NEW YORK STATE
TEACHERS' RETIREMENT SYSTEM
10 CORPORATE WOODS DRIVE, ALBANY NY

Risk Committee Meeting

A meeting of the Risk Committee of the Retirement Board of the New York State Teachers' Retirement System was held on October 26, 2022. The meeting was called to order at 8:31 a.m. by Christopher Morin, Chair.

The following individuals were in attendance:

Committee Members: Elizabeth Chetney, David Keefe, Christopher Morin, Nicholas Smirensky

Board Members: Juliet Benaquisto, Eric Iberger, Phyllis Harrington, Jennifer Longtin, Oliver Robinson

NYSTRS' Staff: Thomas Lee, Edward Rezny (via WebEx), Don Ampansiri, Margaret Andriola, Dave Gillan, Paul Cummins, Gerald Yahoudy, Vijay Madala, Michael Federici, Richard Young (via WebEx), Ken Kasper, Kathy Ebert, Miriam Dixon, Danny Malavé, Matt Albano, John Rosenburg, Matt Tice

Risk Advisors: Sean Atkinson (via WebEx), Steve Huber (via WebEx), Peter Cosgrove (via WebEx)

Visitors: Cyril Espanol, WithIntelligence (via WebEx) and Dave Barry, Markets Group (via WebEx)

The following items were discussed:

1. Approval of the minutes of August 3, 2022

Upon motion of B. Chetney, seconded by N. Smirensky and unanimously carried, the meetings minutes of the August 3, 2022 were approved.

2. Information Security KRI Dashboard and Update

Upon motion of N. Smirensky, seconded by B. Chetney and unanimously approved, the Committee went into Executive Session at 8:32 a.m. to hear an Information Security presentation given by J. Rosenberg. The Committee came out of Executive Session at 8:47 a.m. and resumed open session.

3. Annual SEC Red Flags Risk Assessment

   M. Tice reviewed the findings of the Risk Department's annual assessment of investment operations using the SEC Risk Inventory Guide and concluded that with current risk mitigation controls in place there is a low likelihood that applicable risk items listed in the guide would occur at NYSTRS (Appendix A).

4. Investment Risk KRI Dashboard and Update

   M. Albano reviewed the risk management key risk indicator dashboard and the investment risk report (Appendix B).

There being no further business, and with unanimous consent, the Committee adjourned at 9:01 a.m.

Respectfully submitted,

[redacted]

Thomas K. Lee

Appendix A

# Enterprise Risk Management SEC Red Flags Assessment

MATTHEW ALBANO, CFA - RISK OFFICER

MATTHEW TICE, ASSISTANT MANAGER - ENTERPRISE RISK MANAGEMENT

OCTOBER 2022

# Agenda

- What is the SEC (Security Exchange Commission) Red Flags Review
- Timeline
- Risk Assessment based on review

# What is the SEC Red Flags Assessment?

## SEC Risk Inventory Guide – 12 Red Flag Categories

1. Marketing/Performance
2. Form ADV/Disclosures
3. Invoices/Fees
4. IPO Offerings
5. Soft Dollars/Kickbacks
6. Compensation
7. Objectives/Restrictions
8. Trade Ticket
9. Trade Execution
10. Non-Public Information
11. Personal and Proprietary Trading Account
12. Money/Securities to/from Broker/Custodian

# SEC Red Flags Assessment - Timeline

Send out broker attestations (52 sent for 2021)

Review the 12 red flag categories with departments

Review results with departments and issue report

Report to the Risk Committee of the Board in October

Likelihood: With current risk mitigation controls in place, we believe there is a low likelihood that applicable risk items in the SEC Risk Inventory Guide would occur at NYSTRS.

Impact: The impact on the System, should a risk event occur, is generally likely to be low given the controls in place that would limit the impact; however, in the event of a significant regulatory breach, impact could be high.

# Risk Assessment

| Likelihood (Probability) | | Impact (Consequences) | | | | |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| | | Insignificant | Minor | Moderate | Major | Catastrophic |
| 5 | Very Likely | | | | | |
| 4 | Quite Likely | | | | | |
| 3 | Somewhat Likely | | | | | |
| 2 | Unlikely | | | | | |
| 1 | Highly Unlikely | | | X | | |

# Questions

**NEW YORK STATE TEACHERS' RETIREMENT SYSTEM**
**ENTERPRISE RISK MANAGEMENT DEPARTMENT**
**MEMORANDUM REPORT**

**Date:** October 26, 2022

**To:** Thomas Lee

**From:** Matthew Albano, Matthew Tice

**Copy:** Margaret Andriola, Paul Cummins, Miriam Dixon, Kathy Ebert, Emily Ekland, Michael Federici, David Gillan, Ken Kasper, Gerald Yahoudy, Han Yik

Re: SEC Red Flag Risk Assessment

## Introduction

The Enterprise Risk Management department conducts an annual risk assessment of investment operations using the SEC Risk Inventory Guide (Guide) as a reference. The Guide was designed as a job aid for Chief Compliance Officers (CCOs) responsible for an investment advisory firm's compliance to assist the CCO in identifying some of the risks that may be present in an investment adviser's everyday operations. The Guide contains 50 items in 12 categories of non-compliance risk. This assessment is conducted annually by Enterprise Risk Management.

## Objectives & Scope

While many of the risks were not directly applicable to a public pension plan, we considered similar risks that NYSTRS might encounter in its own operations. We rated each of the risks on the basis of likelihood and impact, and noted actions taken by NYSTRS to mitigate each of the risks. These observations are based on review of the Investment Policy Manual, discussions with staff, mitigating controls documented as part of the current and prior risk assessments, Internal Audit department reports and Enterprise Risk Management's knowledge of NYSTRS' investment operations.

## Conclusion

Based on our review, with current risk mitigation controls in place, we believe there is a low likelihood that applicable risk items in the SEC Risk Inventory Guide would occur at NYSTRS. The impact on the System, should a risk event occur, is generally likely to be low given the controls in place that would limit the impact; however, in the event of a significant regulatory breach, impact could be high.

SEC Risk Assessment

Residual Risk – Low

Observation: Risk mitigations reduced the likelihood of the risk, but in the event of a significant regulatory breach, impact could be high.

| Likelihood (Probability) | | Impact (Consequences) | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| | | 1 | 2 | 3 | 4 | 5 |
| | | Insignificant | Minor | Moderate | Major | Catastrophic |
| 5 | Very Likely | | | | | |
| 4 | Quite Likely | | | | | |
| 3 | Somewhat Likely | | | | | |
| 2 | Unlikely | | | | | |
| 1 | Highly Unlikely | | | X | | |

Appendix B

# Investment Risk Update

## Risk Management

**Risk Committee Meeting: October 26, 2022**

**Matt Albano, CFA**

Public market data as of 8/31/2022; Private asset data as of 6/30/2022

## Investment Risk - Key Risk Indicators

Updates:

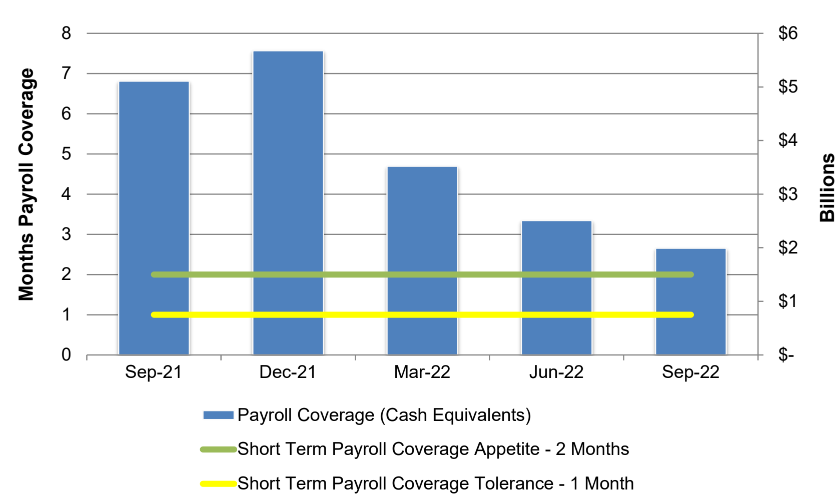
- The Stressed Contingency Funding Liquidity has fallen to "Outside Tolerance" this quarter. Medium Term Liquidity and Net Benefit Payments as % of Assets have fallen into "Tolerance", a result of compressed asset prices and continued market volatility keeping the liquid asset classes closer to their lower bounds
  - **Risk Mitigation**
    - Staff continues to meet weekly on asset allocation, monitoring current market volatility impacts on the KRIs
    - The Stressed Contigency Funding model assumes a GFC like scenario on the portfolio, beyond the current market volatility already experienced
- The plan Funded Ratio remains in "Tolerance" as of 6/30/2021 with an overfunded ratio of 113%
  - **Risk Mitigation**
    - Staff continues to engage with stakeholders and monitor legislature updates
- Total Plan Risk; Tail Risk; and Risk Contributions by Asset Class, Sector, Geography, and Factor are as expected

| Key Risk Indicator | Outside Tolerance | Risk Tolerance | Risk Appetite | Current Assessment |
|---|---|---|---|---|
| Asset Allocation (Market Risk Management) | One or More Asset Classes Out of Bounds | One or More Asset Classes Outside of Policy During Transition Period | All Asset Classes within Policy Range | All Asset Classes within Policy Range |
| Net Benefit Payments as % of Assets (Liquidity) | >10% | >5 - 10% | <= 5% | 5.1% |
| Short Term Liquidity (Liquidity) | <= 1 Month | 1 - 2 Months | >= 2 Months | 2.7 Months |
| Medium Term Liquidity (Liquidity) | <= 10 Months | 10 - 12 Months | >= 12 Months | 10.7 Months |
| Stressed Contingency Funding Liquidity (Liquidity) | <= 18 Months | 18 - 24 Months | >= 24 Months | 15 Months |
| Stressed Long Term Liquidity (Liquidity) | <= 3 Years | 3 - 5 Years | >= 5 Years | 6.1 Years |
| Funded Ratio: Market Value of Total Plan Assets (Unfunded Liability) | <80% or >120% | 80 - 90% or 110 - 120% | 90 - 110% | 113.0% (6/30/2021) |
| ECR Volatility (Unfunded Liability) | Δ +/- >3% | Δ +/- 2 - 3% | Δ +/- 2% | 0.49% (6/30/2021) |
| ECR Level (Unfunded Liability) | <4% or >17% | 4 - 6% or 12 - 17% | 6 - 12% | 10.29% (6/30/2021) |
| Actuarial Valuation: Quinquennial Full Scope Audit (Valuation Process) | Replicated Liabilities >4% of NYSTRS' Calculation | Replicated Liabilities 1 - 4% of NYSTRS' Calculation | Replicated Liabilities <=1% of NYSTRS' Calculation | 0.04% (4/16/2019) |
| Actuarial Valuation: Annual Independent Review (Valuation Process) | Adverse Opinion | Modified Opinion | Unmodified Opinion | Unmodified Opinion (10/28/2021) |

## Risk Management
## Investment Risk Board Report October 2022

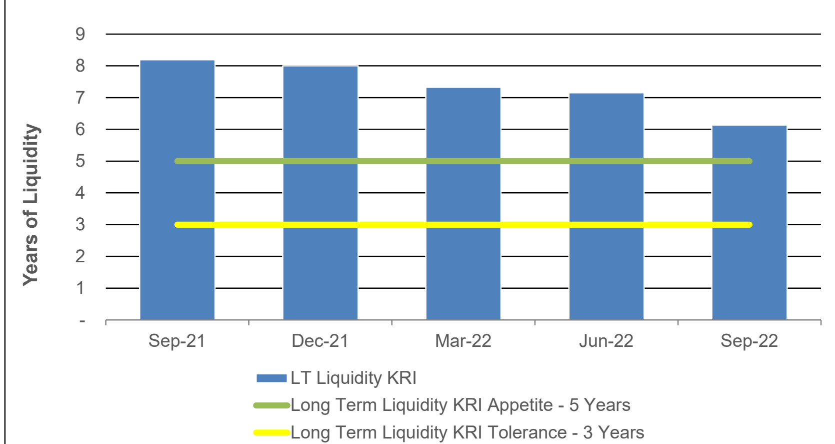
### Funding Liquidity - Short Term Payroll Coverage

| Short Term Liquidity KRI (Months) | Current Qtr. | Appetite | Tolerance | Outside Tolerance |
|---|---|---|---|---|
| | 2.7 | >= 2 months | 1-2 months | <=1 month |




### Stressed Long Term Funding Liquidity - Allocation to Liquid Assets

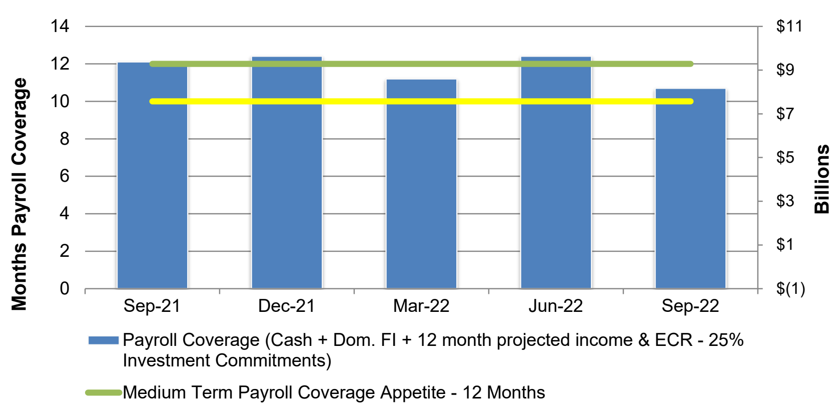
| Stressed Long Term Liquidity KRI (Years) | Current Qtr. | Appetite | Tolerance | Outside Tolerance |
|---|---|---|---|---|
| | 6.1 | >=5 Years | 3-5 Years | <=3 Years |




The Stressed Long Term Liquidity KRI assumes a hypothetical 40% portfolio loss then calculates years of required cash flow coverage from remaining public market assets and 12 months *estimated net cash flows (*includes stressed projections for: portfolio income, employer contributions and unfunded capital calls)

### Funding Liquidity - Medium Term Payroll Coverage

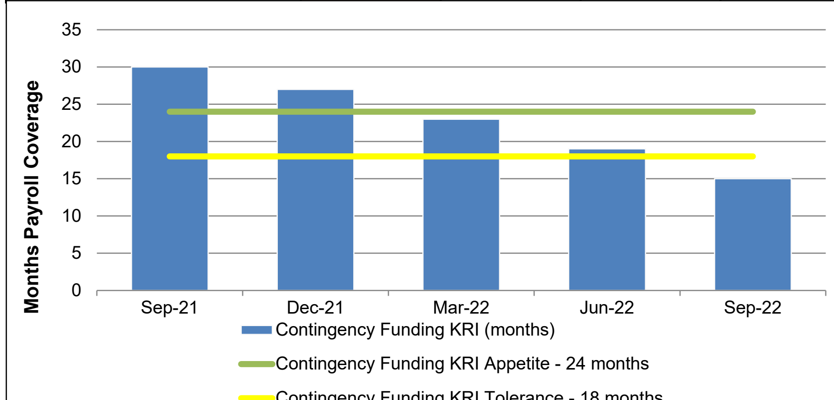
| Medium Term Liquidity KRI (Months) | Current Qtr. | Appetite | Tolerance | Outside Tolerance |
|---|---|---|---|---|
| | 10.7 | >=12 months | 10-12 months | <=10 months |




Domestic Fixed Income included in payroll coverage observe the minimum allocation bound. Capital calls of 25% are indicative of a "non-stressed" market environment. Income and employer contributions are 12 month projections from the most recent quarter date depicted.

### Stressed Funding Liquidity - Contingency Funding Plan

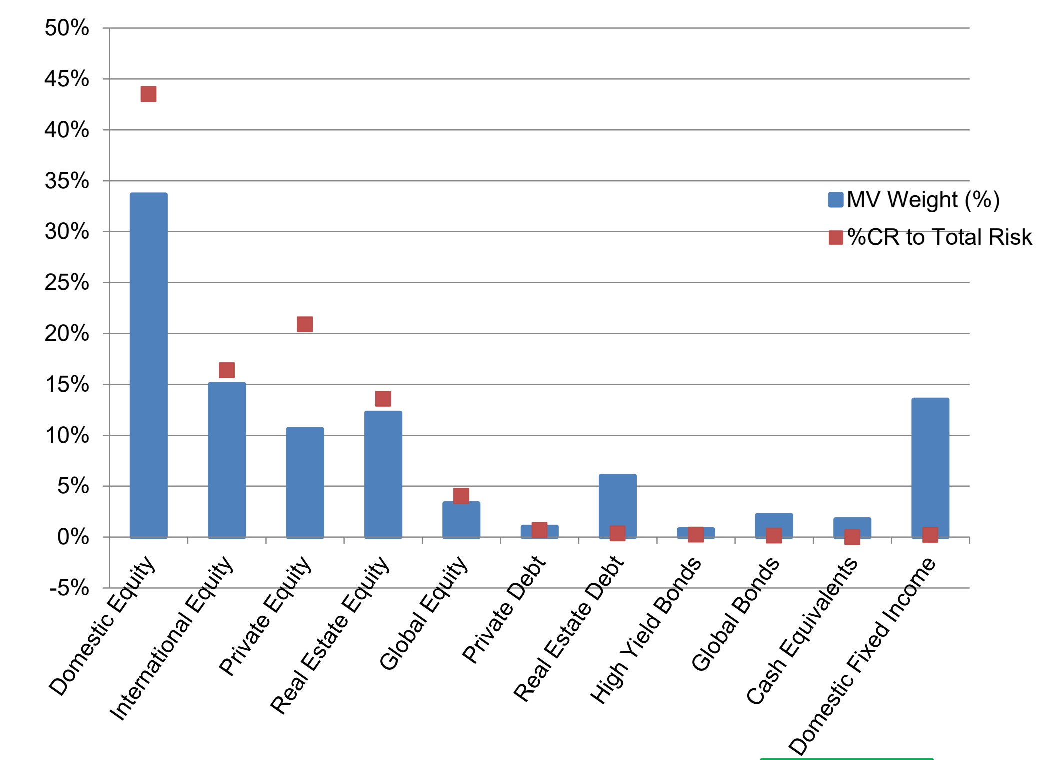
| Stressed Contingency Funding Liquidity KRI (Months) | Current Qtr. | Appetite | Tolerance | Outside Tolerance |
|---|---|---|---|---|
| | 15.0 | >=24 months | 18-24 months | <=18 months |




The Stressed Contingency Funding Liquidity KRI seeks to evaluate how many months of payroll can be made during a GFC like scenario before NYSTRS' CFP is triggered. GFC loss is experienced over 12 months with asset classes returning capital market assumptions years 2-5. Employer contributions are capped at 17%.

## Total Predicted Risk by Asset Class

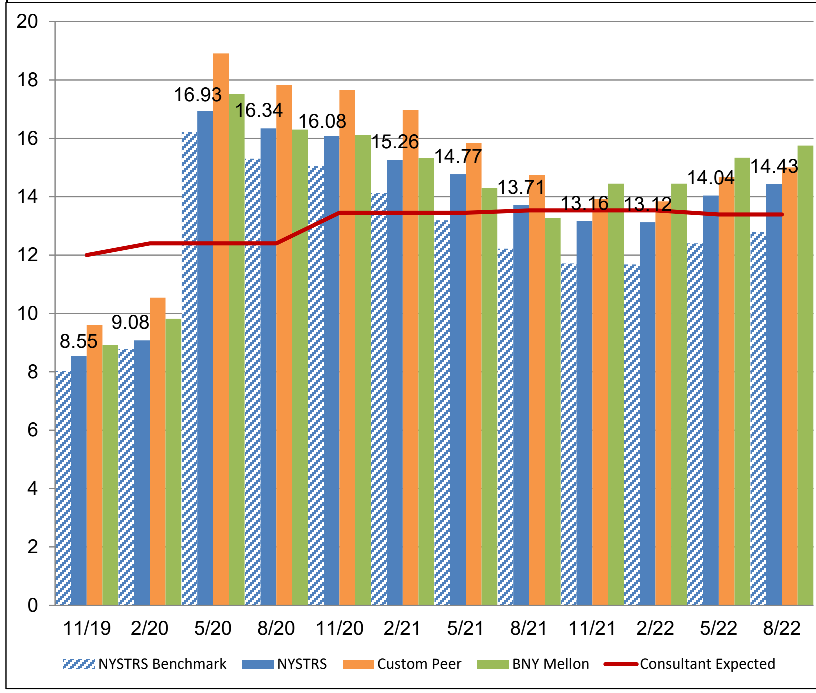
Asset class contributions to Total Predicted Risk are in line with expectations, with equity investments being the largest contributors.



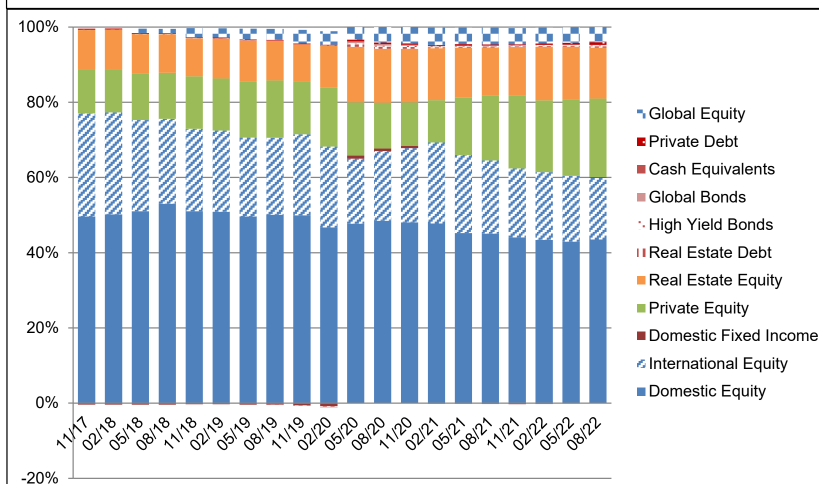

| Portfolio Name | | Market Value (Millions $) | Weight (%) | %CR to Total Risk | Total Plan Risk Cont. | Total Predicted Risk |
|---|---|---|---|---|---|---|
| ***Total Portfolio*** | ***$*** | ***129,954*** | ***100%*** | ***100%*** | ***14.43*** | ***14.43*** |
| Domestic Equity | $ | 43,727 | 33.65% | 43.51% | 6.28 | 19.35 |
| International Equity | $ | 19,541 | 15.04% | 16.38% | 2.36 | 17.67 |
| Private Equity | $ | 13,780 | 10.60% | 20.88% | 3.01 | 33.55 |
| Real Estate Equity | $ | 15,864 | 12.21% | 13.57% | 1.96 | 19.96 |
| Global Equity | $ | 4,302 | 3.31% | 4.02% | 0.58 | 18.14 |
| Private Debt | $ | 1,312 | 1.01% | 0.70% | 0.10 | 12.26 |
| Real Estate Debt | $ | 7,807 | 6.01% | 0.35% | 0.05 | 2.87 |
| High Yield Bonds | $ | 1,005 | 0.77% | 0.24% | 0.03 | 6.33 |
| Global Bonds | $ | 2,822 | 2.17% | 0.13% | 0.02 | 3.97 |
| Cash Equivalents | $ | 2,264 | 1.74% | 0.00% | 0.00 | 0.07 |
| Domestic Fixed Income | $ | 17,531 | 13.49% | 0.21% | 0.03 | 4.38 |

## Total Predicted Risk and Peer Comparison

Long term expected risk target 13.39%; short term predicted risk 14.43%

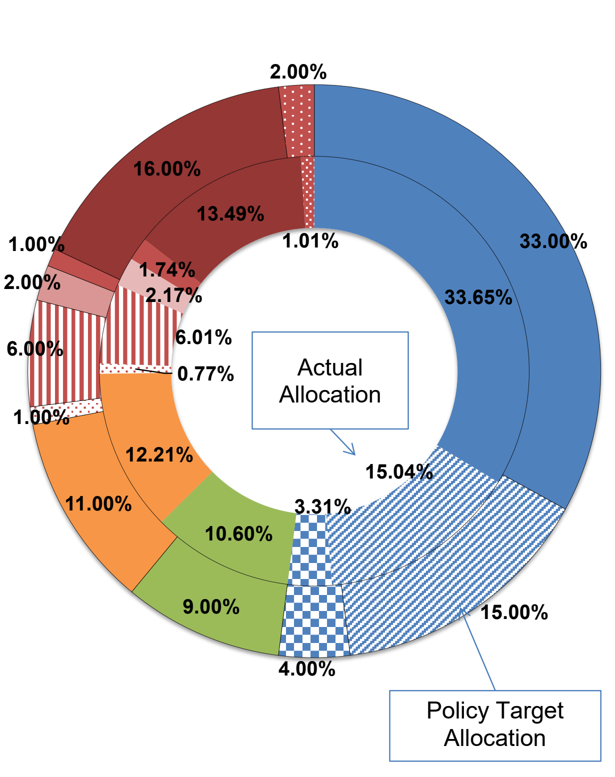


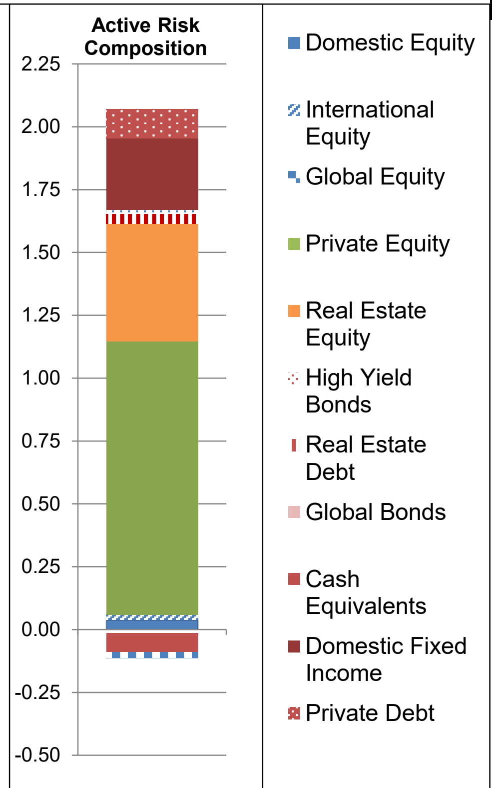

## Historical Total Predicted Risk Contribution



## Active Predicted Risk

Active predicted risk 1.95; a decrease of 2 bps from last quarter.



