frozen initial liability (FIL) (1) | Frozen initial liability (FIL) (1) | Frozen initial liability (FIL) (1) |
| Amortization method | For FIL bases, period specified in current valuation report. 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 report. 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 report. 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 |
| Actuarial 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 unrecogniz gains/losses over a 5-year period. Gains/losses are based on market value of assets |
| Interest rate | Net rate of 7.0% for 2016, per annum, net of investment expenses | Net rate of 7.0% for 2015, per annum, net of investment expenses | Net rate of 7.0% for 2014, per annum, net of investment expenses |
| Inflation | 2.5% per annum | 2.5% per annum | 2.5% per annum |
| Deaths after retirement | Tables based on recent experience | Tables based on recent experience | Tables based on recent experience |
| Separations other than for normal retirement | Tables based on recent experience | Tables based on recent experience | Tables based on recent experience |
| Rates of normal retirement | Tables based on recent experience. Rates vary by age, years of service at retirement and Tier/Plan. All members are assumed to retire by age 80 | Tables based on recent experience. Rates vary by age, years of service at retirement and Tier/Plan. All members are assumed to retire by age 80 | Tables based on recent experience. Rates vary by age, years of service at retirement and Tier/Plan. All members are assumed to retire by age 80 |
| Salary increases | 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 | 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 | 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 |
| Overtime | Except for managerial employees, 8.5% of base salary for operating employees and 2.0% of base salary for nonoperating employees, with different assumptions used in the year before retirement. For Tier 6 members, all overtime was assumed to be less than overtime cap | Except for managerial employees, 8.5% of base salary for operating employees and 2.0% of base salary for nonoperating employees, with different assumptions used in the year before retirement. For Tier 6 members, all overtime was assumed to be less than overtime cap | Except for managerial employees, 8.5% of base salary for operating employees and 2.0% of base salary for nonoperating employees, with different assumptions used in the year before retirement. For Tier 6 members, all overtime was assumed to be less than overtime cap |
| Cost-of-living adjustments | 55% of inflation assumption or 1.375% per annum if applicable (2) | 55% of inflation assumption or 1.375% per annum if applicable (2) | 55% of inflation assumption or 1.375% per annum if applicable (2) |
| Provision for expenses | An average of the prior two years' administrative charges added to the normal cost | An average of the prior two years' administrative charges added to the normal cost | An average of the prior two years' administrative charges added to the normal cost |

(1) Under this actuarial method, the initial liability has been established by the Entry Age Actuarial Cost Method for determining changes in the Unfunded Actuarial Accrued Liability (UAAL) due to plan provision and assumption changes.
(2) Assumes a long-term consumer price inflation assumption of 2.5% per annum, compounded annually.

SCHEDULE III

# MANHATTAN AND BRONX SURFACE TRANSIT OPERATING AUTHORITY PENSION PLAN

## REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)
## SCHEDULE OF INVESTMENT RETURNS

The money-weighted rate of return considers the changing amounts actually invested during a period and weights the amount of pension plan investments by the proportion of time they are available to earn a return during that period. The following table displays the annual money-weighted rate of return calculated net of investment expense for the Plan for:

| Fiscal Year Ended December 31 | Annual Money-Weighted Rate of Return |
|---|---|
| 2019 | 15.59 % |
| 2018 | (3.01)% |
| 2017 | 13.67 |
| 2016 | 9.16 |
| 2015 | (1.05) |
| 2014 | 4.95 |

Note: Information for periods prior to 2014 was not readily available.