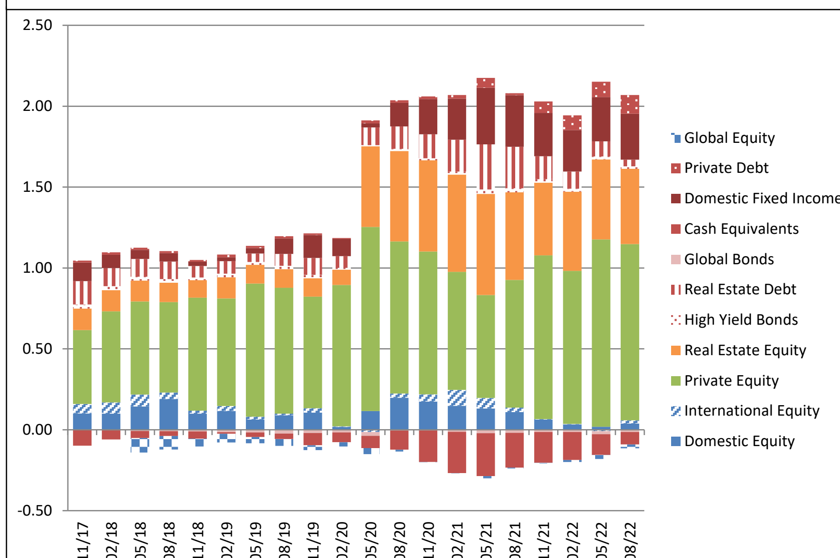

| Portfolio Name | Weight (%) | BMK Weight (%) | Active Weight (%) | Active Risk Cont. | % CR to Active Risk | Active Predicted Risk |
|---|---|---|---|---|---|---|
| ***Total Portfolio*** | ***100%*** | ***100%*** | ***0%*** | ***1.95*** | ***100%*** | ***1.95*** |
| Domestic Equity | 33.65% | 33.00% | 0.65% | 0.04 | 1.9% | 0.09 |
| International Equity | 15.04% | 15.00% | 0.04% | 0.02 | 1.0% | 0.46 |
| Global Equity | 3.31% | 4.00% | -0.69% | -0.02 | -1.2% | 2.26 |
| Private Equity | 10.60% | 9.00% | 1.60% | 1.09 | 55.7% | 9.30 |
| Real Estate Equity | 12.21% | 11.00% | 1.21% | 0.47 | 23.8% | 6.06 |
| High Yield Bonds | 0.77% | 1.00% | -0.23% | 0.02 | 0.8% | 0.41 |
| Real Estate Debt | 6.01% | 6.00% | 0.01% | 0.04 | 2.1% | 2.17 |
| Global Bonds | 2.17% | 2.00% | 0.17% | -0.01 | -0.7% | 0.62 |
| Cash Equivalents | 1.74% | 1.00% | 0.74% | -0.08 | -4.0% | 0.07 |
| Domestic Fixed Income | 13.49% | 16.00% | -2.51% | 0.28 | 14.6% | 1.10 |
| Private Debt | 1.01% | 2.00% | -0.99% | 0.11 | 5.9% | 8.16 |

**<u>Active Predicted Risk:</u>**
Active Predicted Risk is defined as the expected volatility of excess returns, and results from differences between actual portfolio weights and holdings vs. policy weights and holdings. Excess returns may be positive or negative.

**<u>Observations:</u>**
Active Risk for the Fund is largely controlled by limiting the difference between the actual and policy benchmark (target) weights for each asset class.

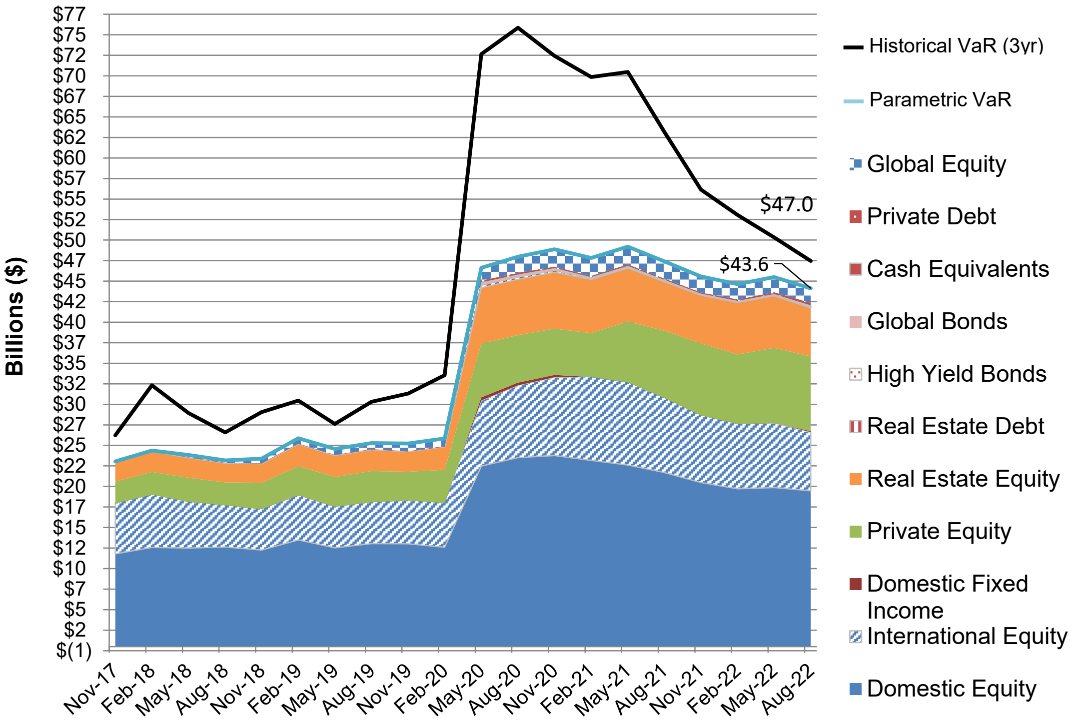
Benchmarking issues associated with private market portfolios also affect the measurement of 'active' risk. We see this most significantly with NYSTRS' private equity portfolio.

### Historical Active Risk Contribution



## Value at Risk Contribution by Asset Class

VaR metrics remain elevated as a result of recent market volatility. NYSTRS' strong liquidity position provides significant downside protection against realized portfolio losses.




| Portfolio Name | Total Portfolio VaR | Diversification Benefit | $ Contribution to VaR (millions) | %Contribution to VaR |
|---|---|---|---|---|
| ***Total Portfolio*** | ***$50,743*** | ***-$7,124*** | ***$43,619*** | ***100%*** |
| Domestic Equity | $19,684 | | $18,980 | 43.51% |
| International Equity | $8,031 | | $7,145 | 16.38% |
| Private Equity | $10,754 | | $9,108 | 20.88% |
| Real Estate Equity | $7,365 | | $5,920 | 13.57% |
| High Yield Bonds | $148 | | $103 | 0.24% |
| Real Estate Debt | $521 | | $153 | 0.35% |
| Global Bonds | $261 | | $58 | 0.13% |
| Cash Equivalents | $4 | | $0 | 0.00% |
| Domestic Fixed Income | $1,786 | | $93 | 0.21% |
| Private Debt | $374 | | $304 | 0.70% |
| Global Equity | $1,816 | | $1,755 | 4.02% |

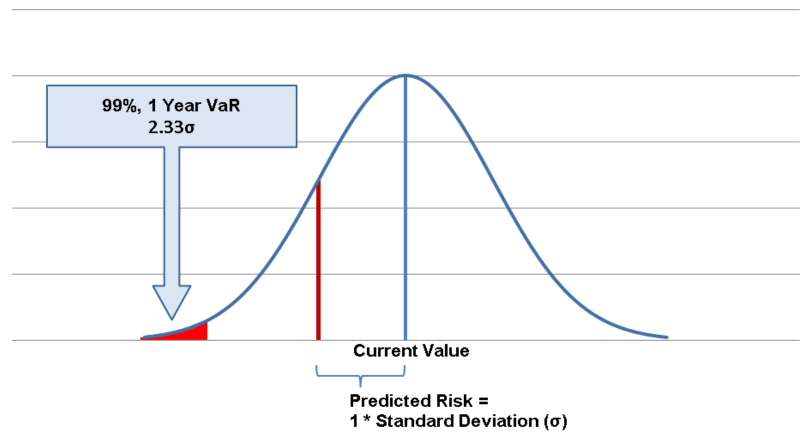
**Value at Risk:**
Value at Risk (VaR) is an estimate of the maximum portfolio loss over a specified time period and confidence interval given normal market conditions. VaR can be expressed in % loss or dollar terms. In this analysis, we use a 1 year time horizon and a 99% confidence interval. VaR can also be stated as: There is a 99% chance that the portfolio's market value will not lose more than [VaR amount] over the next year.

**Methods Used:**
► *Parametric VaR:* 99%VaR($) = 2.33σ * Portfolio Market Value
► *Historical Simulation VaR:* 99%VaR($) = Simulated P&L of portfolio utilizing empirical daily risk factor/price changes. 3 year lookback period (756 trading days) observed.

**Drawbacks:**
Parametric VaR assumes asset returns are normally distributed which may not be realistic. This could underestimate the VaR due to unfavorable asset returns having a higher chance of occurring in real life.

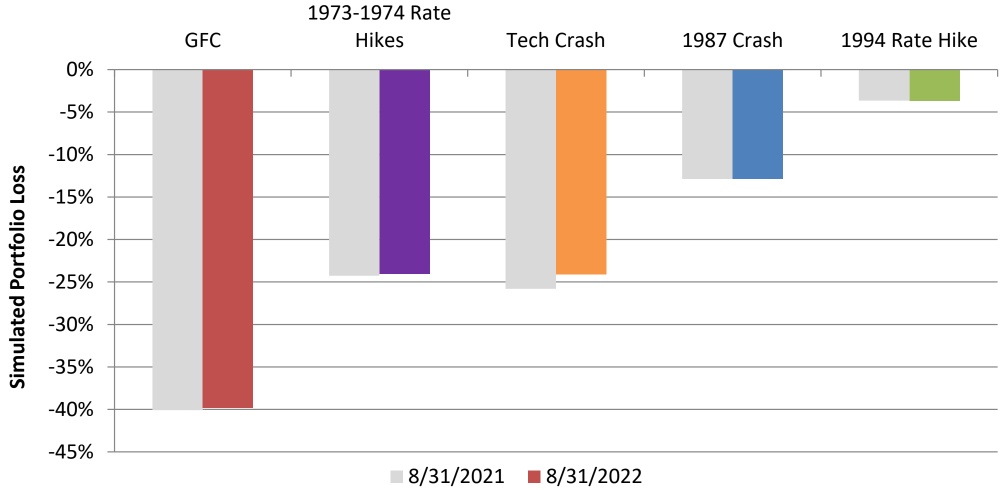
Historical Simulation VaR assumes past returns are indicative of future returns which may not be realistic. The specific return period analyzed directly impacts results which may or may not capture typical volatility, market extremes, or cyclicality.

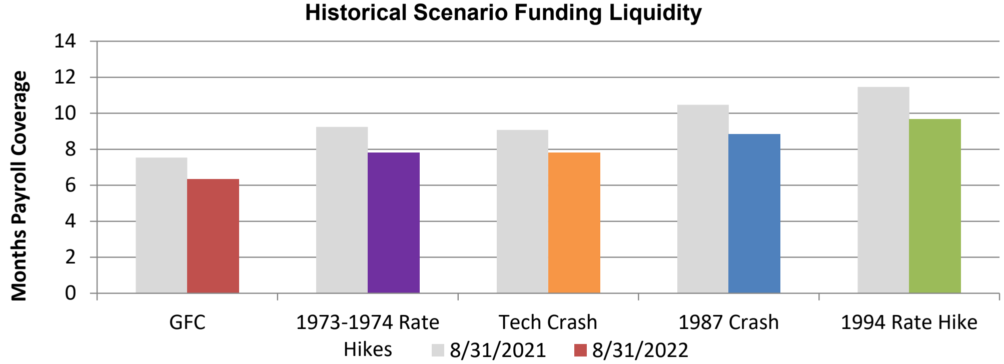
NYSTRS' Value at Risk

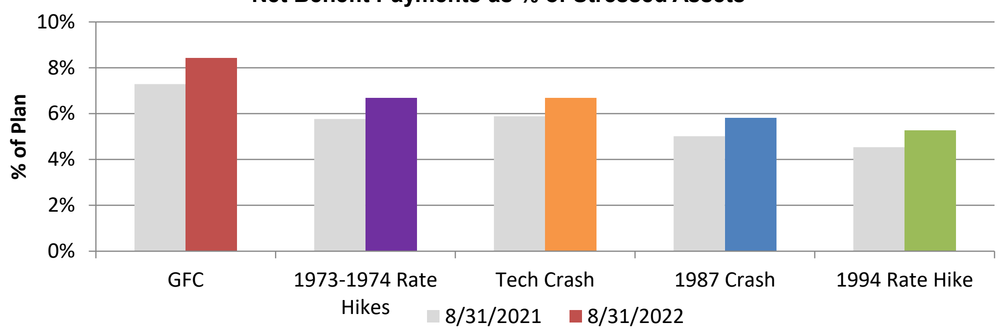


## Historical Scenario Analysis

Scenario analysis is in line with expectations. Net Benefit Payments as a % of Assets in the most severe scenario is approximately 7%.




**Scenario Analysis**
A scenario analysis seeks to determine how a portfolio may be affected by subjecting it to various historical or hypothetical market conditions.

**Historical Scenarios**:
The following historical scenarios apply market conditions experienced during their respective timeframes to NYSTRS' current portfolio as an instantaneous shock with no ability to rebalance or otherwise manage assets during the event. Simulated losses are illustrated on the chart to the top left. High level scenario inputs are provided below for context:

| Historical Scenario | Domestic Equity | UST Yields: 2y/5y/10y (bps) | Credit Spreads: AA/BB/CCC (bps) |
|---|---|---|---|
| Global Financial Crisis: (9/30/07-3/4/09) | -54% | -308/-226/-115 | +234/+849/+3779 |
| 1973-1974 Stagflation & Rate Hikes: (1/1/73-8/31/74 ) | -35% | +347(1y)/+239/+158 | LIBOR +334 |
| Tech Crash & Recession: (1/9/00-3/12/03) | -47% | -488/-387/-281 | -13/+244/+1151 |
| 1987 Stock Market Crash: (8/3/87-11/30/87 ) | -27% | Unchanged | Unchanged |
| 1994 US Rate Hike: (1/31/94-12/13/94) | -6% | +162/+152/+131 | +2/+36/+0 |

**Funding Liquidity:**
The middle chart depicts how each historical scenario would impact funding liquidity after a one-time rebalance to target policy weights. Cash and Domestic Fixed Income coverage represents how much of each asset could be used to make payroll before lower asset allocation bounds were breached and additional rebalancing was required. The attribution of each payroll coverage asset and cash flow component (in months coverage) is as follows:

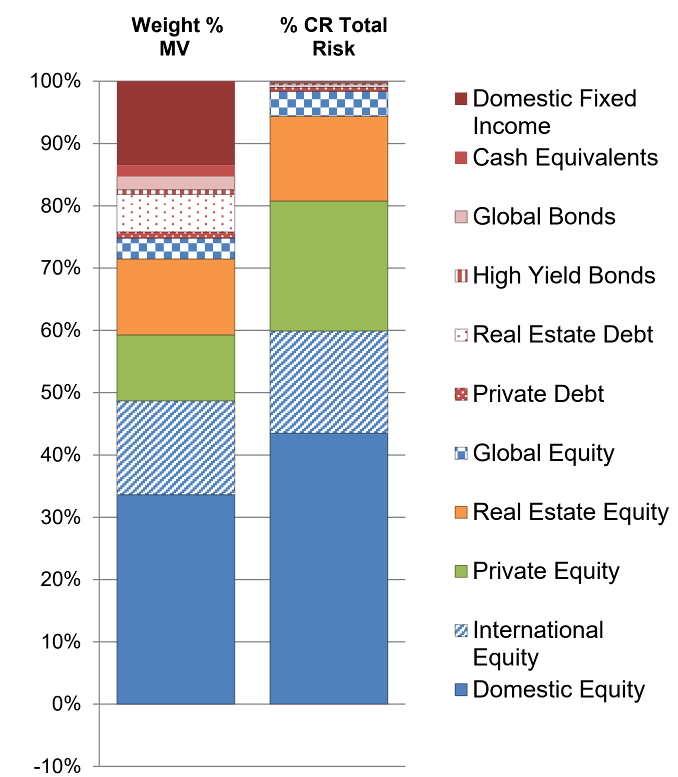
| Funding Liquidity Assumptions | Months Coverage | |
|---|---|---|
| | 8/31/2021 | 8/31/2022 |
| Cash + Domestic Fixed Income | 6.5 to 10.4 | 5.5 to 8.9 |
| Portfolio Income/Maturities | 7.6 | 7.8 |
| Employer Contributions | 2.6 | 2.7 |
| Capital Calls | -9.1 | -9.6 |
| **Total Payroll Coverage** | **8 to 11** | **6 to 10** |

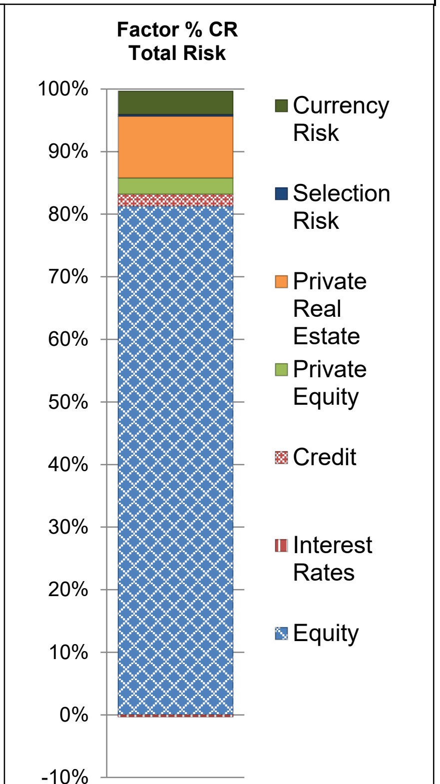
**Net Benefit Payments as % of Assets:**
The bottom chart depicts how each historical scenario would impact net benefit payments as a percentage of assets. Figures are representative of each scenarios market bottom and do not incorporate expected cash flows or market recovery. (*Net Benefit Payments=Annual Benefit Payments-Employer & Employee Contributions)

## Risk Management
## Investment Risk Board Report October 2022

### Total Predicted Risk by Risk Factor

As expected, equity markets are the largest contributor to the Plan's total risk while interest rates slightly diversify away risk.




| Risk Source | Total Plan Risk Cont. | %CR to Total Risk | BMK Risk Cont. | BMK %CR to Total Risk | % CR to Active Risk |
|---|---|---|---|---|---|
| ***Total Risk*** | ***14.43*** | ***100%*** | ***12.79*** | ***100.00%*** | ***100%*** |
| Local Market Risk | 13.89 | 96.26% | 12.35 | 96.57% | 95.35% |
| Common Factor Risk | 13.85 | 96.00% | 12.29 | 96.12% | 89.31% |
| Equity | 11.82 | 81.88% | 10.34 | 80.83% | 67.45% |
| Interest Rates | -0.05 | -0.34% | -0.02 | -0.16% | 4.09% |
| Credit | 0.28 | 1.92% | 0.37 | 2.92% | -3.72% |
| Private Equity | 0.37 | 2.58% | 0.17 | 1.36% | 18.75% |
| Private Real Estate | 1.44 | 9.97% | 1.43 | 11.17% | 2.74% |
| Selection Risk | 0.04 | 0.26% | 0.06 | 0.45% | 6.04% |
| Currency Risk | 0.54 | 3.74% | 0.44 | 3.43% | 4.65% |

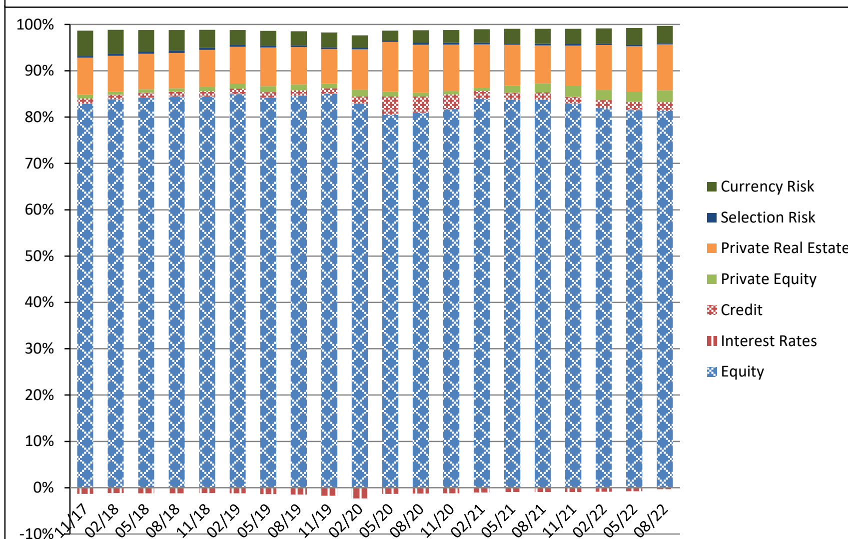
**Risk Factors:**
Risk factors are characteristics shared by a group of securities that influence their risk and return as well as their correlations.

The five risk factor groups used for this analysis (equity, interest rates, credit, private equity, and private real estate) can be further decomposed into underlying factors such as industry, style, interest rate term structure, and geography. Each factor has an expected volatility and correlation with the other risk factors.

All of NYSTRS holdings are modeled according to their exposures to individual risk factors.

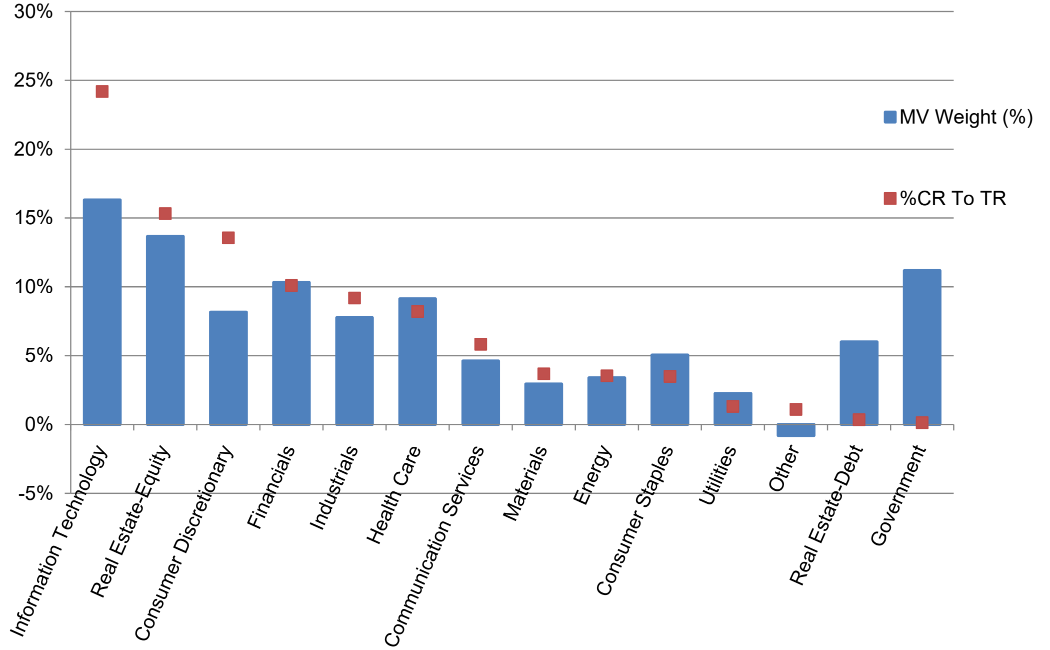
**Observations:**
As expected, Total Plan risk is primarily driven by the equity markets and NYSTRS' exposure to interest rates reduces Total Plan risk.

### Historical Risk Factor Contribution to Total Risk



## Sector Concentration

Sector contribution to risk is in line with expectations.




| | | Mkt Value (Mil $) | Weight (%) | Total Plan Risk Cont. | % CR to Total Risk | Total Predicted Risk |
|---|---|---|---|---|---|---|
| ***Total Portfolio*** | ***$*** | ***129,954*** | ***100%*** | ***14.43*** | ***100%*** | ***14.43*** |
| Information Technology | $ | 21,195 | 16.31% | 3.49 | 24.19% | 22.98 |
| Real Estate-Equity | $ | 17,762 | 13.67% | 2.21 | 15.32% | 19.67 |
| Consumer Discretionary | $ | 10,622 | 8.17% | 1.96 | 13.56% | 25.50 |
| Financials | $ | 13,408 | 10.32% | 1.46 | 10.10% | 15.49 |
| Industrials | $ | 10,090 | 7.76% | 1.33 | 9.19% | 18.04 |
| Health Care | $ | 11,873 | 9.14% | 1.18 | 8.20% | 15.68 |
| Communication Services | $ | 5,993 | 4.61% | 0.84 | 5.83% | 20.10 |
| Materials | $ | 3,836 | 2.95% | 0.53 | 3.69% | 20.14 |
| Energy | $ | 4,409 | 3.39% | 0.51 | 3.54% | 24.36 |
| Consumer Staples | $ | 6,557 | 5.05% | 0.50 | 3.49% | 11.77 |
| Utilities | $ | 2,922 | 2.25% | 0.19 | 1.31% | 12.09 |
| Other | $ | (1,054) | -0.81% | 0.16 | 1.09% | 24.31 |
| Real Estate-Debt | $ | 7,807 | 6.01% | 0.05 | 0.35% | 2.87 |
| Government | $ | 14,535 | 11.18% | 0.02 | 0.13% | 4.22 |

"Other" primarily consists of Cash, Private Equity fund liabilities; fund of funds; derivatives; and asset backed securities.

**<u>Sectors:</u>**

In developing the sector schedule, NYSTRS began with industry recognized sectors used by MSCI and S&P.

Five custom sectors were added to this base to accommodate the Fund's allocation to Government, Real Estate Debt, Real Estate Equity, Cash and "Other" investments.

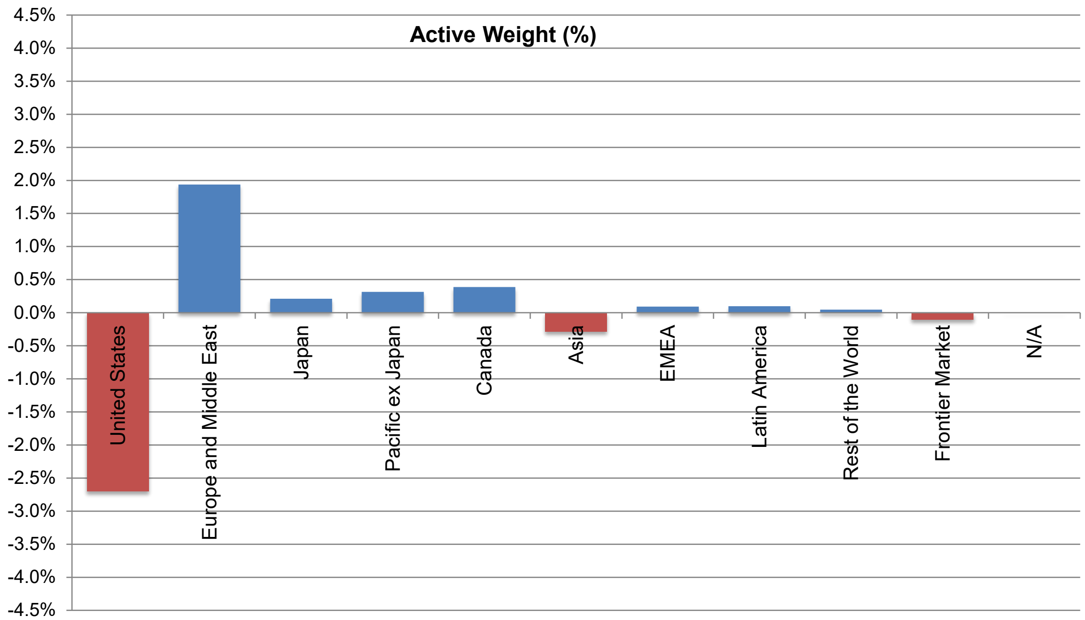
Defensive sectors such as Utilities, and Consumer Staples tend to be more stable and less volatile regardless of the condition of the overall financial markets. Because these sectors are not highly correlated with the business cycle, they are also known as "non-cyclical". Cyclical sectors such as Consumer Discretionary and Materials tend to be correlated with the business cycle and can be more volatile than defensive sectors. [1]

These characteristics can be seen in the chart. The risk contribution by the defensive sectors is less than their market value allocation and the risk contribution by the cyclical sectors is higher than their market value allocation.

[1]Investopedia

## Geographic Region Concentration

Total developed and emerging market regions are within 1.0% of benchmark.




| Geographic Region* | | Mkt Value (Mil $) | Weight (%) | Bmk Weight (%) | Active Weight (%) | Total Plan Risk Cont. | Total Predicted Risk |
|---|---|---|---|---|---|---|---|
| ***Total Portfolio*** | ***$*** | ***129,954*** | ***100%*** | ***100%*** | ***0%*** | ***14.43*** | ***14.43*** |
| **Total Developed** | **$** | **121,512** | **93.50%** | **93.35%** | **0.16%** | **13.55** | **14.51** |
| United States | $ | 99,153 | 76.30% | 79.00% | -2.70% | 10.84 | 14.39 |
| Europe and Middle East | $ | 13,698 | 10.54% | 8.60% | 1.94% | 1.82 | 19.50 |
| Japan | $ | 3,587 | 2.76% | 2.55% | 0.21% | 0.30 | 16.13 |
| Pacific ex Japan | $ | 2,414 | 1.86% | 1.54% | 0.31% | 0.30 | 19.51 |
| Canada | $ | 2,660 | 2.05% | 1.66% | 0.39% | 0.29 | 16.43 |
| **Total Emerging** | **$** | **7,688** | **5.92%** | **6.01%** | **-0.10%** | **0.85** | **18.87** |
| Asia | $ | 6,186 | 4.76% | 5.05% | -0.29% | 0.60 | 17.78 |
| EMEA | $ | 723 | 0.56% | 0.46% | 0.09% | 0.12 | 35.22 |
| Latin America | $ | 779 | 0.60% | 0.50% | 0.10% | 0.13 | 31.46 |
| **Total Other** | **$** | **754** | **0.58%** | **0.64%** | **-0.06%** | **0.03** | **6.95** |
| Rest of the World | $ | 499 | 0.38% | 0.34% | 0.05% | 0.00 | 2.74 |
| Frontier Market | $ | 256 | 0.20% | 0.30% | -0.10% | 0.02 | 19.79 |
| N/A | $ | (0) | 0.00% | 0.00% | 0.00% | 0.01 | - |

**Observations:**
As expected, the largest contribution on a geographic basis comes from NYSTRS exposure to U.S. investments.

*See appendix for countries included in each geographic region.

## Glossary:

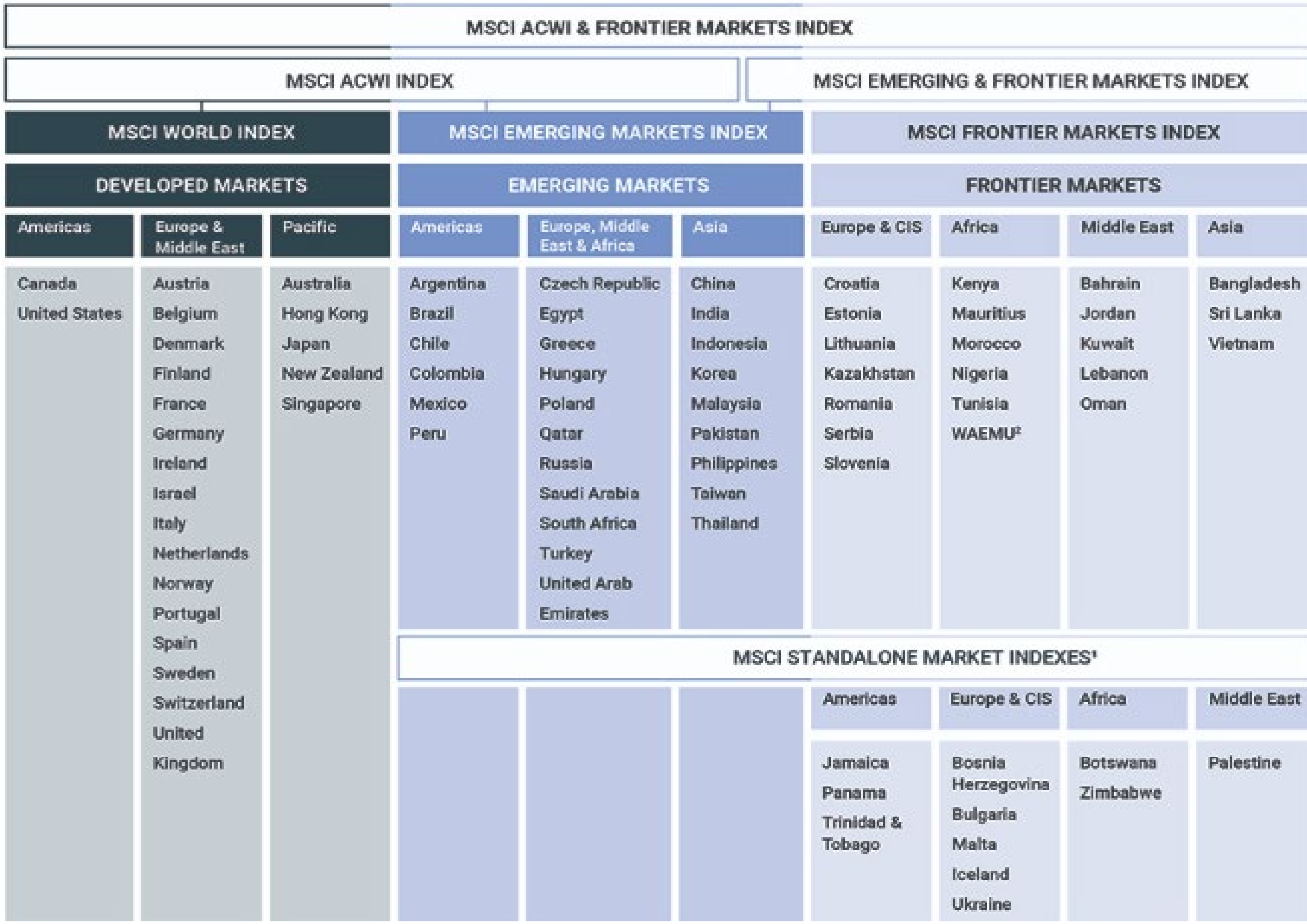
**%CR to Active Risk:** Percent of Plan's Active Predicted Risk contributed by each component. This column sums to 100%.
**%CR to Total Risk:** Percent of Plan's Total Predicted Risk contributed by each component. Negative numbers imply a diversification benefit. This column sums to 100%.
**Active Predicted Risk:** Asset class portfolios' Active Predicted Risk compared to its respective benchmark.
**Active Risk Cont.:** Absolute contribution to Plan's Active Predicted Risk from each asset class portfolio. This column sums to the Plan's Active Predicted Risk.
**Active Weight (%):** Difference between the Plan's current weight and the Plan's benchmark policy weight.
**BMK %CR to Total Risk:** Percent of Total Predicted Risk for the Plan's Policy Benchmark contributed by each component. This column sums to 100%.
**BMK Risk Cont.:** Absolute contribution to Total Predicted Risk for Plan's Policy Benchmark from each Risk Factor group.
**Total Predicted Risk:** Individual components' distinct Total Predicted Risk.
**Total Plan Risk Cont.:** Absolute contribution to Plan's Total Predicted Risk from each component. Negative numbers imply a diversification benefit. This column sums to the Plan's Total Predicted Risk.
**Total Portfolio VaR:** The expected loss to a specified degree of confidence (99%) when subjected to a historical stress simulation. Also could be stated as there is a 99% chance that the total portfolio or individual asset classes' market value will not lose more than the [VaR amount] over the next year.
**Diversification Benefit:** The benefit achieved by owning a diversified portfolio comprised of assets with correlations < 1.

## Notes:

BNY Mellon Peer Median; >$10B: BNY Mellon Total Public Fund > $10B median allocation.
- 41 public pension funds with an average plan size of $41.6B. Aggregate assets of $1,706.1B.

NYSTRS Custom Peer Group Median: NYSTRS' custom peer group used during annual asset allocation study. Allocation data provided by Pension Fund Date Exchange, ltd. (PFDE).
- 5 public pension funds with an average plan size of $160B and median plan size of $99B.
    - California State Teacher' Retirement System
    - New Jersey Division of Investment
    - Oregon Public Employees' Retirement Fund
    - State Board of Administration of Florida
    - State Teachers Retirement System of Ohio

## Appendix:




*MSCI.com/market-classification

# NEW YORK STATE
# TEACHERS' RETIREMENT SYSTEM

## INVESTMENT COMMITTEE MEETING
## October 26, 2022

INVESTMENT COMMITTEE MEETING
NEW YORK STATE TEACHERS' RETIREMENT SYSTEM

A meeting of the Investment Committee of the Retirement Board of the New York State Teachers' Retirement System was held at the System on October 26, 2022. Nicholas Smirensky, Chair, called the meeting to order at 9:01 a.m.

Investment Committee
Elizabeth Chetney, David Keefe, Jennifer Longtin, Christopher Morin, Nicholas Smirensky

Board Members
Juliet Benaquisto, Phyllis Harrington, Eric Iberger, Oliver Robinson

NYSTRS' Staff
Thomas Lee, Ed Rezny (via Webex), Heidi Brennan, Vijay Madala, Margaret Andriola, Ken Kasper, Kathy Ebert, Gerald Yahoudy, Michael Federici, Don Ampansiri, Matt Albano, Miriam Dixon, Paul Cummins, Dave Gillan, Aaron VanDerwiel, Brad Woolworth, Richard Young (via WebEx), Danny Malavé, Han Yik, Emily Ekland, Christopher Brown, Aaron Vanderwiel, Joseph Wood, Nick Chladek, Ben Keezer, Bridget Seager, Jeffrey Shubert, Stacey Lesser Meehan

System Consultants

Callan Associates Inc. – Tom Shingler, Lauren Sertich, Jonathan Gould
Millie Viqueria (via WebEx), Nathan Wong (via WebEx)

StepStone – Jose Fernandez (via Webex), Scott Schwind (via WebEx)

NYSTRS' Risk Advisors - Peter Cosgrove (via WebEx), Steve Huber (via WebEx)

Visitors- via WebEx

Cyril Espanol - WithIntelligence
Dave Barry – Markets Group
Greg Gethard – PEI Media

## Approval of Minutes

A. Approval of Minutes of August 3, 2022 Investment Committee Meeting

Upon motion of D. Keefe, seconded by J. Longtin and unanimously carried, the minutes of the August 3, 2022 Investment Committee meeting were approved.

The Investment Committee heard presentations on and reviewed the following information regarding the System's investments and performance.

## Review of Investments

1. Investment Committee Executive Summary (Appendix A, pp. 10-18)
2. Public Equities Update (Appendix B, p. 19)
3. Fixed Income Update (Appendix C, p. 20)
4. Real Estate Update (Appendix D, pp. 21-22)
5. Private Equity/Debt Update (Appendix E, pp. 23-31)
6. Callan

T. Shingler gave a performance update and a report on peer review rankings.

## Presentations

A. Real Estate Strategic Plans

L. Sertich and J. Gould from Callan provided an update on strategic plan recommendations for the Real Estate Equity and Debt portfolios.

B. Fixed Income Presentation

Upon motion of D. Keefe, seconded by J. Longtin and unanimously carried, the Committee went into Executive Session at 11:44 a.m. to hear a Fixed Income manager presentation and have a discussion on a Real Estate item.

J. Wood and M. Federici recommended the approval of PGIM, to manage a broad high yield mandate. J. Wood introduced Shannon Walsh, John Vibert, Rob Spano and Jennifer Herrera from PGIM and they gave a presentation on their firm and investment strategy to the Committee.

The Committee also discussed a potential exit strategy regarding a particular asset.

Upon motion of D. Keefe, seconded by J. Longtin and unanimously carried, the Committee came out of Executive Session at 12:35 p.m. and continued in open session.

Investment Committee Actions

A. Consent Agenda Recommendation items #1-5 (see Appendix F, pp. 32-33)

N. Smirensky asked the committee members if any of the consent agenda items should be moved to regular discussion items. Hearing no objections, the Committee proceeded to move the Consent Agenda Recommendation items together with one motion.

Upon motion of J. Longtin, seconded by D. Keefe, the members of the Investment Committee voted unanimously to recommend the following consent agenda items (#1-5) to the Retirement Board:

1. Renew Consultants

- Callan (Real Estate)

RESOLVED, That the Executive Director and Chief Investment Officer is authorized to renew the contract with Callan LLC to serve as the System's real estate consultant and to perform such assignments as may be determined by the Executive Director and Chief Investment Officer or his designees in connection therewith, for the one year period commencing February 1, 2023 at an annual retainer not to exceed $244,430 and at fees for individual fund due diligence not to exceed $37,130 per domestic fund and $47,740 per international fund, plus expenses, and for monitoring the System's external real estate securities managers on a quarterly basis not to exceed $5,200 per manager for each investment strategy, plus expenses, together with other services in accordance with the terms of the existing contract.

- StepStone

RESOLVED, That the Executive Director and Chief Investment Officer is authorized to renew the System's contract with StepStone Group LP to serve as the System's private equity and private debt consultant and to perform such assignments as may be determined by the Executive Director and Chief Investment Officer or his designees in connection therewith, for a period of one year, commencing February 1, 2023 for all fixed services at an annual retainer not to exceed the current term's fee of $1,200,000 (subject to an inflation price adjustment not to exceed the lesser of 3% and the change in the ECI Index) and for fund reviews exceeding the 12 contained in the fixed services at fees not to exceed $50,000 per fund, and for all optional services at fees (1) for research on market trends or on private equity or private debt partnerships not in our portfolio not to exceed $40,000 per report; (2) for special research assignments to better define goals and objectives or monitor portfolio risk not to exceed $40,000 per report; (3) for negotiating final investment agreements and work with the System's legal counsel and staff in drafting, reviewing and/or revising partnership agreements, subscription agreements and other required documents for an additional fee not to exceed $15,000 per agreement; (4) for providing professional training not to exceed $20,000 per training; (5) for attending annual meetings and providing meeting notes not to exceed $8,000 per meeting; (6) for monitoring and reporting on legacy partnerships not to exceed $4,500 per partnership.

2. Renew Managers

- AQR Capital Management LLC

RESOLVED, That the Executive Director and Chief Investment Officer is authorized to renew the agreement with AQR Capital Management, LLC to manage a portion of the System's assets as an active MSCI ACWI Ex-US international equity manager for a period of one-year, effective January 6, 2023.

- BlackRock Institutional Trust Company

RESOLVED, That the Executive Director and Chief Investment Officer is authorized to renew the agreement with BlackRock Institutional Trust Company, N.A. to manage a portion of the System's assets as a passive ACWI ex-US international equity manager for a period of one-year, effective December 12, 2022.

- Dimensional Fund Advisors

RESOLVED, That the Executive Director and Chief Investment Officer is authorized to renew the agreement with Dimensional Fund Advisors to manage a portion of the System's assets as an active emerging markets manager benchmarked to the MSCI Emerging Markets Index for a period of one-year commencing February 19, 2023.

- Goldman Sachs Asset Management

RESOLVED, That the Executive Director and Chief Investment Officer is authorized to renew the agreement with Goldman Sachs Asset Management, L.P. to manage a portion of the System's assets as an active global bond manager benchmarked to the Bloomberg Global Aggregate Float Adjusted Bond Index in U.S. Dollars hedged to the U.S. dollar for a period of one-year, effective November 12, 2022.

- Harding Loevner Management

RESOLVED, That the Executive Director and Chief Investment Officer is authorized to renew the agreement with Harding Loevner LP to manage a portion of the System's assets as an active global equity manager benchmarked to the MSCI ACWI index for a period of one-year, effective February 27, 2023.

- Loomis Sayles & Co.

RESOLVED, That the Executive Director and Chief Investment Officer is authorized to renew the agreement with Loomis Sayles & Co. to manage a portion of the System's assets as an active global bond manager benchmarked to the Bloomberg Global Aggregate Float Adjusted ex-CNY Bond Index in USD "Hedged" to USD for a period of one-year, effective November 8, 2022

- Marathon Asset Management Limited, As Successor in Interest to Marathon Asset Management LLP

RESOLVED, That the Executive Director and Chief Investment Officer is authorized to renew the agreement with Marathon Asset Management Limited, as successor in interest to Marathon Asset Management, LLP, to manage a portion of the System's assets as an active EAFE international equity manager for a period of one year, effective January 24, 2023.

- Nomura Corporate Research & Asset Management

RESOLVED, That the Executive Director and Chief Investment Officer is authorized to renew the agreement with Nomura Corporate Research and

Asset Management Inc. to manage a portion of the System's assets as an active U.S. high yield manager benchmarked to the ICE BofAML BB-B US High Yield Constrained Index (HUC4) for a period of one-year, effective November 27, 2022.

- State Street Global Advisors

RESOLVED, That the Executive Director and Chief Investment Officer is authorized to renew the agreement with State Street Global Advisors Trust Company (successor-in-interest by assignment from State Street Bank and Trust Company) to manage a portion of the System's assets as a passive ACWI ex US international equity manager, for a period of one year, effective February 18, 2023.

3. Reappointments to the Investment Advisory Committee

- Steve Huber

WHEREAS, The term of Steve Huber, as a member of the Investment Advisory Committee expires on December 31, 2022; be it

RESOLVED, That the Retirement Board hereby reappoints Mr. Huber to a three-year term as a member of the Investment Advisory Committee, effective January 1, 2023.

- Johanna Fink

WHEREAS, The term of Johanna Fink, as a member of the Investment Advisory Committee, expires on December 31, 2022; be it

RESOLVED, That the Retirement Board hereby reappoints Ms. Fink to a three-year term as a member of the Investment Advisory Committee, effective January 1, 2023.

- James O'Keefe

WHEREAS, The term of James O'Keefe as a member of the Investment Advisory Committee, expires on December 31, 2022; be it

RESOLVED, That the Retirement Board hereby reappoints Mr. O'Keefe to a three-year term as a member of the Investment Advisory Committee, effective January 1, 2023.

4. Reappointments to the Real Estate Advisory Committee

- Eileen Byrne

WHEREAS, The term of Ms. Eileen Byrne as a member of the Real Estate Advisory Committee expires on December 31, 2022; be it

RESOLVED, That the Retirement Board hereby reappoints Ms. Byrne to a three-year term as a member of the Real Estate Advisory Committee effective January 1, 2023.

- Herman Bulls

WHEREAS, The term of Mr. Herman Bulls as a member of the Real Estate Advisory Committee expires on December 31, 2022; be it

RESOLVED, That the Retirement Board hereby reappoints Mr. Bulls to a three-year term as a member of the Real Estate Advisory Committee effective January 1, 2023.

5. Resolution on Investment Policy Manual

RESOLVED, That the Investment Policy Manual, as presented to the Retirement Board reflecting significant changes through October 2022, as summarized in the grid below, is approved and accepted.

| **POLICY** | **SUMMARY OF SIGNIFICANT CHANGES 2022** |
|---|---|
| Statement of Investment Policy | International Equity- change current target of 16% to 15% and target range from 12-20% to 11-19%<br>Private Equity-change current target of 8% to 9% and target range from 3-13% to 4-14%<br>Short Term (cash)-change current range of 1-4% to 0-4%<br>High Yield Bonds – updated policy benchmark name<br>Addition of the MSCI India IMI Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of India |
| High Yield Bonds | Updated to reflect benchmark addition: ICE BofA High Yield Constrained Index |
| International Equity | Change current target of 16% to 15% and target range from 12-20% to 11-19% |
| Private Equity | change current target of 8% to 9% and target range from 3-13% to 4-14% |
| Responsible Stewardship | New policy approved by the Board to be included in the IPM |
| Short Term Investments | change current range of 1-4% to 0-4% |
| Stock Proxy | As of October 2022, this section of IPM will be incorporated into the new Responsible Stewardship policy as an appendix |

6. Resolution on PGIM Broad High Yield Strategy

Upon motion of B. Chetney, seconded by J. Longtin the members of the Investment Committee voted unanimously to recommend the following resolution to the Retirement Board:

RESOLVED, That, subject to the satisfactory completion of due diligence, the Executive Director and Chief Investment Officer, or designee, is authorized to contract with PGIM, Inc. to manage a portion of the System's fixed income portfolio in a broad high yield fixed income mandate benchmarked to the Bloomberg US High Yield 1% Issuer Capped Index (the "Benchmark"), and to make an initial allocation of up to $150 million to such manager in one or more tranches; and be it further

RESOLVED, That the Executive Director and Chief Investment Officer, or designee, is authorized to modify the System's Investment Policy Manual to add the Benchmark to the list of performance benchmarks for high yield bond managers; and be it further

RESOLVED, That the Executive Director and Chief Investment Officer, or designee, is authorized to execute such documents and to take such actions as may be necessary or required to implement the foregoing resolution.

<u>Informational reports</u>

- The Committee reviewed the following informational reports: EDCIO Investment Discretion Report (Appendix G, pp. 34-36) and Mail Vote Quarterly Board Report (Appendix H, p. 37).

There being no other business and upon unanimous motion, the meeting adjourned at 12:40 p.m.

Respectfully submitted,

[redacted]

Thomas K. Lee

# Investment Committee Executive Summary

## Office of the CFO: Investment Operations Department

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**Investment Committee Meeting: October 26, 2022**

**Margaret Andriola, CIPM, CPA**
**Chief Financial Officer**

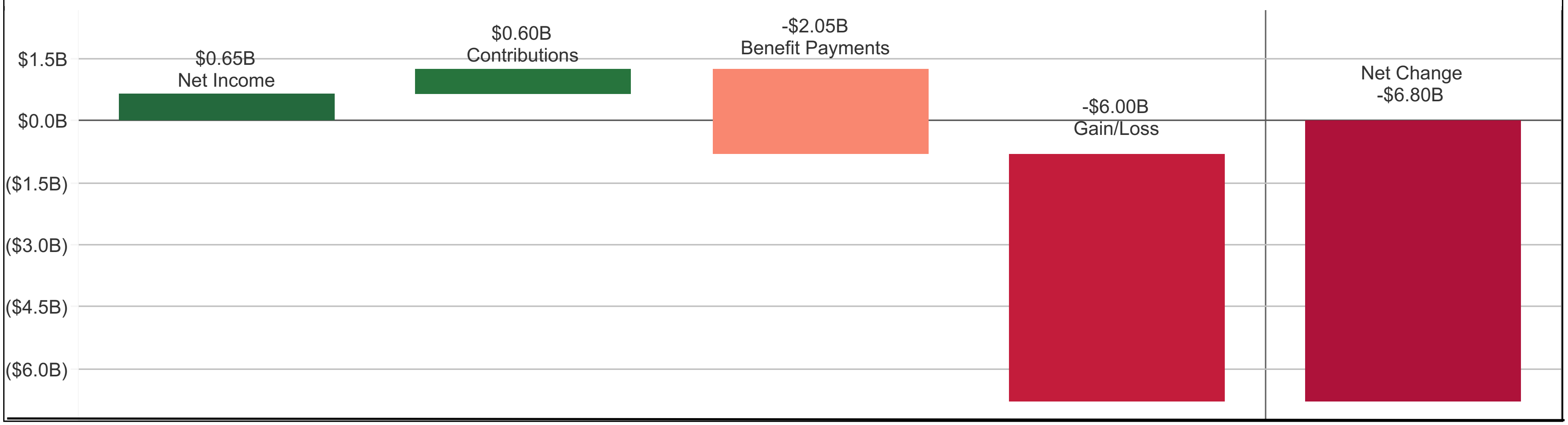
# Investment Committee Executive Summary

## Market Value Summary ('000s)

| Asset Category | Asset Class | September 30, 2022 Net Asset Value | September 30, 2022 % Net Asset Value | June 30, 2022 Net Asset Value | June 30, 2022 % Net Asset Value | September 30, 2021 Net Asset Value | September 30, 2021 % Net Asset Value |
|---|---|---|---|---|---|---|---|
| Equity | Domestic Equity | $39,587,923 | 32.1% | $41,996,869 | 32.3% | $48,697,594 | 33.7% |
| | International Equity | $17,648,892 | 14.3% | $19,595,506 | 15.1% | $23,691,492 | 16.4% |
| | Global Equity | $3,909,635 | 3.2% | $4,226,308 | 3.3% | $5,020,854 | 3.5% |
| | Real Estate Equity | $16,318,944 | 13.2% | $16,501,073 | 12.7% | $15,363,641 | 10.6% |
| | Private Equity | $13,859,720 | 11.3% | $14,073,681 | 10.8% | $14,967,742 | 10.4% |
| | ***Asset Category Subtotal*** | **$91,325,114** | **74.1%** | **$96,393,437** | **74.1%** | **$107,741,322** | **74.6%** |
| Fixed Income | Domestic Fixed Income | $16,849,018 | 13.7% | $18,358,958 | 14.1% | $19,156,275 | 13.3% |
| | Global Bonds | $2,592,643 | 2.1% | $2,889,172 | 2.2% | $3,220,008 | 2.2% |
| | High Yield | $970,083 | 0.8% | $974,221 | 0.7% | $983,396 | 0.7% |
| | Real Estate Debt | $8,061,632 | 6.5% | $7,708,371 | 5.9% | $7,495,727 | 5.2% |
| | Private Debt | $1,537,395 | 1.2% | $1,424,443 | 1.1% | $1,175,555 | 0.8% |
| | Cash & Short Term Debt | $1,860,009 | 1.5% | $2,272,389 | 1.7% | $4,623,814 | 3.2% |
| | ***Asset Category Subtotal*** | **$31,870,780** | **25.9%** | **$33,627,553** | **25.9%** | **$36,654,776** | **25.4%** |
| | ***Total Plan*** | **$123,195,893** | **100.0%** | **$130,020,990** | **100.0%** | **$144,396,098** | **100.0%** |

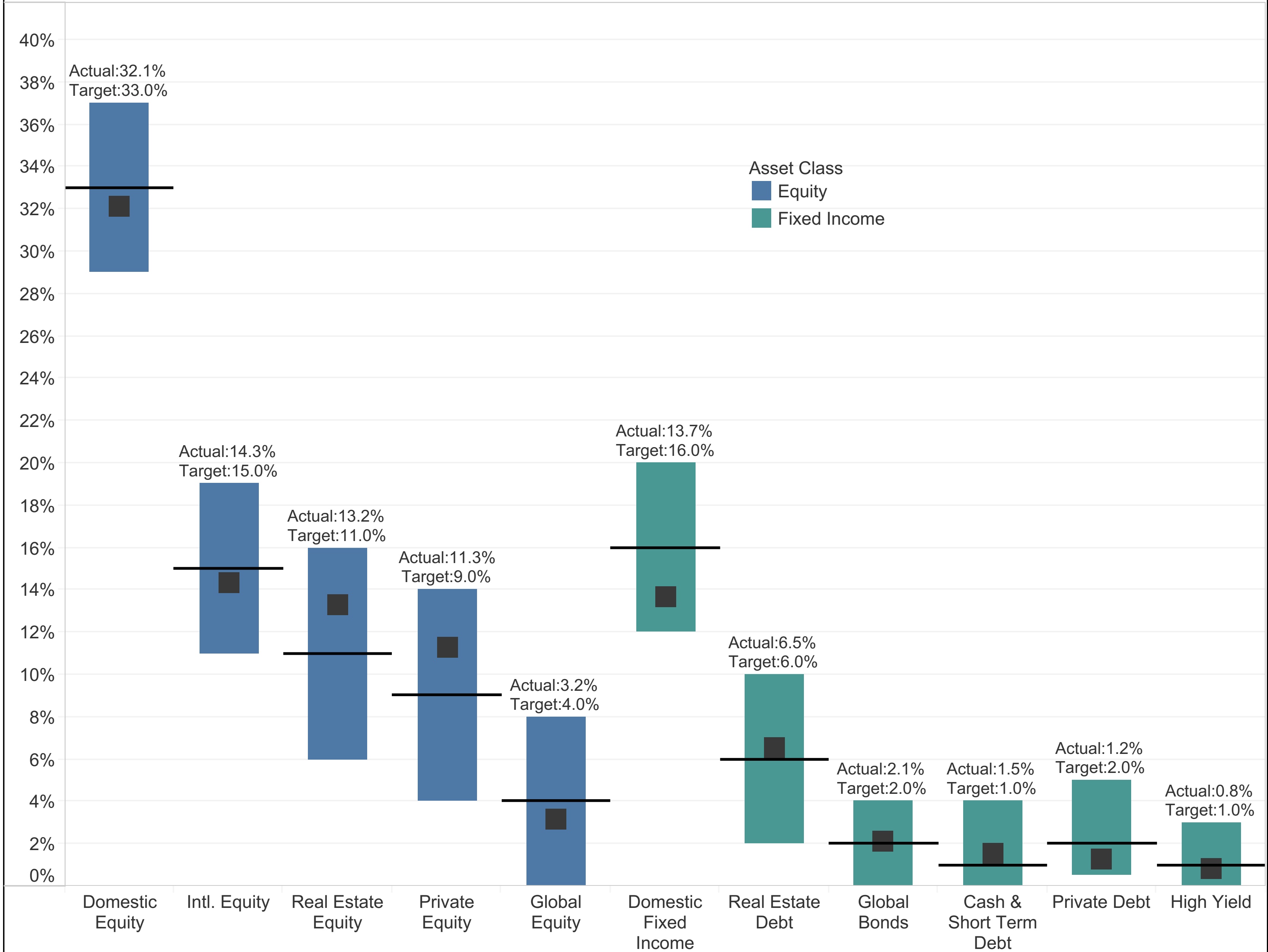
Due to rounding, numbers may not sum to 100%

## Components of Change in Total Investments
## FYTD: 7/1/2022 to 9/30/2022
## $130.0B to $123.2B

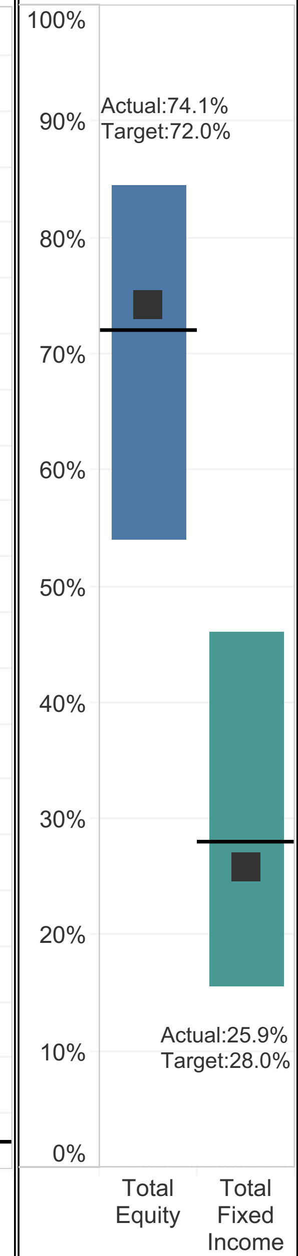


# Investment Committee Executive Summary

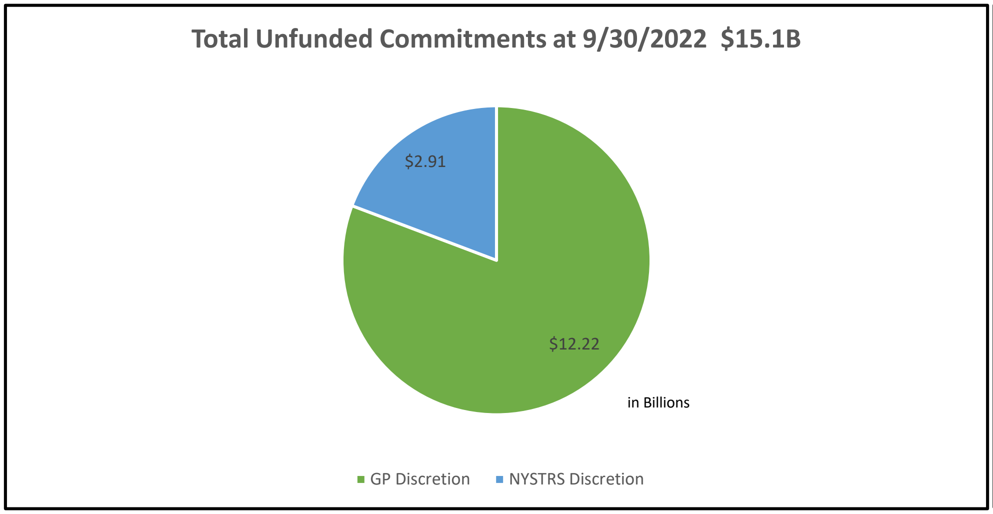
## NYSTRS' Asset Allocation: $123.2B (September 30, 2022)

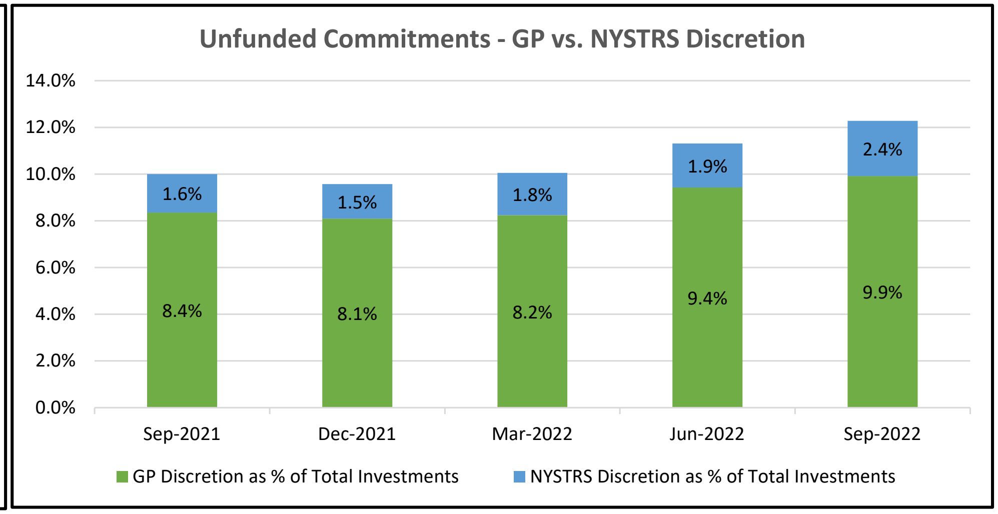


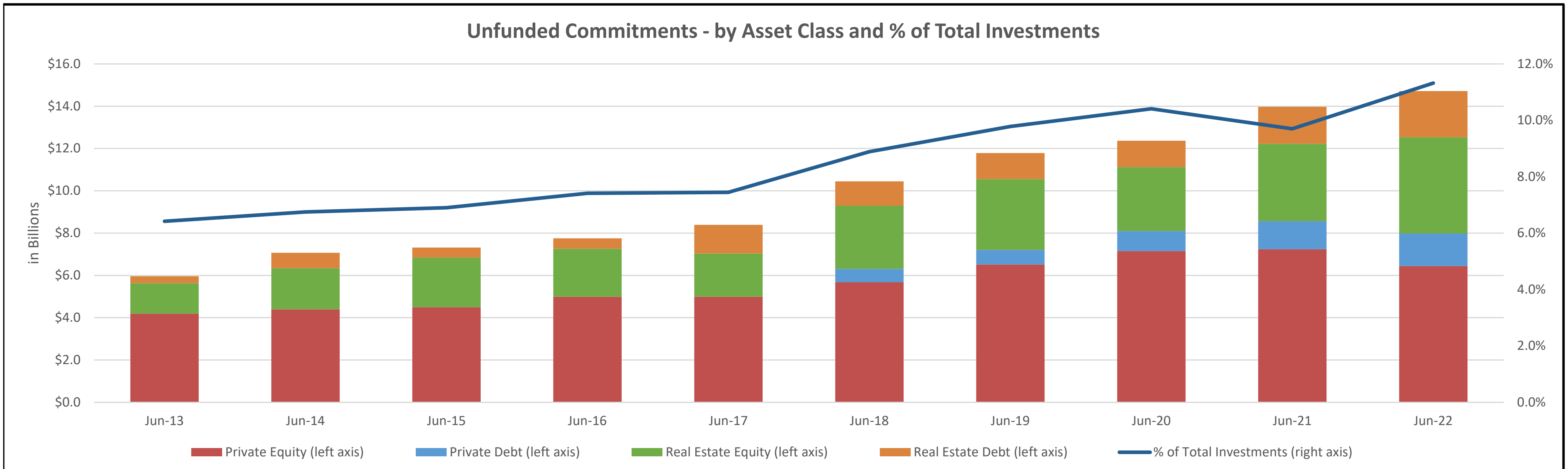

## Equity vs. Debt



# Unfunded Commitments - Private Assets

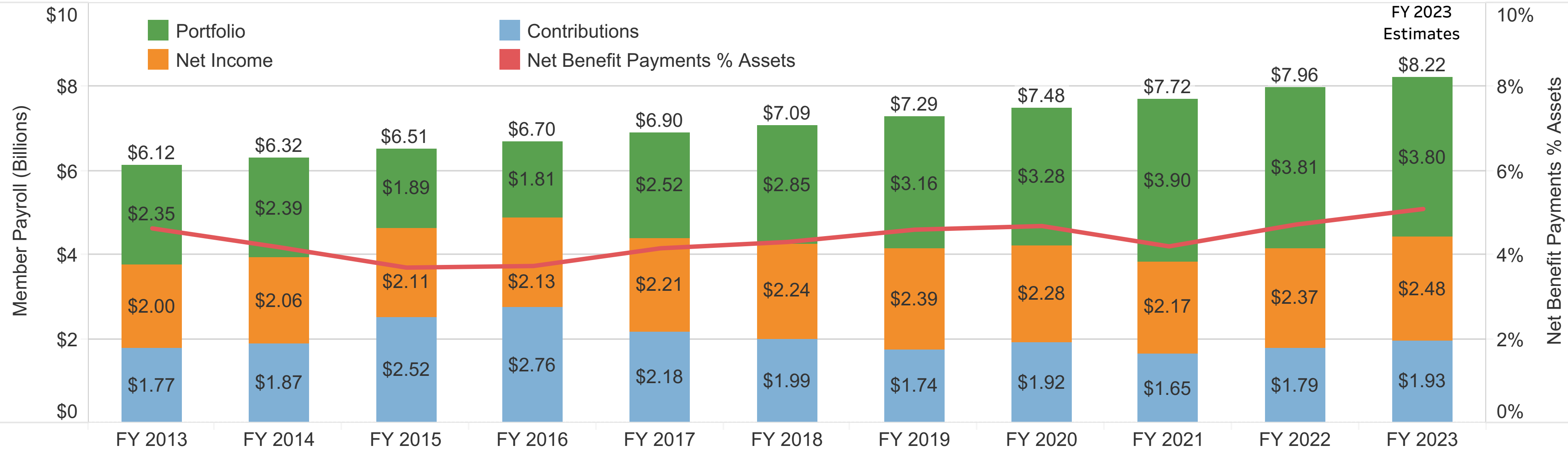


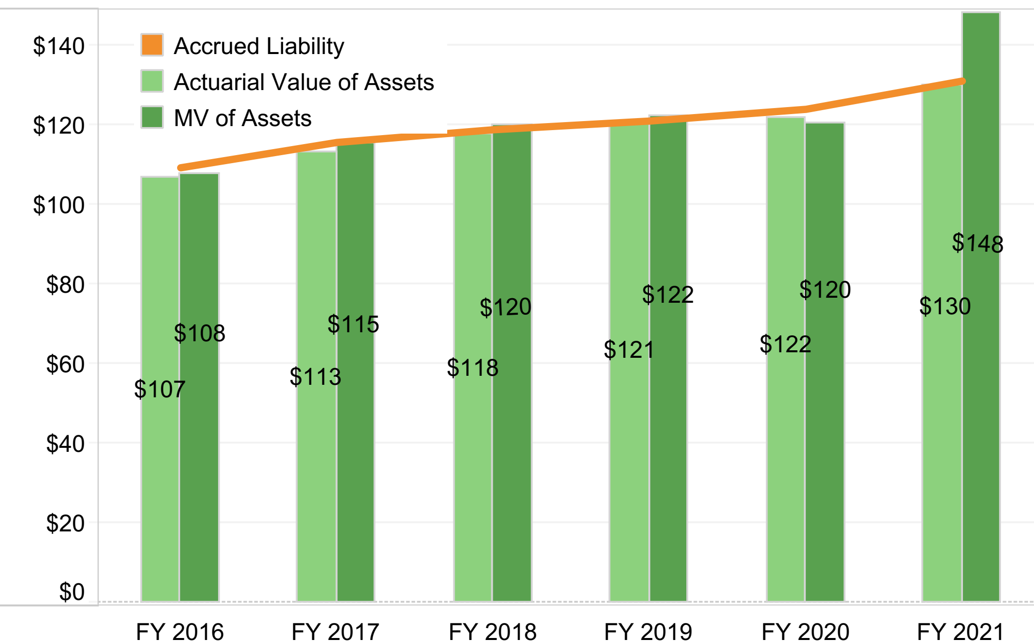



# Investment Committee Executive Summary

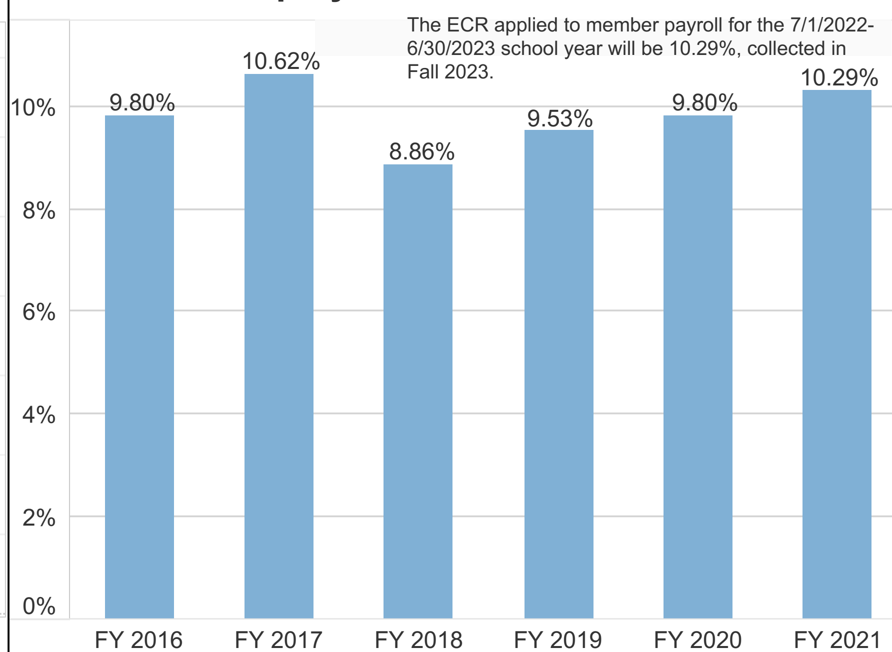
## Member Payroll Funding Sources




## Assets & Actuarial Accrued Liability




## Employer Contribution Rate



# Investment Committee Executive Summary

## Public Market Performance as of September 30, 2022

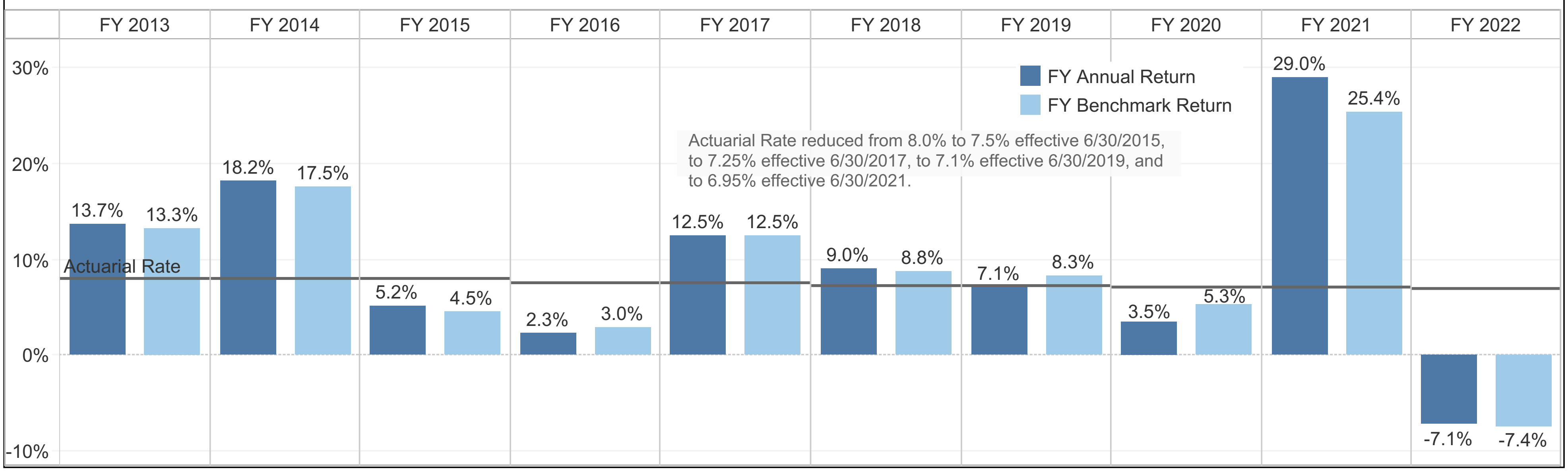
| Asset Class | Current QTR Net Return | Current QTR Excess Return |
|---|---|---|
| Domestic Equity | -4.7% | 0.0% |
| International Equity | -10.0% | -0.1% |
| Global Equity | -7.6% | -0.8% |
| Private Equity | N/A | N/A |
| Real Estate Equity | -9.3% | 1.3% |
| Domestic Fixed Income | -3.9% | 0.8% |
| Global Bonds | -3.7% | 0.2% |
| High Yield Bonds | -0.5% | 0.2% |
| Private Debt | N/A | N/A |
| Real Estate Debt | -2.6% | 0.6% |
| Short Term | 0.5% | 0.1% |

RE Equity is REITs only and RE Debt is CMBS only.
For additional performance information see Supplemental Materials.

## Total Fund Performance as of June 30, 2022

| | QTR | | FYTD | | 10YR | |
|---|---|---|---|---|---|---|
| Asset Class | Net Return | Excess Return | Net Return | Excess Return | Net Return | Excess Return |
| Domestic Equity | -16.0% | 0.0% | -11.1% | -0.1% | 12.7% | -0.1% |
| International Equity | -13.7% | 0.0% | -19.7% | -0.3% | 5.3% | 0.4% |
| Global Equity | -14.3% | 1.4% | -16.8% | -1.1% | N/A | N/A |
| Private Equity | -4.1% | 10.7% | 4.6% | 10.2% | 16.6% | -1.4% |
| Real Estate Equity | -2.4% | -6.9% | 15.0% | -13.3% | 10.7% | 0.4% |
| Domestic Fixed Income | -3.1% | 1.6% | -8.3% | 2.1% | 1.4% | -0.2% |
| Global Bonds | -5.4% | -0.4% | -10.4% | 0.0% | N/A | N/A |
| High Yield Bonds | -9.2% | 0.3% | -11.8% | 0.4% | N/A | N/A |
| Private Debt | -2.0% | 1.7% | 8.0% | 7.7% | N/A | N/A |
| Real Estate Debt | -1.6% | 0.4% | -2.8% | 2.9% | 4.2% | 0.7% |
| Short Term | 0.2% | 0.1% | 0.3% | 0.2% | 0.7% | 0.3% |
| **Total Fund** | **-9.5%** | **0.5%** | **-7.1%** | **0.3%** | **8.9%** | **0.1%** |

## Annual Performance



**NYSTRS Periodic Table of Investment Returns by Asset Class**
**Fiscal Years Ending 1993 through 2022**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1993 | 17.17% Real Estate Debt | 14.51% US Equity | 13.59% Total Fund | 13.41% US Fixed Income | 13.25% Int'l Equity | 3.51% Short Term | -0.39% Real Estate Equity | | | | | |
| 1994 | 22.88% Private Equity | 19.60% Int'l Equity | 3.96% Real Estate Equity | 3.41% Short Term | 2.25% US Equity | 1.80% Total Fund | 1.17% Real Estate Debt | -1.45% US Fixed Income | | | | |
| 1995 | 24.77% US Equity | 19.27% Total Fund | 17.83% Real Estate Debt | 14.81% US Fixed Income | 9.80% Private Equity | 7.33% Real Estate Equity | 5.56% Short Term | 0.51% Int'l Equity | | | | |
| 1996 | 35.15% Private Equity | 26.06% US Equity | 18.78% Total Fund | 17.86% Int'l Equity | 8.45% Real Estate Equity | 5.72% Short Term | 5.50% Real Estate Debt | 4.42% US Fixed Income | 4.06% Int'l Fixed Income | | | |
| 1997 | 30.29% US Equity | 21.96% Total Fund | 21.32% Private Equity | 15.24% Real Estate Equity | 14.52% Int'l Equity | 10.12% Real Estate Debt | 8.43% US Fixed Income | 6.00% Int'l Fixed Income | 5.30% Short Term | | | |
| 1998 | 37.17% Private Equity | 28.01% US Equity | 21.51% Total Fund | 16.11% Real Estate Equity | 14.30% Real Estate Debt | 11.88% US Fixed Income | 7.88% Int'l Equity | 5.65% Short Term | 4.23% Int'l Fixed Income | | | |
| 1999 | 28.04% Private Equity | 19.16% US Equity | 15.35% EM Equity | 13.97% Total Fund | 8.51% Real Estate Equity | 6.94% Int'l Equity | 5.27% Short Term | 3.33% US Fixed Income | 3.23% Int'l Fixed Income | 1.41% Real Estate Debt | | |
| 2000 | 17.67% Int'l Equity | 16.08% EM Equity | 13.56% Private Equity | 11.15% Real Estate Equity | 6.85% Total Fund | 6.47% Real Estate Debt | 5.92% US Equity | 5.91% Short Term | 4.54% US Fixed Income | 2.13% Int'l Fixed Income | | |
| 2001 | 13.43% Real Estate Equity | 11.14% US Fixed Income | 10.50% Real Estate Debt | 6.09% Short Term | -5.69% Total Fund | -10.49% US Equity | -11.20% Private Equity | -24.01% Int'l Equity | -28.91% EM Equity | | | |
| 2002 | 11.42% Real Estate Debt | 8.72% US Fixed Income | 7.72% Real Estate Equity | 2.50% Short Term | -6.79% Total Fund | -8.55% Int'l Equity | -13.48% Private Equity | -15.51% US Equity | | | | |
| 2003 | 13.00% Real Estate Debt | 11.66% US Fixed Income | 8.21% Real Estate Equity | 4.04% Total Fund | 1.52% Short Term | 1.19% Private Equity | -0.17% US Equity | -6.15% Int'l Equity | | | | |
| 2004 | 31.02% Int'l Equity | 20.99% US Equity | 16.88% Private Equity | 16.12% Real Estate Equity | 16.10% Total Fund | 1.32% Real Estate Debt | 1.09% Short Term | 0.44% US Fixed Income | | | | |
| 2005 | 27.09% Private Equity | 25.67% Real Estate Equity | 13.57% Int'l Equity | 11.57% Real Estate Debt | 10.62% Total Fund | 9.30% US Equity | 4.81% US Fixed Income | 2.25% Short Term | | | | |
| 2006 | 32.26% Private Equity | 26.61% Int'l Equity | 25.77% Real Estate Equity | 11.83% Total Fund | 9.84% US Equity | 4.34% Short Term | 2.15% Real Estate Debt | 0.80% US Fixed Income | | | | |
| 2007 | 39.36% Private Equity | 25.48% Int'l Equity | 25.34% Real Estate Equity | 20.67% US Equity | 19.43% Total Fund | 7.15% Real Estate Debt | 5.96% US Fixed Income | 5.47% Short Term | | | | |
| 2008 | 7.37% US Fixed Income | 5.19% Real Estate Equity | 4.91% Private Equity | 4.20% Real Estate Debt | 4.13% Short Term | -6.32% Total Fund | -10.64% Int'l Equity | -13.41% US Equity | | | | |
| 2009 | 7.40% US Fixed Income | 1.44% Short Term | -6.80% Real Estate Debt | -20.46% Total Fund | -23.57% Private Equity | -25.76% US Equity | -31.11% Int'l Equity | -35.06% Real Estate Equity | | | | |
| 2010 | 16.05% Real Estate Debt | 15.77% US Equity | 14.33% Private Equity | 12.11% Total Fund | 8.21% US Fixed Income | 6.71% Int'l Equity | 5.81% Real Estate Equity | 0.22% Short Term | | | | |
| 2011 | 31.75% US Equity | 30.84% Int'l Equity | 23.73% Private Equity | 23.64% Real Estate Equity | 23.24% Total Fund | 7.28% Real Estate Debt | 3.77% US Fixed Income | 0.21% Short Term | | | | |
| 2012 | 11.70% Real Estate Equity | 7.43% Real Estate Debt | 5.39% US Fixed Income | 4.55% Private Equity | 4.50% US Equity | 2.84% Total Fund | 0.16% Short Term | -13.56% Int'l Equity | | | | |
| 2013 | 21.41% US Equity | 14.62% Int'l Equity | 13.73% Total Fund | 13.18% Real Estate Equity | 12.61% Private Equity | 4.80% Real Estate Debt | 0.33% US Fixed Income | 0.17% Short Term | | | | |
| 2014 | 25.03% US Equity | 22.34% Private Equity | 22.01% Int'l Equity | 18.15% Total Fund | 14.64% Real Estate Equity | 7.12% Real Estate Debt | 4.68% Global Bonds | 3.00% US Fixed Income | 0.12% Short Term | | | |
| 2015 | 15.62% Real Estate Equity | 15.11% Private Equity | 7.30% US Equity | 5.19% Total Fund | 4.06% Real Estate Debt | 2.44% Global Bonds | 1.93% US Fixed Income | 0.11% Short Term | -4.79% Int'l Equity | | | |
| 2016 | 10.78% Real Estate Equity | 8.67% Private Equity | 7.21% Real Estate Debt | 7.18% Global Bonds | 4.26% US Fixed Income | 2.99% US Equity | 2.35% Total Fund | 0.29% Short Term | -9.63% Int'l Equity | | | |
| 2017 | 20.91% Int'l Equity | 18.26% US Equity | 17.37% Private Equity | 12.51% Total Fund | 6.62% Real Estate Equity | 2.31% Real Estate Debt | 0.71% Short Term | 0.37% Global Bonds | -0.22% US Fixed Income | | | |
| 2018 | 18.21% Private Equity | 14.32% US Equity | 13.69% Private Debt | 9.01% Total Fund | 8.50% Real Estate Equity | 7.46% Int'l Equity | 2.00% Real Estate Debt | 1.81% Global Bonds | 1.50% Short Term | -0.31% US Fixed Income | | |
| 2019 | 12.05% Private Equity | 10.14% Private Debt | 8.77% US Equity | 8.39% Global Bonds | 8.21% High-Yield Bonds | 8.08% Real Estate Equity | 7.96% Real Estate Debt | 7.06% Total Fund | 6.80% US Fixed Income | 2.37% Short Term | 1.29% Int'l Equity | 1.16% Global Equity |
| 2020 | 7.43% US Fixed Income | 7.16% Global Bonds | 6.03% US Equity | 4.25% Private Equity | 4.08% Real Estate Debt | 3.45% Total Fund | 3.05% Global Equity | 1.69% Short Term | -0.55% High-Yield Bonds | -2.94% Real Estate Equity | -3.68% Int'l Equity | -3.88% Private Debt |
| 2021 | 59.04% Private Equity | 44.44% Global Equity | 42.31% US Equity | 36.91% Int'l Equity | 28.98% Total Fund | 24.79% Private Debt | 19.34% Real Estate Equity | 13.42% High-Yield Bonds | 5.93% Real Estate Debt | 1.42% Global Bonds | 0.12% Short Term | -0.10% US Fixed Income |
| 2022 | 14.97% Real Estate Equity | 7.96% Private Debt | 4.57% Private Equity | 0.28% Short Term | -2.85% Real Estate Debt | -7.15% Total Fund | -8.31% US Fixed Income | -10.40% Global Bonds | -11.13% US Equity | -11.83% High-Yield Bonds | -16.82% Global Equity | -19.67% Int'l Equity |

Actuarial Assumed Rate of Return*

*Actuarial Assumed Rate of Return reduced from 8.0% to 7.5% effective 6/30/15, from 7.5% to 7.25% effective 6/30/17, from 7.25% to 7.10% effective 6/30/19, and from 7.10% to 6.95% effective 6/30/21.

**New York State Teachers' Retirement System**
**Portfolio Turnover Ratios - Internally Managed Portfolios**
**Period Ending 6/30/2022**

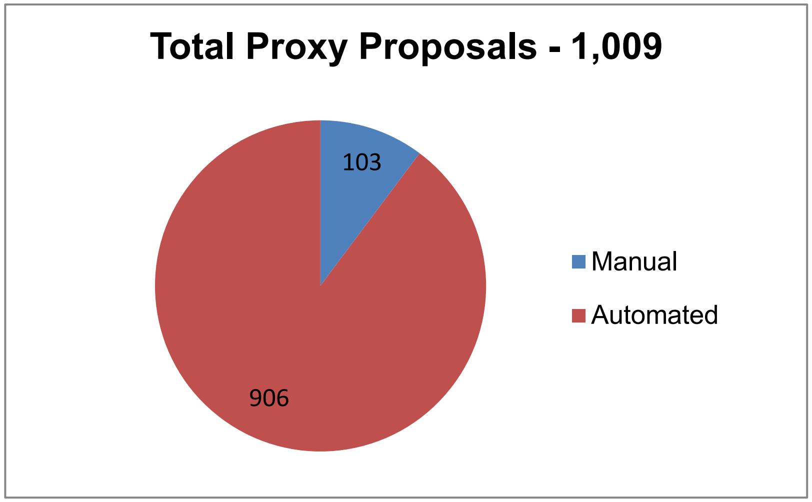
| Fund Name | Weighted Average Balance | Purchases[1] | Sales[1] | Portfolio Turnover Ratio[2] | Target Range |
|---|---|---|---|---|---|
| **Passive** | | | | | |
| Index2 | $39,154,411,782 | $484,933,656 | $1,879,936,708 | 1.24% | 1 - 6% |
| S&P 100 | $1,711,297,482 | $33,020,943 | $401,782,885 | 1.93% | 1 - 6% |
| S&P 500 | $2,428,899,062 | $242,967,731 | $62,271,477 | 2.56% | 1 - 6% |
| S&P 600 | $310,411,770 | $39,346,040 | $36,743,749 | 11.84% | 5 - 15% |
| Canadian Index | $68,334,366 | $1,731,911 | $10,864,945 | 2.53% | 1 - 8% |
| **Active** | | | | | |
| Growth Tilt2 | $1,420,239,506 | $170,260,774 | $222,978,374 | 11.99% | 10 - 20% |
| Value Tilt2 | $1,404,597,442 | $161,904,261 | $220,857,744 | 11.53% | 10 - 20% |
| AllCap Disc. Equity | $955,906,035 | $456,113,355 | $456,970,952 | 47.72% | 40 - 60% |
| Long Term Bond[3] | $18,362,690,058 | $4,645,738,879 | $748,567,135 | 4.08% | 1 -5% |
| Short Term Bond[3] | $0 | $0 | $0 | 0.00% | N/A |

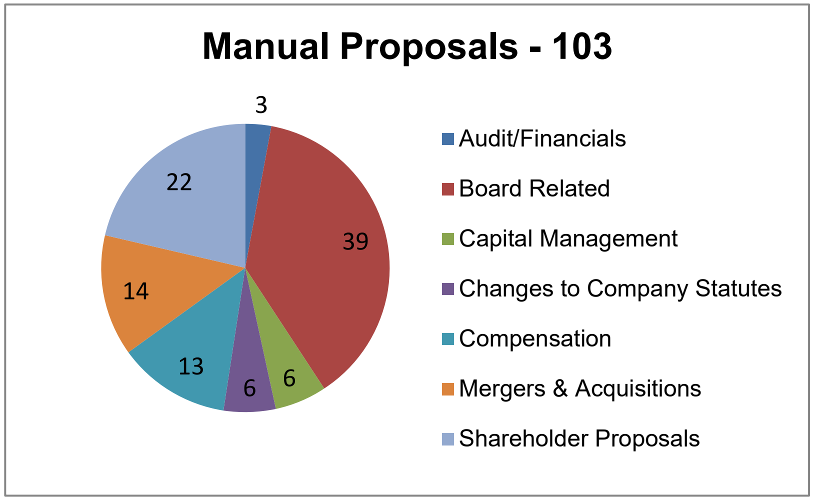
[1]Purchase and sales do not include maturities, calls or involuntary corporate actions.

[2]Portfolio Turnover Ratio calculated as the lesser of the last 12 months purchases or sales divided by the weighted average balance.

[3]Securities with less than a 1 year maturity are excluded from both the numerator and denominator. The value of the Short Term Bond Portfolio was $2.3 billion at 6/30/22, the preponderance of which matures in less than one year.

## Proxy Voting Summary: 7/1/2022 - 9/30/2022




The System has implemented automated voting for those issues that can reliably be voted according to established policy without review. Those requiring review are voted manually utilizing research provided by our proxy advisory service to support the decision. In general, the System supports corporate management if management's position appears reasonable, is not detrimental to the long range economic prospects of the company, and does not tend to diminish shareholder rights. Should a sensitive issue arise which is not included in the established guidelines, the Executive Director and Chief Investment Officer or his designee is authorized to exercise best judgment in voting such issue.

**Audit/Financials** - The System may oppose auditor selection if there are concerns about objectivity.

**Board Related** - The System generally supports independent directors outside of management, gender diversity on boards, and considers related party transactions.

**Capital Management** - The System generally supports proposals that provide the company with flexibility provided they do not limit shareholder rights.

**Changes to Company Statutes** - The System generally supports proposals relating to bylaw or organizational changes provided they do not limit shareholder rights.

**Compensation** - The System generally supports reasonable compensation plans which are tied to objective performance measures. Stock option plans should be used to motivate corporate personnel.

**Mergers & Acquisitions** - Proposals are reviewed on a case by case basis.

**Shareholder Proposals** (type & number) - Compensation: 6, Environment: 2, Governance: 7, and Social: 7

# Public Equity MD Update
# Investment Committee October 26, 2022



## Portfolio Values

| Portfolio Values (000) | 09/30/22 | 09/30/21 | Difference |
|---|---|---|---|
| Domestic Equity | $39,587,923 | $48,697,594 | ($9,109,671) |
| International Equity | $17,648,892 | $23,691,492 | ($6,042,600) |
| Global Equity | $3,909,635 | $5,020,854 | ($1,111,219) |
| Total Public Equity | $61,146,450 | $77,409,940 | ($16,263,490) |

## Asset Allocation

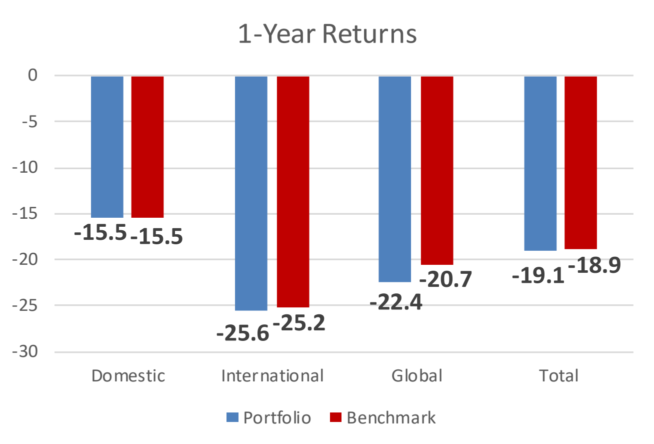
| Asset Allocation | Range | Target | Actual 09/30/22 |
|---|---|---|---|
| Domestic: | 29-37% | 33.0% | 32.1% |
| International: | 11-19% | 15.0% | 14.3% |
| Global: | 0-8% | 4.0% | 3.2% |

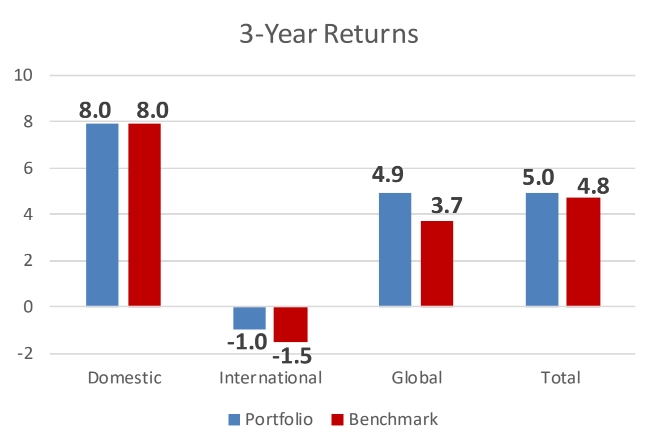
**Public Equity Portfolio Values:**

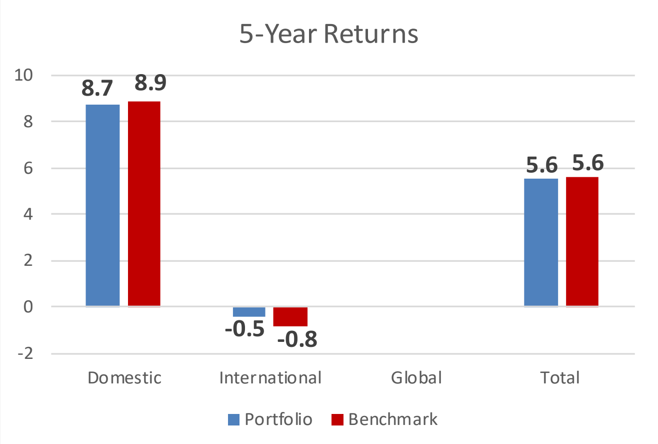
- During the one-year period ended 09/30/22:
  - o $1.8B (including dividends swept) was raised from domestic equities.
- Hence, the public equity portfolio decreased in value by $14.5B for the one-year period.

**Asset Allocation**

- Public Equities asset classes ended a volatile quarter below their targets but well within their asset allocation ranges.
- $222.3M was raised from the domestic portfolio during the quarter.




**Commentary:**

- All managers remain in good standing and are performing within our range of expectations.
- Growth and value strategies experienced a modest relative performance reversal for the quarter.
- External team is researching active strategies for domestic equities.
- Internal team is researching passive international equity.

Appendix B

# Appendix C
# Fixed Income MD Update
# Investment Committee Meeting: October 26, 2022



| | Sector/Portfolio | Mkt Val $B | Asset Allocation % | | | Absolute Return % | | | | | Excess Return vs. Benchmark % | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NAV | Target | Range | Qtr | FYTD | 1-Yr | 3-Yr | 5-Yr | Qtr | FYTD | 1-Yr | 3-Yr | 5-Yr |
| Internal | Dom. Fixed Income | 16.85 | 13.7 | 16 | 12-20 | -3.9 | -3.9 | -12.0 | -2.3 | 0.0 | 0.8 | 0.8 | 2.7 | 0.9 | 0.2 |
| Internal | Short-Term Bond | 1.86 | 1.5 | 1 | 0-4 | 0.5 | 0.5 | 0.8 | 0.7 | 1.2 | 0.1 | 0.1 | 0.2 | 0.3 | 0.4 |
| External | Global Bonds | 2.59 | 2.1 | 2 | 0-4 | -3.7 | -3.7 | -13.7 | -2.9 | 0.5 | 0.2 | 0.2 | 0.2 | 0.7 | 0.5 |
| External | High Yield | 0.97 | 0.8 | 1 | 0-3 | -0.5 | -0.5 | -13.0 | -0.9 | | 0.2 | 0.2 | 0.7 | -0.1 | |

- All portfolios remain within asset allocation ranges; continue to fund high yield to reach 1% target
- Fixed income markets sold off for the 4th straight quarter on a combination of higher Treasury rates and credit spreads
- **Dom. Fixed Income**: Outperformed from lower rate risk (duration) with some sector and security selection benefit[1]
- **Short-Term Bond**: Continues to benefit from increasing money market rates; remains diversified, high-quality and liquid
- **Global Bonds**: Outperformed from lower duration, treasury underweight, and sector/security selection
- **High Yield**: Outperformed from industry positioning, lower duration, and small cash allocation

Macroeconomic/Geopolitical Risks

- Persistent high inflation is leading to tighter central bank policy and resulting in lower growth outlooks and asset price weakness
  - Inflation on goods moderating, but services inflation is still increasing strongly (particularly housing measures)
- Russia/Ukraine war continues to affect growth and inflation across markets, particularly in Europe
- China: forecasts for economic growth continue to decline, which is a significant hit for overall global growth

- Team: An experienced new hire Investment Officer focused on corporate credit will join this month

*[1]Domestic Fixed Income duration was -1.2 years vs. benchmark and -0.8 year excl. maturities under 1 year; quarterly returns were similar for both*

# Commercial Real Estate (CRE) Investments - Managing Director Update



| | 9/30/22 Value | Target | Range | Actual | w/Commit |
|---|---|---|---|---|---|
| **CRE Equity** | **$16,319** | **11%** | **6%-16%** | **13.2%** | **16.6%** |

**Performance for Periods Ended June 30, 2022**

| Strategy (Inception Date) | Net Asset Value | Current Quarter | 1 Year | 5 Year | 10 Year | Since Inception |
|---|---|---|---|---|---|---|
| Direct Properties (2/90) | $6,159 | 3.0% | 26.1% | 9.6% | 11.8% | 10.0% |
| Core Funds (7/85) | $1,973 | 3.2% | 18.7% | 6.0% | 8.0% | 7.0% |
| Value Added (12/89) | $1,448 | 2.5% | 39.7% | 21.3% | 18.8% | 12.5% |
| Opportunistic (3/99) | $2,598 | 1.9% | 22.9% | 11.2% | 11.8% | 11.5% |
| U.S. RE Securities (7/95) | $2,686 | -14.5% | -6.3% | 6.9% | 8.2% | 11.3% |
| Global RE Securities (9/17) | $1,348 | -17.2% | -12.7% | - | - | 2.7% |
| Timber (12/98) | $283 | 0.5% | 8.8% | 5.4% | 5.8% | 4.4% |
| **Total CRE Equity Portfolio** | **$16,495** | **-2.4%** | **15.0%** | **9.3%** | **10.7%** | **8.6%** |
| NCREIF-ODCE (Spliced) | - | 4.5% | 28.3% | 10.1% | 10.3% | 7.0% |

**Return Drivers:**

- The direct portfolio's one-year return was significantly impacted by the sell off in the public REIT markets that were affected similar to the broader equity markets as the Federal Reserve moved rates to attempt to address inflation. This greatly affected the System's performance relative to the private NCREIF ODCE policy index. On the positive side, strong appreciation numbers were experienced in the industrial and multi-family sectors which continue to be driven by solid fundamentals.

Appendix D

**Market Conditions**

- Decreased transaction volumes and pricing re-trades are materializing, however the negative affect of persistent inflation and higher borrowing costs on valuations are expected to become more prevalent over the coming months as the private markets generally lag public market repricing.
- Demand fundamentals in sectors with low cap-ex requirements and resilient NOI profiles such as multi-family, industrial and grocery anchored retail were generally stable in the private markets.

**Portfolio Focus:**

- Acquisitions is focused on sectors with long term demand expectations such as industrial and multifamily as well as niche sectors that benefit from long term macro drivers including cold storage and life science centers.

**Second Quarter Investment Activity:**

- The System closed on $500 million of commitments to funds focused on secondaries and diversified global opportunistic strategies, made an additional $300 million investment in cold storage operator Lineage Logistics, and closed on the acquisition of Park Point, a five-building, 660k sf life-science office asset located in the Research Triangle Park in Durham, NC.

# Commercial Real Estate (CRE) Investments - Managing Director Update



| CRE Debt | 9/30/22 Value | Target | Range | Actual | w/Commit |
|---|---|---|---|---|---|
| | $8,062 | 6% | 2%-10% | 6.5% | 7.9% |

**Performance for Periods Ended June 30, 2022**

| Strategy (Inception Date) | Net Asset Value | Current Quarter | 1 Year | 5 Years | 10 Years | Since Inception |
|---|---|---|---|---|---|---|
| First Mortgages (7/85) | $3,201 | -0.3% | -2.6% | 3.2% | 4.0% | 7.9% |
| Commercial MBS (4/01) | $2,249 | -4.1% | -8.6% | 1.8% | 2.9% | 4.5% |
| Core Plus Strategies (8/04) | $1,707 | -1.3% | 2.0% | 4.7% | 5.7% | 4.7% |
| Opportunistic Debt (9/01) | $552 | -0.5% | 5.3% | 6.1% | 9.6% | 0.8% |
| **Total CRE Debt Portfolio** | **$7,709** | **-1.6%** | **-2.8%** | **3.4%** | **4.2%** | **7.8%** |
| Giliberto-Levy Custom Index (Spliced) | - | -2.1% | -5.8% | 2.9% | 3.6% | 8.0% |

**Return Drivers:**

- Negative performance for the current quarter and year was driven by a significant increase in lending rates, which primarily affected the System's existing fixed rate portfolio that carried lower yields. Despite the markdowns in value, the System's first mortgage portfolio is expected to be held to maturity with no expectations of default or losses with a weighted average yield of 3.91%.

**Market Conditions:**

- U.S. treasury yields have increased approximately 250 basis points during 2022 and credit spreads have slightly widened on first mortgage loans. As a result, 5-10 year first mortgages currently provide an attractive risk adjusted return at rates in the 5.50%-6.00% range.
- Yields on investment grade SASB and conduit CMBS securities have increased, resulting in yields in excess of 5.50%.
- Private bridge and senior mezzanine loans are now providing net yields in excess of 7.50% when pricing along the forward SOFR curve.

**Portfolio Focus:**

- Continue to pursue first mortgages on high quality, new vintage, stabilized assets with interest rates in the 5.50%-6.00% range.
- Focus on senior mezzanine and bridge lending opportunities that provide a strong risk adjusted return to complement the first mortgage and CMBS portfolios, while providing floating rate loans to take advantage of a rising SOFR curve.
- Continue to add investment grade CMBS debt, primarily on single asset/single borrower bonds that have current yields in excess of 5.50%.

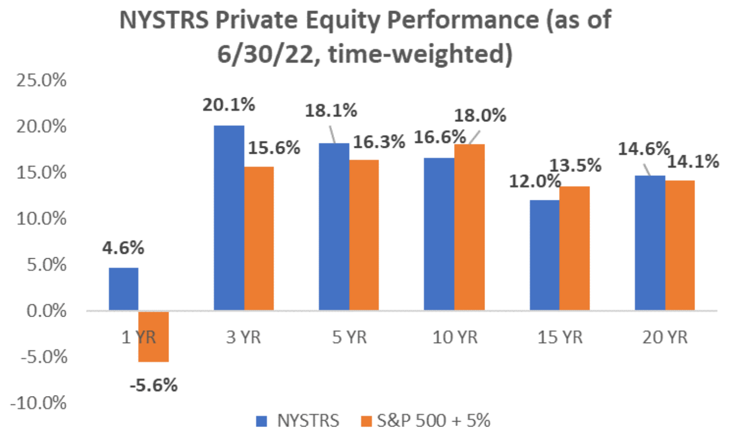
**Third Quarter Investment Activity:**

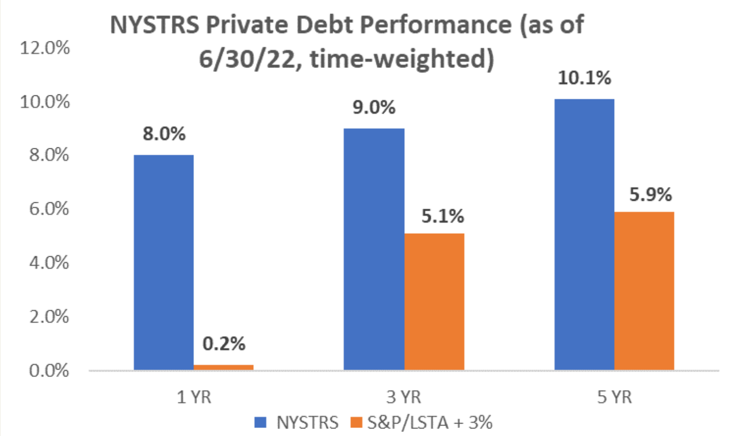
- The System closed on a $130 million first mortgage on a multi-family and grocery anchored property located in Fairfax, Virginia. The loan has a [redacted] term with a [redacted] interest rate and a [redacted].

# Private Equity/Debt MD Update
# October 26, 2022



| Private Equity – 9% Target (4-14%) | Private Debt – 2% Target (0.5-5%) |
|---|---|
| • 9/30/22 - $13.9bn or approx. 11.3% vs. target<br>• $6.9bn unfunded | • 9/30/22 - $1.5bn or approx. 1.2% vs. target<br>• $1.5bn unfunded |




**Market Overview:**
- Fundraising has slowed given investors are generally overallocated to private equity.
- Deal activity has slowed due to continued macro uncertainty, financing issues and pricing expectations.
- Valuations trended down slightly from the prior quarter with further declines expected in the next couple of quarters.
- Private debt markets continue to take share as the slowdown in high-yield bond and leveraged loan issuance persists.

**Other Items:**
- StepStone Consulting renewal.
- 2023 commitment pacing update – decrease for PE.
- "Two and Twenty" discussion – (see attached).

Appendix E

# Private Equity Fees & Performance

# "Two and Twenty" economic terms defined within a partnership agreement that stipulate a two percent management fee and 20% in carried interest

**Historically**

- 2% Management Fee
- 20% Carried Interest

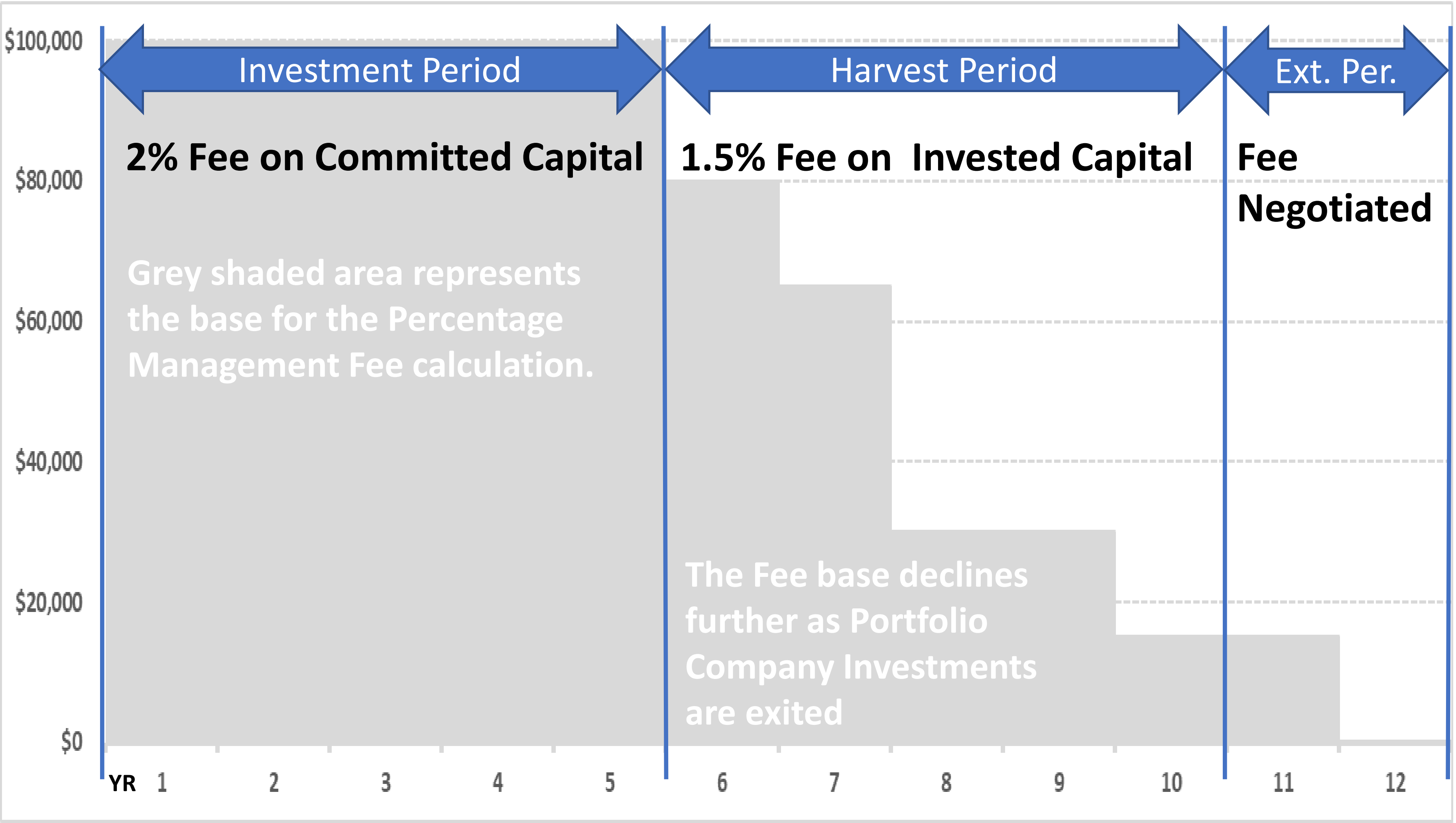
**Market Today[1]**

- **Management Fees**
  Median 1.75% (Investment Period)
  Median 1.50% (Harvest Period)
- **Carried Interest**
  Median 20%

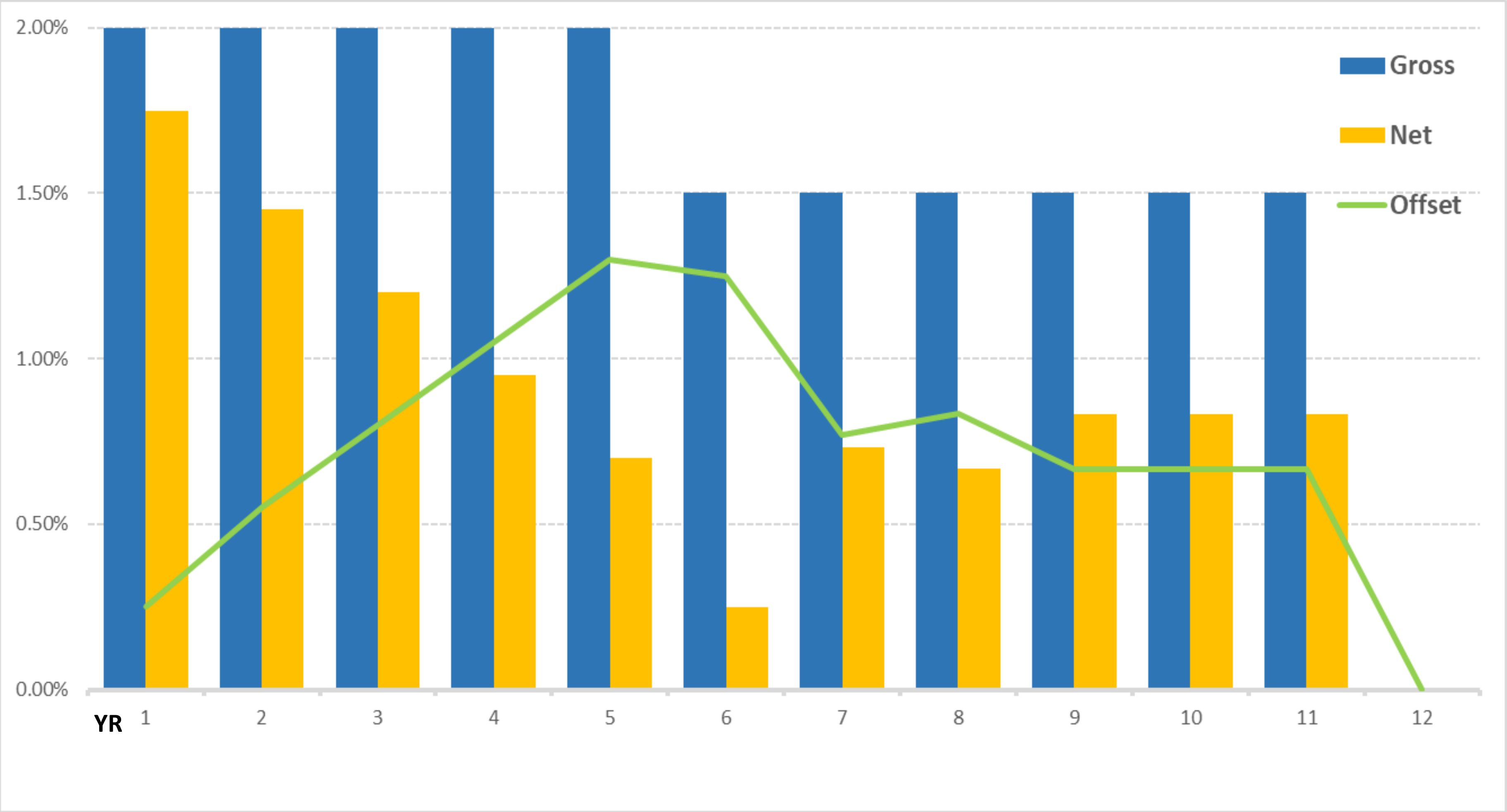
1 –NYSTRS' Staff Observations confirmed with study by the Callan Institute, July 2020 – Ashley DeLuce, Callan Private Equity Consulting Group

# Change in Management Fee Over the Life of a Private Equity Fund (Example)





# Gross vs. Net Fees. The Impact of Management Fee Offsets (Example)




- **In this example:** the average GROSS fee is **1.73%** and the NET fee is **0.93%** over Fund life.

# “Carried Interest” - reference to the manager’s share of profits as a mechanism to align the manager’s compensation with the Fund’s returns. It is typically only paid if the Fund achieves a minimum rate of return (known as a preferred return).

## Preferred Return

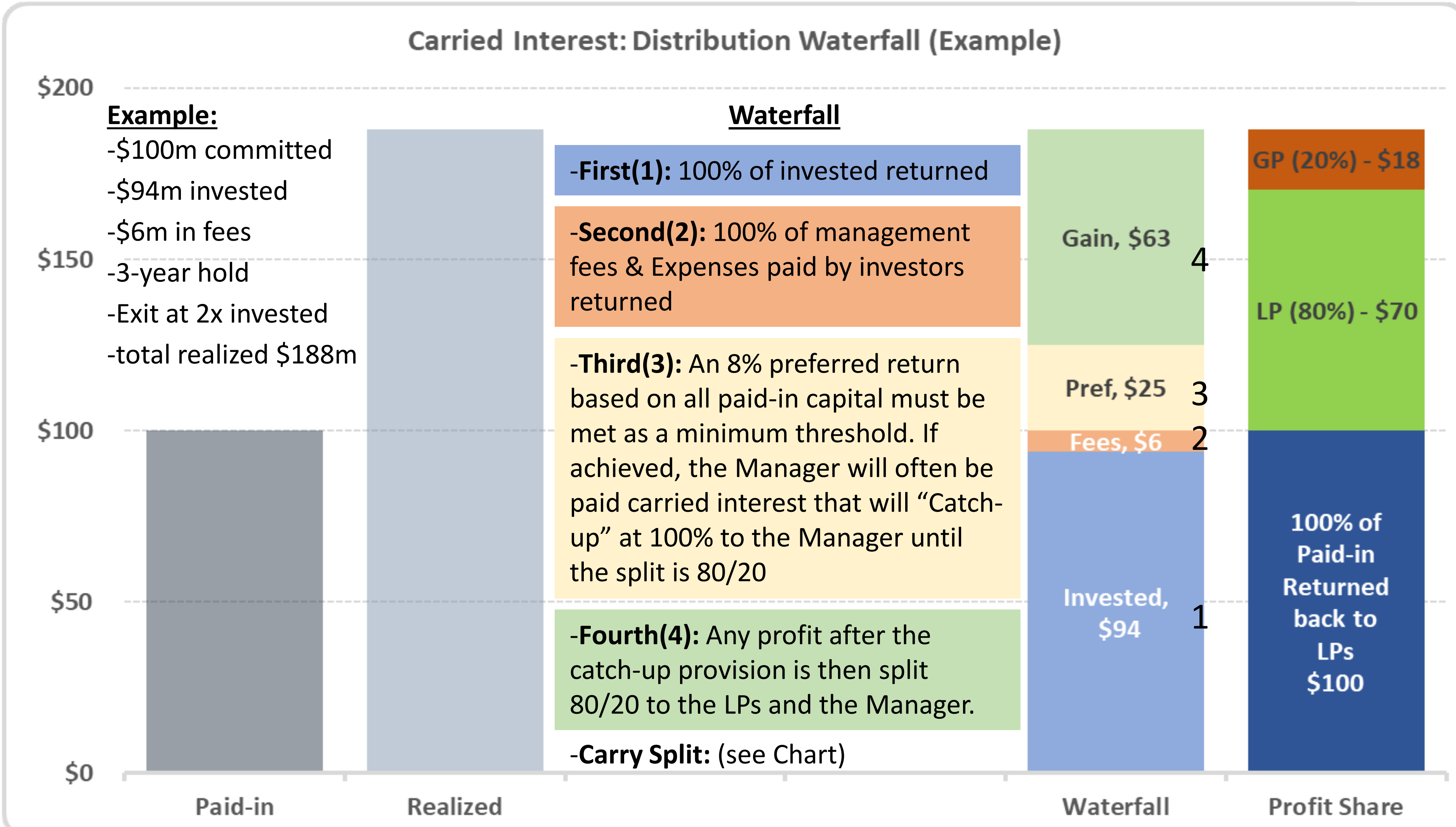
- A minimum return threshold (typically 8%) that must be achieved prior to any carried interest being paid.
- The preferred return generally only begins to accrue once ALL paid-in capital has been returned (including management fees and expenses).

## Distribution Waterfall Types

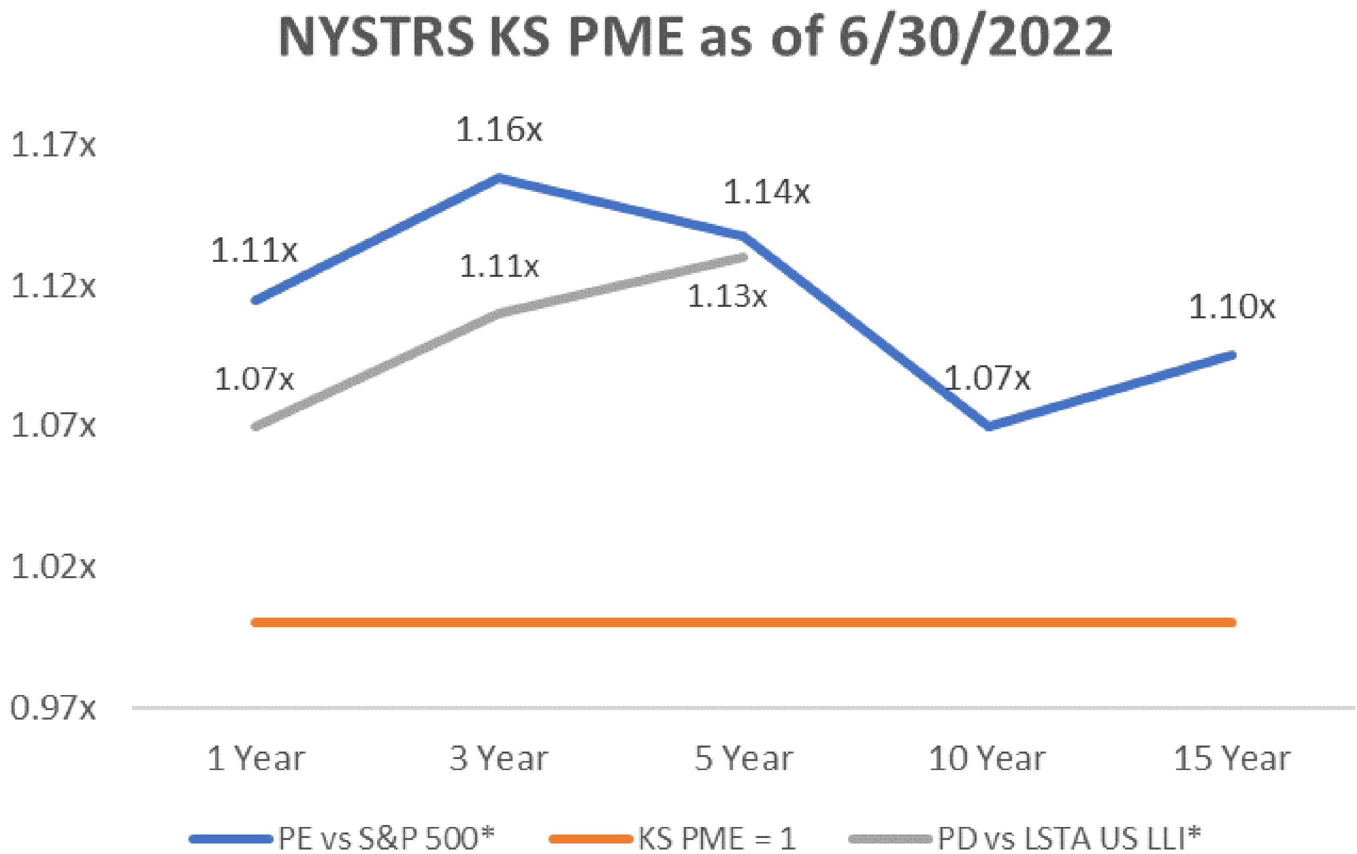
- **Deal-by-deal:** carried interest can be paid as each individual portfolio company investment is exited.
- **Total Fund (European):** carried interest is only allocated once ALL paid-in capital of the Fund (across all investments) is delivered back to LPs.

# Carried Interest: Waterfall & Cost Repayment (Example)





# NYSTRS PE and PD KS PME




KS PME compares the relative performance of private investments to an index.

Private Equity is benchmarked vs. the S&P 500 and Private Debt is benchmarked vs. the S&P LSTA US Leveraged Loan Index (TR)

*Questions?*

NEW YORK STATE TEACHERS' RETIREMENT SYSTEM
10 Corporate Woods Drive
Albany, New York

Appendix F

Investment Committee Meeting Agenda pp. 44-45 October 26, 2022

Committee Members
Nicholas Smirensky, Chair
Elizabeth Chetney, David Keefe, Jennifer Longtin, Ruth Mahoney, Christopher Morin

## MINUTES

A. Approval of Minutes of August 3, 2022 meeting pp. 46-51

## UPDATES

A. Investment Committee Executive Summary – M. Andriola pp. 52-60
B. Managing Director Updates
   1. Public Equity Update – P. Cummins p. 61
   2. Fixed Income Update – M. Federici p. 62
   3. Real Estate Update – D. Gillan pp. 63-64
   4. Private Equity/Debt Update – G. Yahoudy pp. 65-73
C. Consultant Update – Callan pp. 74-93

## PRESENTATIONS

A. Real Estate Strategic Plan – Sally Haskings, Lauren Sertich - Callan pp. 94-148
B. ~~Educational Session on Fixed Income Carbon Transition Strategy – M. Federici, A. Vanderwiel pp. 149-181~~ item pulled from agenda
C. Fixed Income Presentation – Joe Wood (**motion for Executive Session**) pp. 182-234
D. Mall Discussion Regarding Financing (**motion for Executive Session**)

## Investment Committee Action Items

A. **Consent Agenda recommendation items A 1-5 pages**: 235-251
   1. Renew Consultant
      - Callan (Real Estate) p. 235
      - StepStone p. 236
   2. Renew Managers:
      - AQR Capital Management LLC p. 237
      - BlackRock Institutional Trust Company, N.A. p. 238
      - Dimensional Fund Advisors p. 239
      - Goldman Sachs Asset Management p. 240
      - Harding Loevner Management p. 241
      - Loomis Sayles & Co. p. 242
      - Marathon Asset Management Ltd p. 243
      - Nomura Corporate Research & Asset Management p. 244
      - State Street Global Advisors p. 245

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3. Reappointments to Investment Advisory Committee
   - Steve Huber p. 246
   - Johanna Fink p. 247
   - James O'Keefe p. 248
4. Reappointments to Real Estate Advisory Committee
   - Eileen Byrne p. 249
   - Herman Bulls p. 250
5. Resolution on Investment Policy Manual p. 251
6. New Agreement
   - Resolution on PGIM Broad High Yield Strategy p. 252

**Informational Reports**

1. EDCIO Investment Discretion Report pp. 253-255
2. Mail Vote Quarterly Board Report p. 256

Appendix G

**NEW YORK STATE**

**TEACHERS' RETIREMENT SYSTEM**

**ED&CIO Investment Discretion Exercised**

**TO:** Retirement Board

**FROM:** T. Lee

**SUBJECT:** Quarterly Report of Executive Director and Chief Investment Officer Investment Discretion Exercised July – September 2022

## Fixed Income

| Period | Action Taken | Amount |
|---|---|---|
| Q/E 9/30/22 | Net cash reallocated **out of** internally managed Long-Term Bonds | $714.7M |

## Public Equities

| Period | Action Taken | Amount |
|---|---|---|
| Q/E 9/30/2022 | Net cash reallocated **out of** internally managed domestic equity portfolios | ($222.3M) |

**NEW YORK STATE**

**TEACHERS' RETIREMENT SYSTEM**

**ED&CIO Investment Discretion Exercised**

SUBJECT: Quarterly Report of Executive Director and Chief Investment Officer Investment Discretion Exercised July – September 2022

**Real Estate**

| Date of Internal Inv. Comm. Approval | Investment Name | Amount | New or Renew |
|---|---|---|---|
| July 18 2022 | Brookfield Real Estate Secondaries Fund | $300M | New |
| July 28 2022 | AG Realty Value XI | $100M | Renew |
| August 1 2022 | Scout on the Circle | $130M | Mortgage |
| September 27 2022 | Abacus Multifamily Partners VI | $200M | Renew |

**Real Estate**

| Period | Action Taken | Amount |
|---|---|---|
| Q/E 9/30/2022 | Net cash reallocated **from** an externally managed domestic REIT portfolio (Cohen & Steers) | ($290.0M) |
| Q/E 9/30/2022 | Net cash reallocated **from** an externally managed global REIT portfolio (Brookfield) | ($200.0M) |
| Q/E 9/30/2022 | Net cash reallocated **to** an externally managed domestic REIT portfolio (AEW Completion) | $100.0M |

**NEW YORK STATE**

**TEACHERS' RETIREMENT SYSTEM**

**ED&CIO Investment Discretion Exercised**

SUBJECT: Quarterly Report of Executive Director and Chief Investment Officer Investment Discretion Exercised July – September 2022

**Private Equity/Debt – New Commitments**

| Date of Internal Inv. Comm. Approval | Investment Name | Amount | New or Renew |
|---|---|---|---|
| 07-26-2022 | SKCP Catalyst Fund II | $100M | Renew |
| 08-23-2022 | Silver Lake | $300M | Renew |
| 09-16-2022 | HIG Whitehorse Principal Lending | $100M | Renew |
| 09-16-2022 | Abbott Select EM II | $300M | Renew |

**NEW YORK STATE**

**TEACHERS' RETIREMENT SYSTEM**

**Board Mail Votes**

**TO:** Retirement Board

**FROM:** T. Lee

**SUBJECT:** Quarterly Board Report of Mail Votes for the period July – September 2022

| **Date** | **Type** (Full Board Vote or Investment Committee Vote | **Transaction** |
|---|---|---|
| 8/23/2022 | Investment Committee | Park Point, Durham NC - acquistion |
| 8/24/2022 | Investment Committee | Lineage Logistics - acquistion |

(Note: Historical list of mail votes available under separate cover)

NEW YORK STATE
TEACHERS' RETIREMENT SYSTEM
10 CORPORATE WOODS DRIVE, ALBANY NY

Compensation Committee Meeting

A meeting of the Compensation Committee of the Retirement Board was held on October 26, 2022 at the Hotel Trilogy by Hilton in Albany, NY. The meeting was called to order at 1:33 p.m. by Phyllis Harrington, Chair.

| | |
|---|---|
| Committee Members: | Phyllis Harrington, Oliver Robinson, Nicholas Smirensky |
| Board Members: | Juliet Benaquisto, Elizabeth Chetney, Eric Iberger, David Keefe, Jennifer Longtin |

Upon motion of O. Robinson, seconded by N. Smirensky and unanimously carried, the meeting minutes from April 25, 2022 were approved.

Upon motion of O. Robinson seconded by N. Smirensky and unanimously carried, the meeting went into Executive Session at 1:34 p.m. to discuss the Executive Director and Chief Investment Officer performance evaluation.

With unanimous consent, the meeting came out of Executive Session and adjourned at 2:16 p.m.

Respectfully submitted,

[redacted]

Thomas K. Lee

NEW YORK STATE
TEACHERS' RETIREMENT SYSTEM
10 CORPORATE WOODS DRIVE, ALBANY NY

Disability Review Committee Meeting

A meeting of the Disability Review Committee of the Retirement Board was held at the System on October 27, 2022. The meeting was called to order at 8:18 a.m. by Elizabeth Chetney, Chair.

The following individuals were in attendance:

Committee Members: Juliet Benaquisto, Elizabeth Chetney, Eric Iberger, David Keefe Ruth Mahoney, Oliver Robinson

Board Members: Phyllis Harrington, Jennifer Longtin, Christopher Morin, Nicholas Smirensky

Upon motion of D. Keefe, seconded by J. Benaquisto and unanimously carried, the meeting minutes of August 3, 2022 were approved.

E. Chetney, Chair, reported that the System's Medical Board had met monthly over the prior three months and that a disability denial resolution would be brought to the Board at its meeting on October 27.

There being no further business and with unanimous consent, the meeting adjourned at 8:20 a.m.

Respectfully submitted,

[redacted]

Thomas K. Lee

NEW YORK STATE
TEACHERS' RETIREMENT SYSTEM
10 CORPORATE WOODS DRIVE, ALBANY NY

Executive Committee Meeting

A meeting of the Executive Committee of the Retirement Board of the New York State Teachers' Retirement System was held at the System on October 27, 2022.

Committee Members: Phyllis Harrington, David Keefe, Christopher Morin, Oliver Robinson

Board Members: Juliet Benaquisto, Elizabeth Chetney, Eric Iberger, Jennifer Longtin, Ruth Mahoney, Nicholas Smirensky

NYSTRS' Staff: Thomas K. Lee, Don Ampansiri, Yiselle Ruoso

With unanimous consent, the meeting was called to order by D. Keefe, Chair, at 8:19 a.m.

The following items were discussed:

1. Approval of minutes from August 3, 2022 meeting

   Upon motion of P. Harrington, seconded by C. Morin and unanimously carried, the minutes of the August 3, 2022 meeting were approved.

2. 2023 Legislative Program

   D. Ampansiri provided an overview of the recommendation from Staff for the 2023 Legislative Program (Appendix A, pp. 5-22).

   A. Resolution on 2023 Legislative Program

   Upon motion of O. Robinson, seconded by P. Harrington and unanimously carried, the Committee voted to recommend the following resolution to the Board:

   RESOLVED, That the 2023 Legislative Program, as presented to the Retirement Board by System staff, is approved and the Executive Director and Chief Investment Officer, or his designees, is authorized to seek introduction and enactment of the bill contained therein.

3. Amendment to System's Bylaws

   a. D. Ampansiri explained that the Bylaws were being updated to provide for electronic means as a way to conduct Board and Investment Committee mail votes when necessary between meetings of the Board (Appendix B, pp. 23-35)

Upon motion of P. Harrington, seconded by C. Morin and unanimously carried, the Committee voted to recommend the following resolution to the Board:

RESOLVED, That the amendments to the Retirement System's Bylaws as set forth in Appendix B, pp. 23-35, are hereby approved and adopted, effective immediately.

4. Updated Signatory Grids

   The Committee reviewed updated signatory grids for Financial and Legal Document Signatories (Appendix C, p. 36) and Warrant Signatories (Appendix D, p. 37)

   a. Resolution Identifying Financial and Legal Document Signatories

   Upon motion of O. Robinson, seconded by P. Harrington and unanimously carried, the Committee voted to recommend the following resolution to the Board:

   WHEREAS, The Retirement Board has by resolution amended and restated the resolution of January 27, 2022 entitled Delegation Resolution - Financial and Legal Document Execution, providing for the delegation by the Executive Director and Chief Investment Officer of the authority to approve and execute financial and legal documents to other employees of the Retirement System; and

   WHEREAS, The Retirement Board has by resolution adopted at its regular meeting on October 26, 1995, amended and restated periodically thereafter, and most recently on August 3, 2022, identifying those employees of the Retirement System that have been delegated such authority; and

   WHEREAS, It is necessary to periodically update said resolution by identifying those employees of the Retirement System to whom such authority may be delegated; now therefore be it

   RESOLVED, That the employees authorized to approve and execute financial and legal documents of said resolution are identified by department, management level within the organization and by name in the attachment (Appendix C, p. 36) entitled Signatory Authorization Grid- Financial and Legal Documents; and be it

   RESOLVED, the attachment entitled Signatory Authorization Grid- Financial and Legal Documents sets forth the approvals and signatures needed to approve and execute financial and legal documents; and be it

RESOLVED, That this authorization shall remain in effect for individuals who are promoted within their department; and be it

RESOLVED, That between regular meetings of the Retirement Board, the Executive Director and Chief Investment Officer shall have the authority to designate in writing any such additional employees as may be required by business necessity to serve on an interim basis until the next regular meeting of the Retirement Board; and be it

RESOLVED, That this delegation shall be reviewed by the Retirement Board no less than annually; and be it further

RESOLVED, That this resolution shall take effect October 27, 2022 and, upon taking effect, shall supersede the identifying resolution previously adopted by the Retirement Board on August 3, 2022

b. Resolution Identifying Warrant Signatories

Upon motion of P. Harrington, seconded by C. Morin and unanimously

carried, the Committee voted to recommend the following resolution to the Board:

WHEREAS, The Retirement Board has by resolution adopted at its regular meeting on October 26, 1995, amended and restated periodically thereafter, and most recently on August 3, 2022, and as further amended concurrent with this resolution, provided for the delegation by the Executive Director and Chief Investment Officer of the authority to execute warrants to other employees of the Retirement System; and

WHEREAS, It is necessary to implement said resolution by identifying those employees of the Retirement System to whom such authority may be delegated; be it

RESOLVED, That the signatories authorized to execute administrative, real estate investment, and fixed income, equity security and alternative investment warrants as provided in Parts II, III, IV, V and VI respectively of said resolution are identified by signatory group, organizational level within the organization and by name in the attached Signatory Authorization Grid (Appendix D, p, 37) dated October 27, 2022; and be it further

RESOLVED, That this authorization shall remain in effect for individuals that are promoted within or move among the designated signatory groups, and be it further

RESOLVED, That, between regular meetings of the Retirement Board, the Executive Director and Chief Investment Officer shall have the authority to designate in writing any such additional "A", "B", "C", "D", "E", "F", and "G" signatories as may be required by business necessity to serve on an interim basis until the next regular meeting of the Retirement Board; and be it further

RESOLVED, That this delegation shall be reviewed by the Retirement Board no less than annually; and be it further

RESOLVED, That this resolution shall take effect October 27, 2022 and, upon taking effect, shall supersede the identifying resolution previously adopted on August 3, 2022.

5. Board Member Salary Reimbursement Annual Report

   The Committee reviewed the annual board member salary reimbursement report (Appendix E, p. 38).

6. Finance Reports

   The Committee members reviewed the Statement of Fiduciary Net Position, Statement of Changes in Fiduciary Net Position and Schedule of Administrative Expenses, a copy of which is annexed hereto and made a part hereof as Appendix F, pp. 39-43.

With no further business and unanimous consent, the meeting adjourned at 8:28 a.m.

Respectfully submitted,

[redacted]

Thomas K. Lee

**NEW YORK STATE TEACHERS' RETIREMENT SYSTEM**
**Memorandum**

TO: Retirement Board

FROM: D. Ampansiri, Jr./Y. Ruoso/K. Vrbanac

RE: 2023 Legislative Program and Update

DATE: October 18, 2022

CC: T. Lee

## 2023 Legislative Program

Accompanying the Retirement Board materials is the 2023 Legislative Program recommended by System staff. The 2023 Program proposes to carry forward 1 bill from the 2022 Legislative Program not acted upon by the Legislature.

Program bill 22-4 (transfer of reserves) will be carried forward as program bill 23-1 respectively.

> **23-1** – Reinstates the transfer of reserves for members transferring between certain public retirement systems with 10 or more years of credited service.

For your review and action, you have been provided with the legislative package: the bill text, memo and fiscal note updated for the 2023 legislative session.

## Update on 2022 Legislation

As of this writing, Program bill 22-6, the 2-year benefit recalculation bill, which passed both houses (the Senate on May 23, 2022 and the Assembly on June 3, 2022) has not yet been delivered to the Governor. We will continue to keep you posted on any further action.

> **22-6** – Allows retirees of the New York State Teachers' Retirement System who suspend retirement the option of a benefit recalculation after 2 years of service.

The System also continues to monitor the following legislation which passed both houses of the Legislature this past legislative session and are awaiting delivery to the Governor:

**S8532A/A9668A**: amends Retirement and Social Security Law Section 177 to increase the percentage of assets which may be invested under the "basket clause" from 25% to 35%.

**S6619B/A7730A**: amends the Retirement and Social Security Law to change the age at which reductions to the ordinary death benefit commence for active members (NYSTRS and NYSLRS).

Currently, the ordinary death benefit is reduced by four percent per year commencing at age 61. This bill would change the age at which reductions commence to age 62 for members with a date of membership prior to April 1, 2012 and to age 63 for members with a date of membership on or after April 1, 2012.

The post-retirement death benefit for affected members, which is based on the ordinary death benefit, would be increased as well.

# 2023 Legislative Program

*New York State Teachers' Retirement System*

NY STRS

NY STRS
New York State Teachers' Retirement System
10 Corporate Woods Drive
Albany, New York 12211-2395
(800) 348-7298 or (518) 447-2900
NYSTRS.org



# 2023 NYSTRS Legislative Program

| 2022 Bill Numbers | Subject | 2023 Program Number | 2023 Cost |
|---|---|---|---|
| S6537 (Not tracked as Same as bills) A10474 | Reinstates the transfer of reserves for members transferring between certain public retirement systems with 10 or more years of credited service. | 23-1 | No Cost |

New York State Teachers' Retirement System
10 Corporate Woods Drive
Albany, New York 12211-2395
(800) 348-7298 or (518) 447-2900
NYSTRS.org



NEW YORK STATE TEACHERS' RETIREMENT SYSTEM
BILL NO. 23-1

MEMORANDUM

RE

**"AN ACT TO AMEND THE EDUCATION LAW, THE RETIREMENT AND SOCIAL SECURITY LAW, THE ADMINISTRATIVE CODE OF THE CITY OF NEW YORK AND CHAPTER 666 OF THE LAWS OF 1990, AMENDING THE ADMINISTRATIVE CODE OF THE CITY OF NEW YORK AND THE EDUCATION LAW RELATING TO THE AVAILABILITY OF ADDITIONAL PENSION BENEFITS, IN RELATION TO THE TRANSFER OF RESERVES BETWEEN PUBLIC RETIREMENT SYSTEMS OF THE STATE FOR CERTAIN MEMBERS"**

Purpose of the Bill

The bill amends Education Law Section 522, Retirement and Social Security Law Sections 43 and 343, Administrative Code of the City of New York Sections 13-143 and 13-144 and Chapter 666 of the laws of 1990, to reinstate the transfer of reserves as a required step in completing the transfer of a membership between public retirement systems within New York state for members transferring with ten or more years of service credit.

Summary and Justification

Pursuant to Chapter 647 of the laws of 2004, the transfer provisions allow for reciprocal transfers of service credit and salary between New York state public retirement systems without the transfer of employer reserves. In essence, the transfer provisions allow for public employees to move between positions of public employment and transfer their membership of credited service, salary, annuity, if any, and any accumulated member contributions, in order to obtain a single combined pension based upon all their public service within New York state at the time of retirement.

In 2004, one of the reasons for eliminating the transfer of employer reserves requirement was to streamline the process to benefit public employees transferring between retirement systems. With more modern systems in place to calculate the reserve more efficiently, this proposal balances the requirement to fund the future benefits with the administration by capturing only those transfers with significant years of credited service. This proposal requires the calculation for the reserves to be transmitted only for members transferring 10 or more years of credited member service and provides for an exclusion for transfers within and between the New York city employees' retirement system, New York city teachers' retirement system and New York city board of education retirement system.

This bill seeks to continue the "portability" assured to public employees who move to different positions in public employment within New York and place all the public retirement systems in a similar position in terms of pension liabilities by restoring the requirement for each public retirement system from which a public employee is transferring (the "transferring system") to calculate the "reserve" for said public employee transferring with 10 or more years of credited service at the time the transfer is initiated. The public employee's transfer would not be deemed complete unless and until the public retirement system has received a record of the member's credited service and salary from the transferring system and any other documentation necessary to effectuate the transfer of the member's annuity if any, and any accumulated member contributions.

The Retirement System respectfully requests the transfer of reserves for members transferring with 10 or more years of credited service be reinstated. The pension systems have streamlined the ability to capture reserves since 2004 and necessitating the requirement for reserves for long standing public employees will provide equity to the pension systems funding the benefit at retirement.

Effective Date of the Bill

This act shall take effect immediately and shall apply to any covered membership transfer initiated on or after the effective date of this act; provided, however, that no provision of this act shall affect (a) the transfer of reserves required with respect to transfers between any two of the New York state and local police and fire retirement system, the New York city police pension fund and the New York city fire pension fund and with respect to transfers from the New York state and local police and fire retirement system to the metropolitan transportation authority police pension fund; and (b) the transfer of reserves with respect to transfers within and between the New York city employees' retirement system, New York city teachers' retirement system and New York city board of education retirement system.

Other Agencies to Whom the Bill May Be of Interest

Division of the Budget, Department of Financial Services.

Budgetary Implications of the Bill

It is estimated that there will be no additional annual cost to the employers of members of NYSTRS if this bill is enacted.

NOTE: This bill was prepared under the direction of the New York State Teachers' Retirement System Board and was introduced at its request.

NEW YORK STATE TEACHERS' RETIREMENT SYSTEM BILL NO. 23-1

AN ACT to amend the education law, the retirement and social security law, the administrative code of the city of New York, and chapter 666 of the laws of 1990, amending the administrative code of the city of New York and the education law relating to the availability of additional pension benefits, in relation to the transfer of reserves between public employee retirement systems of the state

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

Section 1. Subdivision 5 of section 522 of the education law, as amended by chapter 41 of the laws of 2009, is amended to read as follows:

5. Notwithstanding any other provision of law to the contrary, except for the purposes of providing the benefits, if any, of subdivision four of this section, with respect to transfers pursuant to this section which occur on or after the effective date of the chapter of the laws of two thousand twenty-three that amended this subdivision, no transfer of a pension reserve pursuant to subdivision one or two of this section shall be required when the member is transferring in from a public [~~employee~~] retirement system of [~~this~~] the state [~~to any other public employee retirement system of this state~~] with less than ten years of credited service with the transferring retirement system at the time the transfer is initiated. With respect to transfers pursuant to subdivision one or two of this section which occur on or after the effective date of the chapter of the laws of two thousand twenty-three that amended this subdivision, the transfer of a pension reserve shall be required when the member is transferring ten or more years of credited service from a public retirement system of this state to any other public retirement system of this state, excluding any transfers within and between the New York city employees' retirement system, New York city teachers' retirement system and New York city board of education retirement system. For the purpose of giving the transferring member such status and crediting such service in the retirement

system to which the member is transferring as such member was allowed in the retirement system from which the member has transferred, the transfer shall be deemed complete upon receipt by the transferee retirement system of (a) a statement from the transferor retirement system of the transferring member's date of membership in the transferor retirement system, tier status, service credited to the transferred membership, and such other information as the transferee retirement system may require to effectuate the transfer, [~~and~~] (b) such member's accumulated contributions from the transferor retirement system, if same had not been previously withdrawn, or notice from the transferor retirement system that such member had no accumulated contributions, or notice from the transferor retirement system that such member's accumulated contributions had been withdrawn and the amount thereof and, as applicable, receipt from such member of such member's accumulated contributions and interest, and (c) the pension reserve in the case of a member who transfers in ten or more years of credited service, except when transferring within and between the New York city employees' retirement system, New York city teachers' retirement system and New York city board of education retirement system.

§2. Subdivision k of section 43 of the retirement and social security law, as amended by chapter 41 of the laws of 2009, is amended to read as follows:

k. Notwithstanding any other provision of this section, any member of the New York state and local employees' retirement system or the New York city teachers' retirement system who retired from service from either the New York city employees' retirement system or the New York city board of education retirement system as a member of the career pension plan maintained by such system and who, but for the fact that he or she retired, would be eligible for transfer and who has not, in fact, received a pension payment from such system shall be permitted to transfer his or her retirement system membership pursuant to the provisions of this section. In such event, the application for retirement shall be deemed to have been rescinded and the retirement system from which the service shall be transferred shall transfer the appropriate reserves as provided by this section, provided, however, that with respect to transfers pursuant to this subdivision which occur on or after [~~the twenty-sixth day of October, two thousand four~~] the effective date of the chapter of the laws of two thousand twenty-three that amended this subdivision, except for the purposes of providing the benefits, if any, of subdivision four of section five hundred twenty-two of the education law, no determination of a reserve pursuant to subdivision c of this section or transfer thereof pursuant to the first sentence of subdivision d of this section shall be required in the case of any transfer pursuant to this subdivision with less than ten years of credited service with the transferring retirement system at the time the transfer is initiated. With respect to transfers pursuant to this section which occur on or after the effective date of the chapter of the laws of two thousand twenty-three that amended this subdivision, the transfer of a pension reserve shall be required when the member is transferring ten or more years of credited service from a public retirement system of the state to any other public retirement system of the state, excluding any transfers within and between the New York city employees' retirement system, New York city teachers' retirement system and New York city board of education retirement system. Notwithstanding the provision of this subdivision or any other provision of law, an individual who transfers pursuant to this subdivision shall not be required to render any minimum period of service following transfer in order to be eligible to receive the full benefit provided hereunder. Notwithstanding the foregoing, a retiree covered by either the career pension plan or the fifty-five-year-increased-service-fraction plan who has received a pension payment or payments from such system shall be eligible for the provisions of this subdivision upon payment, to the retirement system from which the pension payment or payments were made, of an amount equal to such pension payment or payments. After such payments and the pension reserve, in the case of a member who transfers in ten or more years of credited service, except when transferring within and between the New York city employees' retirement system, New York city teachers' retirement system and New York city board of education retirement system, are received, such person shall be permitted to transfer his or her retirement system membership pursuant to the provisions of this section.

§3. Subdivision l of section 43 of the retirement and social security law, as amended by chapter 41 of the laws of 2009, is amended to read as follows:

l. Notwithstanding any other provision of law to the contrary, with respect to transfers pursuant to this section which occur on or after [~~the twenty-sixth day of October, two thousand four~~] the effective date of the chapter of the laws of two thousand twenty-three that amended this subdivision, except for the purposes of providing the benefits, if any, of subdivision four of section five hundred twenty-two of the education law, no determination of a reserve pursuant to subdivision c of this section or transfer thereof pursuant to the first sentence of subdivision d of this section shall be required in the case of any transfer pursuant to this section with less than ten years of credited service with the transferring retirement system at the time the transfer is initiated. With respect to transfers pursuant to this section which occur on or after the effective date of the chapter of the laws of two thousand twenty-three that amended this subdivision, the transfer of a pension reserve shall be required when the member is transferring ten or more years of credited service from a public retirement system of the state to any other public retirement system of the state, excluding any transfers within and between the New York city employees' retirement system, New York city teachers' retirement system and New York city board of education retirement system. For the purpose of giving the transferring member such status and crediting such service in the second retirement system as such member was allowed in the first retirement system in those cases to which this subdivision shall apply, the transfer shall be deemed complete upon receipt by the second retirement system of:

1. a statement from the first retirement system of the transferring member's date of membership in the first retirement system, tier status, service credited to such membership being transferred, and such other information as the second retirement system may require to effectuate the transfer; [~~and~~]

2. such member's accumulated contributions from the first retirement system, if same had not been previously withdrawn, or notice from the first retirement system that such member had no accumulated contributions, or notice from the first retirement system that such member's accumulated contributions had been withdrawn and the amount thereof and, as applicable, receipt from such member of such member's accumulated contributions and interest; and

3. the pension reserve in the case of a member who transfers in ten or more years of credited service, except when transferring within and between the New York city employees' retirement system, New York city teachers' retirement system and New York city board of education retirement system.

§4. Subdivision h of section 343 of the retirement and social security law, as amended by chapter 533 of the laws of 2015, is amended to read as follows:

h. Notwithstanding any other provision of law to the contrary, with respect to transfers pursuant to this section which occur on or after the effective date of the chapter of the laws of two thousand twenty-three that amended this subdivision, no determination of a reserve pursuant to subdivision c of this section or transfer thereof pursuant to the first sentence of subdivision d of this section shall be required in the case of any transfer pursuant to this section (other than a transfer from the New York state and local police and fire retirement system to either (1) the New York city police department subchapter two pension fund, (2) the New York city fire department subchapter two pension fund or (3) the MTA police retirement program or a transfer from either (i) the New York city police department subchapter two pension fund or (ii) the New York city fire department subchapter two pension fund to either (A) the New York state and local police and fire retirement system or (B) the MTA police retirement program or a transfer from the MTA police retirement program to the New York state and local police and fire retirement system) in the case of a member with less than ten years of credited service with the transferring retirement system at the time the transfer is initiated. With respect to transfers pursuant to such subdivisions which occur on or after the effective date of the chapter of the laws of two thousand twenty-three that amended this subdivision, the transfer of a pension reserve shall be required when the member is transferring ten or more years of credited service from a public retirement system of the state to any other public retirement system of the state, excluding any transfers within and between the New York city employees' retirement system, New York city teachers' retirement system and New York city board of education retirement system. For the purpose of giving the transferring member such status and crediting such service in the second retirement system as such member was allowed in the first retirement system in those cases to which this subdivision shall apply, the transfer shall be deemed complete upon receipt by the second retirement system of:

1. a statement from the first retirement system of the transferring member's date of membership in the first retirement system, tier status, service credited to such membership being transferred, and such other information as the second retirement system may require to effectuate the transfer; [~~and~~]

2. such member's accumulated contributions from the first retirement system, if same had not been previously withdrawn, or notice from the first retirement system that such member had no accumulated contributions, or notice from the first retirement system that such member's accumulated contributions had been withdrawn and the amount thereof and, as applicable, receipt from such member of such member's accumulated contributions and interest; and

3. the pension reserve in the case of a member who transfers in ten or more years of credited

service, except when transferring within and between the New York city employees' retirement system, New York city teachers' retirement system and New York city board of education retirement system.

§5. Paragraph 4 of subdivision a of section 13-143 of the administrative code of the city of New York, as added by chapter 647 of the laws of 2004, is amended to read as follows:

(4) Notwithstanding the provisions of paragraph two of this subdivision, with respect to transfers pursuant to this section which occur on or after the effective date of the chapter of the laws of two thousand twenty-three that amended this paragraph, the actuary of the New York city employees' retirement system shall not be required to determine the reserve on the benefits allowable to the transferring member as the result of employer contributions, including the reserve-for-increased-take-home-pay, and the transfer of such reserve, including the reserve-for-increased-take-home-pay, from the New York city employees' retirement system to said police pension fund [~~shall not be required~~] when a member is transferring with less than ten years of credited service with the transferring retirement system at the time the transfer is initiated. With respect to transfers pursuant to this subdivision which occur on or after the effective date of the chapter of the laws of two thousand twenty-three that amended this paragraph, the transfer of a pension reserve shall be required when the member is transferring ten or more years of credited service from a public retirement system of the state to any other public retirement system of the state, excluding any transfers within and between the New York city employees' retirement system, New York city teachers' retirement system and New York city board of education retirement system. The New York city employees' retirement system, within one year from the date of the request for the transfer of credit, shall comply with all requirements for completing the transfer imposed on it by the provisions of this section, including the pension reserve in the case of a member who transfers ten or more years of credited service, except when transferring within and between the New York

city employees’ retirement system, New York city teachers’ retirement system and New York city board of education retirement system. Nothing set forth in this paragraph shall be deemed to modify the requirement set forth in paragraph two of this subdivision that the New York city employees' retirement system transfer to said police pension fund the accumulated deductions of such member.

§6. Paragraph 4 of subdivision a of section 13-144 of the administrative code of the city of New York, as added by chapter 647 of the laws of 2004, is amended to read as follows:

(4) Notwithstanding the provisions of paragraph two of this subdivision, with respect to transfers pursuant to this section which occur on or after the effective date of the chapter of the laws of two thousand twenty-three that amended this paragraph, the actuary of the New York city employees' retirement system shall not be required to determine the reserve on the benefits allowable to the transferring member as the result of employer contributions, including [~~the reserve for increased take home pay, and~~] the transfer of such reserve[~~, including~~] and the reserve-for-increased-take-home-pay[~~,~~] from the New York city employees' retirement system to said fire department pension fund [~~shall not be required~~], with less than ten years of credited service from the transferring retirement system at the time the transfer is initiated. With respect to transfers pursuant to this section which occur on or after the effective date of the chapter of the laws of two thousand twenty-three that amended this paragraph, the transfer of a pension reserve pursuant to paragraph two of this subdivision shall be required when the member is transferring ten or more years of credited service from a public retirement system of the state to any other public retirement system of the state, excluding any transfers within and between the New York city employees’ retirement system, New York city teachers’ retirement system and New York city board of education retirement system. The New York city employees' retirement system, within one year from the date of the request for the transfer of credit, shall comply with all requirements for completing the

transfer imposed on it by the provisions of this section, including the pension reserve in the case of a member who transfers ten or more years of member service credit, except when transferring within and between the New York city employees' retirement system, New York city teachers' retirement system and New York city board of education retirement system. Nothing set forth in this paragraph shall be deemed to modify the requirement set forth in paragraph two of this subdivision that the New York city employees' retirement system transfer to said fire department pension fund the accumulated deductions of such member.

§7. Subdivision d of section 3 of chapter 666 of the laws of 1990, amending the administrative code of the city of New York and the education law relating to the availability of additional pension benefits for an extended second public employment to certain retirees, as amended by chapter 647 of the laws of 2004, is amended to read as follows:

d. Notwithstanding the provisions of subdivision b of this section or any other provision of law to the contrary, with respect to transfers pursuant to this section which occur on or after the effective date of the chapter of the laws of two thousand twenty-three that amended this subdivision, no determination or transfer of the reserve on the benefits allowable to the transferring member as the result of employer contributions, including the reserve-for-increased-take-home-pay, shall be required for a member with less than ten years of credited service from the transferring system at the time the transfer is initiated. With respect to transfers pursuant to this section which occur on or after the effective date of the chapter of the laws of two thousand twenty-three that amended this subdivision, the transfer of a pension reserve shall be required when the member is transferring ten or more years of credited service from a public retirement system of this state to any other public retirement system of the state, excluding any transfers within and between the New York city employees' retirement system, New York city teachers' retirement system and New York city board of education retirement system.

§8. This act shall take effect immediately and shall apply to any covered membership transfer initiated on or after the effective date of this act; provided, however, that no provision of this act shall affect (a) the transfer of reserves required with respect to transfers between any two of the New York state and local police and fire retirement system, the New York city police department subchapter two pension fund and the New York city fire department subchapter two pension fund and with respect to transfers from the New York state and local police and fire retirement system to the metropolitan transportation authority police pension fund; and (b) the transfer of reserves with respect to transfers within and between the New York city employees' retirement system, New York city teachers' retirement system and New York city board of education retirement system.

FISCAL NOTE. - - Pursuant to Legislative Law, Section 50:

This bill would amend Section 522 of the Education Law and various sections of the Retirement and Social Security Law and the Administrative Code of the City of New York to require the transfer of pension reserves between retirement systems in cases in which a member of the New York State Teachers' Retirement System (NYSTRS) or any Retirement System of the State or City of New York transfers a membership with ten or more years of credited service at the time the transfer is initiated. This act shall take effect immediately and shall apply to any membership transfer initiated on or after the effective date of this act. No transfer of reserves will be required for transfers within and between the NYC Retirement Systems. The current transfer of reserves that occurs due to transfers between the police and fire systems shall not be disturbed.

It is estimated that there will be no additional annual cost to the employers of members of the NYSTRS if this bill is enacted. In fact, this bill will greatly increase equity between the retirement systems of the state by ensuring that a member who transfers with a significant liability will bring with him or her the pension reserve accumulated by the prior retirement system to offset the liability assumed by the new retirement system.

Member data is from the System's most recent actuarial valuation files, consisting of data provided by the employers to the Retirement System. Data distributions and statistics can be found in the System's Annual Report. System assets are as reported in the System's financial statements and can also be found in the System's Annual Report. Actuarial assumptions and methods are provided in the System's Actuarial Valuation Report.

The source of this estimate is Fiscal Note 2023-1 dated October 14, 2022 prepared by the Office of the Actuary of the New York State Teachers' Retirement System and is intended for use only during the 2023 Legislative Session. I, Richard A. Young, am the Chief Actuary for the New York State Teachers' Retirement System. I am a member of the American Academy of Actuaries and I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

**NEW YORK STATE TEACHERS' RETIREMENT SYSTEM**

**Memorandum**

**TO:** Retirement Board

**FROM:** D. Ampansiri, Jr., Y. Ruoso

**SUBJECT:** Amendments to the System's Bylaws

**DATE:** October 18, 2022

**CC:** T. Lee

The System's Bylaws (Article I, paragraph 8) authorizes the Retirement Board to act between meetings of the Board on occasional matters determined by the President to be non-controversial in nature so as not to require a special meeting of the Board. Currently, the Board may take such actions by unanimous vote of its members by mail and/or facsimile.

Additionally, the System's Bylaws (Article III, paragraph 4) authorizes the Investment Committee of the Board to act between meetings by unanimous vote. Currently, this Committee may take such action by mail and/or facsimile or telephone confirmed by mail, facsimile and/or other electronic means approved by the Board.

System Staff recommend an update to the Bylaws to expand the technology with which the Board and Investment Committee of the Board may use to occasionally act in between meetings as authorized and contemplated in the Bylaws. The recommendation is to replace the term "facsimile" with "e-mail and other electronic means approved by the System." The intent of this change is to continue to provide the authority and flexibility to use current modes of electronic communications and information exchange technology.

A mark-up and clean copy of the Bylaws accompany this memo for your consideration.

Bylaws as amended on February 19, 1969; April 25, 1969; November 10, 1969; October 30, 1980; January 29, 1981; October 27, 1983; October 25, 1990; October 24, 1991; April 27, 1995; October 26, 1995; April 28, 2005; October 28, 2010; January 30, 2020; October 27, 2022.

NEW YORK STATE TEACHERS' RETIREMENT SYSTEM

BYLAWS

Article I

Retirement Board Meetings

1. All meetings of the Board shall be held in the office of the Retirement System in Albany, unless, in the case of a special meeting, a different location is specified in the call.

2. The annual meeting of the Board shall be held on a business day in the month of January each year.

3. In addition to the annual meeting, the Board shall have three stated meetings each year, at least once in each quarter, on a business day set by the Board.

4. Special meetings of the Board may be held upon call of the President. Upon written request to the Secretary by four of the members of the Board, the President shall call a special meeting of the Board. The call or request shall state the business to be considered at the special meeting and no other business shall be transacted at such special meeting.

5. Notice of the time and place of all annual, stated and special meetings of the Board shall be mailed by the Secretary to each member at the member's last known post office address at least seven days before each meeting, except when the President determines a special meeting of the Board is necessary to address a matter requiring

immediate action by the Board in order to prevent loss, in which event the Secretary shall give as prompt notice as is reasonably practical.

6. A member of the Board may waive written notice of any annual, stated, or special meeting by presenting such waiver in writing to the Secretary on or before the day of the meeting for which notice is being waived.

7. In addition to any other authorized procedure for the Board or any committee thereof to conduct meetings, the Board or any committee thereof may act by means of a conference telephone or other communications equipment allowing all persons participating in the meeting to hear each other at the same time.

8. The Board may act by a unanimous vote of its members taken by mail and/or [~~facsimile~~] e-mail and other electronic means approved by the System, or by telephone confirmed by mail and/or other electronic means approved by the System, on occasional matters determined by the President to be non-controversial in nature so as not to require a special meeting of the Board but having circumstances which make it impractical to delay action until the next annual or stated meeting of the Board.

Catastrophic Emergency Procedure

9. In the event of a "catastrophic emergency", the business of the Board shall be conducted by as many members of the Board as may be reasonably available to act in the circumstances, but not less than three members, its Secretary and General Counsel or, if the foregoing group cannot be constituted, such group or groups of available Board members and staff as the Board may have determined by resolution. The groups as so determined shall constitute a quorum to conduct the business of the Board and shall fix

the time and place of meeting and carry on the business of the Board at such place during the period of the catastrophic emergency.

For the purposes of this section, a "catastrophic emergency" shall mean a period during which prompt action by the Board is necessary to preserve the assets of the System or otherwise prevent loss to the System or its members and beneficiaries but it is impossible for the Board to conduct its business in accordance with the strict provision of law because of extraordinary loss of life, disease, destruction or damage of property, or disruption of means of transportation and communication.

Article II

<u>Officers and Their Duties</u>

1. The Board shall have as officers a President and a Vice President. The President and Vice President shall be members of the Board and shall be elected by the Board at its annual meeting in January. Upon election they shall assume office upon such election and hold same until the next annual meeting of the Board.

2. The President of the Board shall preside at all meetings of the Board and of the Executive Committee. The President shall appoint the members of all committees of the Board. The President shall have power to act for the Board in all matters which may be referred to the President by the Board.

3. The Vice President, in the absence or inability of the President to act, shall have all the powers of the President.

4. In the event a vacancy occurs in any elected office, the Board may fill such vacancy at any regular or special Board meeting.

5. The Board shall employ a Secretary, who shall be the chief executive officer of the System and shall, for the purposes of conducting System business, be known as the

Executive Director of the System. The Secretary shall cause minutes to be taken of all meetings of the Board and Committees of the Board, shall cause such minutes and all such records as may be required by law or by order of the Board or as may be necessary for the proper operation of the System to be compiled and suitably maintained, shall conduct the affairs of the System, and shall provide for carrying out all provisions of law applicable to the System. To that end, the Secretary shall cause the staff of the System to take the following actions under [~~his~~] the Secretary's direction:

(a) receive applications for System membership and benefits;

(b) secure such information relevant to the determination of such applications or as otherwise may be necessary for the proper operation of the System;

(c) compute the contributions by employers necessary to pay benefits authorized under law and obtain the timely collection thereof, as well as of member contributions required by law;

(d) invest the funds of the System committed to the management of System staff in accordance with the directions, policies and procedures established by the Board and monitor and report on the activities and performance of such third-party investment managers as may be appointed by the Board to invest the funds of the System;

(e) execute all contracts and legal documents as authorized by the Board;

(f) determine, compute and pay all benefits to which System members, retirees and beneficiaries may be entitled under the laws governing the System; and

(g) perform such other duties as may from time to time be assigned by the Board.

6. Subject to such matters as may be determined by the Board, the Secretary shall have the authority to hire and compensate System staff and to delegate any or all of

[~~his/her~~] the Secretary's duties to employees of the System as [~~he/she~~] the Secretary shall determine.

Article III

Executive and Other Committees

1. The Executive Committee of the Board shall consist of the President, Vice President, and at least two other Board members appointed by the President. The Executive Committee shall have power, at intervals between meetings of the Board, to transact such business as the Board may from time to time authorize and direct.

2. In addition to the Executive Committee, there shall be six other standing committees of the Board: Audit, Compensation, Disability Review, Ethics, Investment, and Risk.

3. The responsibilities of each standing committee shall be set forth in a written charter which shall be maintained in the Board Governance Manual.

4. Between meetings of the Board, the Investment Committee is empowered to acquire and sell real estate investments, to make and discharge mortgage investments and to make private equity investments within the asset allocation and such other limitations as may be prescribed by the Board and to authorize such other actions as may be necessary or required to implement the foregoing or as the Board may delegate to the Investment Committee by resolution. The Investment Committee is empowered to take such actions by unanimous vote taken by mail and/or [~~facsimile~~] e-mail and other electronic means approved by the System, or telephone confirmed by mail[~~, facsimile~~] and/or other electronic means approved by the [~~Board by resolution~~] System.

5. The Disability Review Committee shall consist of not less than four members of the Board. The President may designate one or more members of the Board as alternate

members of the Disability Review Committee who may replace any member of the Committee who is absent from the state or is otherwise unable to act. Between meetings of the Board, the Disability Review Committee is empowered to retire for disability those members whose applications have been recommended for approval by the Medical Board and the Secretary. The Disability Review Committee is empowered to take such actions by unanimous vote taken by mail and/or facsimile, or telephone confirmed by mail, facsimile and/or other electronic means approved by the Board by resolution.

6. The President shall have the power to appoint such other committees of the Board as directed by the Board or as the President may deem advisable.

7. A majority of the whole number of members of any committee shall constitute a quorum.

**Article IV**

1. These Bylaws may be amended at any meeting of the Board, provided notice of such amendment is mailed to the members of the Board at least seven days prior to the date of the meeting or such amount of time as the Board deems appropriate by resolution. The notice requirement may be waived at any meeting upon unanimous consent of the Board.

Bylaws as amended on February 19, 1969; April 25, 1969; November 10, 1969; October 30, 1980; January 29, 1981; October 27, 1983; October 25, 1990; October 24, 1991; April 27, 1995; October 26, 1995; April 28, 2005; October 28, 2010; January 30, 2020; October 27, 2022.

NEW YORK STATE TEACHERS' RETIREMENT SYSTEM

BYLAWS

Article I

Retirement Board Meetings

1. All meetings of the Board shall be held in the office of the Retirement System in Albany, unless, in the case of a special meeting, a different location is specified in the call.

2. The annual meeting of the Board shall be held on a business day in the month of January each year.

3. In addition to the annual meeting, the Board shall have three stated meetings each year, at least once in each quarter, on a business day set by the Board.

4. Special meetings of the Board may be held upon call of the President. Upon written request to the Secretary by four of the members of the Board, the President shall call a special meeting of the Board. The call or request shall state the business to be considered at the special meeting and no other business shall be transacted at such special meeting.

5. Notice of the time and place of all annual, stated and special meetings of the Board shall be mailed by the Secretary to each member at the member's last known post office address at least seven days before each meeting, except when the President determines a special meeting of the Board is necessary to address a matter requiring

immediate action by the Board in order to prevent loss, in which event the Secretary shall give as prompt notice as is reasonably practical.

6. A member of the Board may waive written notice of any annual, stated, or special meeting by presenting such waiver in writing to the Secretary on or before the day of the meeting for which notice is being waived.

7. In addition to any other authorized procedure for the Board or any committee thereof to conduct meetings, the Board or any committee thereof may act by means of a conference telephone or other communications equipment allowing all persons participating in the meeting to hear each other at the same time.

8. The Board may act by a unanimous vote of its members taken by mail and/or e-mail and other electronic means approved by the System, or by telephone confirmed by mail and/or other electronic means approved by the System, on occasional matters determined by the President to be non-controversial in nature so as not to require a special meeting of the Board but having circumstances which make it impractical to delay action until the next annual or stated meeting of the Board.

Catastrophic Emergency Procedure

9. In the event of a "catastrophic emergency", the business of the Board shall be conducted by as many members of the Board as may be reasonably available to act in the circumstances, but not less than three members, its Secretary and General Counsel or, if the foregoing group cannot be constituted, such group or groups of available Board members and staff as the Board may have determined by resolution. The groups as so determined shall constitute a quorum to conduct the business of the Board and shall fix

the time and place of meeting and carry on the business of the Board at such place during the period of the catastrophic emergency.

For the purposes of this section, a "catastrophic emergency" shall mean a period during which prompt action by the Board is necessary to preserve the assets of the System or otherwise prevent loss to the System or its members and beneficiaries but it is impossible for the Board to conduct its business in accordance with the strict provision of law because of extraordinary loss of life, disease, destruction or damage of property, or disruption of means of transportation and communication.

Article II

Officers and Their Duties

1. The Board shall have as officers a President and a Vice President. The President and Vice President shall be members of the Board and shall be elected by the Board at its annual meeting in January. Upon election they shall assume office upon such election and hold same until the next annual meeting of the Board.

2. The President of the Board shall preside at all meetings of the Board and of the Executive Committee. The President shall appoint the members of all committees of the Board. The President shall have power to act for the Board in all matters which may be referred to the President by the Board.

3. The Vice President, in the absence or inability of the President to act, shall have all the powers of the President.

4. In the event a vacancy occurs in any elected office, the Board may fill such vacancy at any regular or special Board meeting.

5. The Board shall employ a Secretary, who shall be the chief executive officer of the System and shall, for the purposes of conducting System business, be known as the

Executive Director of the System. The Secretary shall cause minutes to be taken of all meetings of the Board and Committees of the Board, shall cause such minutes and all such records as may be required by law or by order of the Board or as may be necessary for the proper operation of the System to be compiled and suitably maintained, shall conduct the affairs of the System, and shall provide for carrying out all provisions of law applicable to the System. To that end, the Secretary shall cause the staff of the System to take the following actions under the Secretary's direction:

(a) receive applications for System membership and benefits;

(b) secure such information relevant to the determination of such applications or as otherwise may be necessary for the proper operation of the System;

(c) compute the contributions by employers necessary to pay benefits authorized under law and obtain the timely collection thereof, as well as of member contributions required by law;

(d) invest the funds of the System committed to the management of System staff in accordance with the directions, policies and procedures established by the Board and monitor and report on the activities and performance of such third-party investment managers as may be appointed by the Board to invest the funds of the System;

(e) execute all contracts and legal documents as authorized by the Board;

(f) determine, compute and pay all benefits to which System members, retirees and beneficiaries may be entitled under the laws governing the System; and

(g) perform such other duties as may from time to time be assigned by the Board.

6. Subject to such matters as may be determined by the Board, the Secretary shall have the authority to hire and compensate System staff and to delegate any or all of the Secretary's duties to employees of the System as the Secretary shall determine.

## Article III

## Executive and Other Committees

1. The Executive Committee of the Board shall consist of the President, Vice President, and at least two other Board members appointed by the President. The Executive Committee shall have power, at intervals between meetings of the Board, to transact such business as the Board may from time to time authorize and direct.

2. In addition to the Executive Committee, there shall be six other standing committees of the Board: Audit, Compensation, Disability Review, Ethics, Investment, and Risk.

3. The responsibilities of each standing committee shall be set forth in a written charter which shall be maintained in the Board Governance Manual.

4. Between meetings of the Board, the Investment Committee is empowered to acquire and sell real estate investments, to make and discharge mortgage investments and to make private equity investments within the asset allocation and such other limitations as may be prescribed by the Board and to authorize such other actions as may be necessary or required to implement the foregoing or as the Board may delegate to the Investment Committee by resolution. The Investment Committee is empowered to take such actions by unanimous vote taken by mail and/or e-mail and other electronic means approved by the System, or telephone confirmed by mail and/or other electronic means approved by the System.

5. The Disability Review Committee shall consist of not less than four members of the Board. The President may designate one or more members of the Board as alternate members of the Disability Review Committee who may replace any member of the Committee who is absent from the state or is otherwise unable to act. Between meetings

of the Board, the Disability Review Committee is empowered to retire for disability those members whose applications have been recommended for approval by the Medical Board and the Secretary. The Disability Review Committee is empowered to take such actions by unanimous vote taken by mail and/or facsimile, or telephone confirmed by mail, facsimile and/or other electronic means approved by the Board by resolution.

6. The President shall have the power to appoint such other committees of the Board as directed by the Board or as the President may deem advisable.

7. A majority of the whole number of members of any committee shall constitute a quorum.

**Article IV**

1. These Bylaws may be amended at any meeting of the Board, provided notice of such amendment is mailed to the members of the Board at least seven days prior to the date of the meeting or such amount of time as the Board deems appropriate by resolution. The notice requirement may be waived at any meeting upon unanimous consent of the Board.

New York State Teachers' Retirement System

**Signatory Authorization Grid - Financial and Legal Documents**

Effective as of October 27, 2022

| | | Designees | |
|---|---|---|---|
| **Department** | **Executive** | **Deputy / Managers / Counsel** | **Assistant Managers / Counsel** |
| Administration | Miriam Dixon | Rebecca Kannan<br>Jason Freeman | N/A |
| Fixed Income | Michael Federici | Aaron Vanderwiel | Joseph Wood (1) |
| Information Technology | Vijay Madala | Mark Gallagher<br>Sarah Garrand | N/A |
| Internal Audit | Kathy Ebert | N/A | Bruce Woolley<br>Lei Zhang |
| Member Relations | Edward Rezny | Michael Contento<br>Beth Dellea<br>Erica Mortimore<br>Shannon Bonesteel<br>Heidi Brennan<br>Heidi Travis | Colleen Laven<br>Andy Whitney<br>Cori Bichteman<br>Timothy Mack |
| Office of the Actuary | Richard Young | Melody Prangley | N/A |
| Office of the Chief Financial Officer | Margaret Andriola | Christopher O'Grady | Christopher Brown<br>David Robertson<br>Tedd Johnson |
| Office of the General Counsel | N/A | Don Ampansiri<br>Ben Lee<br>Yiselle Ruoso | Janet Graham<br>Adam Kinney<br>Morgan Anderson |
| Private Equity | Gerald Yahoudy | Brad Woolworth<br>Nicholas Chladek | N/A |
| Public Equities | Paul Cummins | David Tessitore<br>Nathan Lee | Jennifer Wilcox |
| Real Estate | David Gillan | Kevin Maloney<br>Michael Morrell<br>Jason Kearney<br>Adrean Kreig | Andrew Bartell<br>David Maye (1) |
| Risk Management | N/A | Matthew Albano | Matthew Tice |

(1) New/promoted manager. Becomes eligible upon completion of new manager review period.

**Changes from Prior Grid**

| Department | Name | Comments |
|---|---|---|
| **Additions:** | | |
| Real Estate | David Maye | Promoted to Assistant Manager of CRE Debt Investments |
| Internal Audit | Kathy Ebert | Hired as Managing Director of Internal Audit |
| **Deletions:** | | |
| Adminstration | Shana Gainey | Separated from employment |
| Information Technology | Michael Gregoire | Separated from employment |
| Internal Audit | Kenneth Kasper | Separated from employment |
| **Other:** | | |
| Information Technology | Vijay Madala | Promoted to Chief Technology Officer |

New York State Teachers' Retirement System

**Signatory Authorization Grid - Disbursement Warrants**

Effective as of October 27, 2022

| Signatory Group | | Executive | Deputy / Managers / Counsel | Assistant Managers / Counsel | Other Professionals |
|---|---|---|---|---|---|
| A | All Types | Richard Young | Don Ampansiri<br>Ben Lee<br>Yiselle Ruoso<br>Melody Prangley<br>Matthew Albano | Janet Graham<br>Adam Kinney<br>Matthew Tice<br>Morgan Anderson | N/A |
| **Signatory Group** | | **Executive** | **Deputy / Managers** | **Assistant Managers** | **Other Professionals** |
| B | Real Estate | David Gillan | Kevin Maloney<br>Michael Morrell<br>Jason Kearney<br>Adrean Kreig | Andrew Bartell<br>David Maye (1) | N/A |
| C | Fixed Income | Michael Federici | Aaron VanDerwiel | Joseph Wood (1) | Dawn Sherman<br>Mark Wood<br>Michael Wollner<br>Christina Vasto<br>Danielle Bondi (2) |
| D | Public Equities | Paul Cummins | David Tessitore<br>Nathan Lee | Jennifer Wilcox | N/A |
| E | Private Equity | Gerald Yahoudy | Brad Woolworth<br>Nicholas Chladek | N/A | N/A |
| F | Finance | Margaret Andriola | Christopher O'Grady | Tedd Johnson<br>David Robertson<br>Christopher Brown | N/A |
| G | Employee Payroll | Miriam Dixon | Rebecca Kannan | N/A | N/A |

(1) New/promoted manager. Becomes eligible upon completion of new manager review period.

(2) New/promoted staff. Becomes eligible upon completion of probationary review period.

**Changes from Prior Grid**

| Group | Name | Comments |
|---|---|---|
| **Additions:** | | |
| B | David Maye | Promoted to Assistant Manager of CRE Debt Investments |
| A | Morgan Anderson | Completed new manager review period |
| **Deletions:** | | |
| G | Shana Gainey | Separated from employment |
| **Other:** | | |
| NONE | | |

**Signatory Group Authority**

| | | Approver | Authorizer | |
|---|---|---|---|---|
| **Type of Disbursement** | **Warrant Type** | **Any Amount** | **Any Amount** | **Under Threshold*** |
| Real Estate | B | B Group | A Group | B Group (Exec) |
| Fixed Income | C | C Group | A Group | C Group (Exec) |
| Public Equities | D | D Group | A Group | D Group (Exec) |
| Private Equity | E | E Group | A Group | E Group (Exec) |
| Finance | F | F Group | A Group | F Group |
| Employee Payroll | G | G Group | A Group | G Group (Exec) |

***The threshold for authorizing warrants is $250,000**

**Signatories cannot sign as approver and authorizer on the same warrant**

NEW YORK STATE TEACHERS' RETIREMENT SYSTEM

TO: Retirement Board

FROM: C. O'Grady

CC: T. Lee, M. Andriola, E. Rezny, D. Ampansiri

SUBJECT: Board Member Salary Reimbursement Report: 2021-22 Fiscal Year

DATE: October 27, 2022

In accordance with statute and the Board Member Salary Reimbursement Policy, reimbursement was made to Baldwinsville Central School District for teacher Board Member Elizabeth Chetney, to Bayport Blue Pont School District for teacher Board Member Eric Iberger, and to Schenectady City School District for Juliet Benaquisto.

| **Reimbursable Board Member Functions** | **E. Chetney (days)** | **E. Iberger (days)** | **J. Benaquisto (days)** |
|---|---|---|---|
| Regular and Special Meetings of the Retirement Board and the Retirement Board Retreat | 23 | 18 | 11 |
| Meetings of Committees of the Retirement Board | 6.5 | 7 | 4 |
| Meetings of the Investment Advisory Committee and the Real Estate Advisory Committee | 8 | 6 | 8 |
| Annual Delegates Convention pursuant to Education Law S | 4 | 4 | 4 |
| Meetings of the Medical Board pursuant to Education Law S507(6) | 1 | 1 | 0 |
| CII spring/fall meeting, NCTR annual conference, NIRS and/or Audit Committee member attendance at one Audit Trustee workshop | 4 | 0 | 0 |
| **Total days of reimbursed service** | **46.5** | **36** | **27** |
| **Total amounts reimbursed:** | **$ 30,505.86** | **$ 28,823.40** | **$ 18,000.36** |

NEW YORK STATE
TEACHERS' RETIREMENT SYSTEM

MEMORANDUM

TO: T. Lee

FROM: Office of the CFO / Finance Department

DATE: October 27, 2022

SUBJECT: Retirement Board Package

Attached are the System's quarterly financial statements and related schedules for the quarters ended September 30, 2022 and 2021.

The following is a list of the documents included:

1. Statements of Fiduciary Net Position (Unaudited)
2. Statements of Changes in Fiduciary Net Position (Unaudited)
3. Schedule of Administrative Expenses (Unaudited)

NEW YORK STATE TEACHERS' RETIREMENT SYSTEM
Statements of Fiduciary Net Position (Unaudited)
September 30, 2022 and 2021

| **Assets** | **2022** | **2021** |
|---|---|---|
| Investments at fair value: | | |
| Domestic equity | $ 39,556,056,782 | $ 48,666,042,623 |
| International equity | 17,581,768,565 | 23,615,766,588 |
| Global equity | 3,921,705,143 | 5,007,210,114 |
| Real estate equity | 16,307,176,062 | 15,353,446,649 |
| Private equity | 13,859,719,586 | 14,967,742,059 |
| Domestic fixed income | 16,755,701,993 | 19,065,587,327 |
| High-yield bonds | 956,287,093 | 986,718,496 |
| Global bonds | 2,634,046,170 | 3,301,045,838 |
| Real estate debt | 8,056,343,265 | 7,515,678,858 |
| Private debt | 1,537,394,728 | 1,175,555,056 |
| Cash equivalents | 1,871,550,860 | 4,722,019,460 |
| Total investments | 123,037,750,247 | 144,376,813,068 |
| Receivables: | | |
| Employer | 1,730,843,050 | 1,593,927,502 |
| Member | 42,944,370 | 34,970,171 |
| Investment income | 290,870,207 | 278,829,471 |
| Investment sales | 174,304,700 | 371,475,629 |
| Total receivables | 2,238,962,327 | 2,279,202,773 |
| Other assets: | | |
| Securities lending collateral, invested | 633,674,258 | 515,765,162 |
| Member loans | 249,487,110 | 245,782,324 |
| Net investment in capital assets | 20,034,071 | 22,319,513 |
| Miscellaneous assets | 5,031,273 | 12,479,315 |
| Total other assets | 908,226,712 | 796,346,314 |
| Total assets | 126,184,939,286 | 147,452,362,155 |
| Deferred outflows of resources: | | |
| Changes in net OPEB liability | 10,703,193 | 10,903,816 |
| Changes in net pension liability | 18,052,606 | 21,766,822 |
| Total deferred outflows of resources | 28,755,799 | 32,670,638 |
| **Liabilities** | | |
| Securities lending collateral, due to borrowers | 631,748,444 | 513,235,509 |
| Investment purchases payable | 296,669,890 | 597,348,000 |
| Mortgage escrows and deposits, net of investments | 13,336,488 | 8,381,059 |
| Net OPEB liability | 34,792,089 | 47,187,493 |
| Other liabilities | 131,832,090 | 145,576,865 |
| Total liabilities | 1,108,379,001 | 1,311,728,926 |
| Deferred inflows of resources: | | |
| Changes in net OPEB liability | 13,229,678 | 4,276,117 |
| Changes in net pension liability | 33,768,375 | 32,275,181 |
| Total deferred inflows of resources | 46,998,053 | 36,551,298 |
| **Net position restricted for pensions** | **$125,058,318,031** | **$146,136,752,569** |

NEW YORK STATE TEACHERS' RETIREMENT SYSTEM
Statements of Changes in Fiduciary Net Position (Unaudited)

For the three months ending September 30, 2022 and 2021

| | 2022 | 2021 |
|---|---|---|
| **Additions:** | | |
| Investment income: | | |
| Net (decrease) in fair value of investments | $ (6,000,898,056) | $ (1,091,816,300) |
| Interest | 205,174,743 | 193,711,755 |
| Dividends | 369,177,291 | 367,013,871 |
| Real estate, net operating income | 136,366,727 | 121,853,339 |
| Securities lending, gross earnings | 3,561,787 | 1,226,782 |
| Other (net) | 1,532,013 | 4,061,553 |
| | (5,285,085,495) | (403,949,000) |
| Less: Investment expenses | 93,101,110 | 93,689,267 |
| Securities lending: | | |
| Broker rebates | 2,018,767 | (266,774) |
| Management fees | 221,254 | 192,988 |
| Depreciation (appreciation) on collateral | 14,328 | (697,867) |
| Net investment (loss) | (5,380,440,954) | (496,866,614) |
| Contributions: | | |
| Employer | 502,021,563 | 459,980,405 |
| Member | 47,232,644 | 40,483,739 |
| Transfers (to)/from other systems | 2,879,597 | 1,189,989 |
| Total contributions | 552,133,804 | 501,654,133 |
| Net (deductions) additions | (4,828,307,150) | 4,787,519 |
| **Deductions:** | | |
| Retirement benefit payments, periodic | 2,032,349,401 | 1,975,007,976 |
| Beneficiary payments | 22,018,751 | 18,137,835 |
| Return of contributions | 6,231,296 | 6,021,422 |
| Administrative expenses | 17,357,478 | 17,325,080 |
| Total deductions | 2,077,956,926 | 2,016,492,313 |
| **Net (decrease) in net position** | (6,906,264,076) | (2,011,704,794) |
| **Net position restricted for pensions, beginning of year** | 131,964,582,107 | 148,148,457,363 |
| **Net position restricted for pensions, end of period** | **$125,058,318,031** | **$146,136,752,569** |

NEW YORK STATE TEACHERS' RETIREMENT SYSTEM
Schedule of Administrative Expenses (Unaudited)

Compared to Budget Appropriations for 2022-2023

| | Budget Appropriations 2022-2023 | Expenses and Encumbrances YTD 09/30/2022 | Remaining Balance 9/30/2022 | Actual Expenses YTD 09/30/2022 |
|---|---|---|---|---|
| **Salaries:** | | | | |
| Salaries | $ 40,145,057 | $ 8,848,659 | $ 31,296,398 | $ 8,848,659 |
| Overtime salaries | 65,000 | 1,275 | 63,725 | 1,275 |
| Social Security | 2,843,519 | 604,098 | 2,239,421 | 604,098 |
| Subtotal Salaries | 43,053,576 | 9,454,032 | 33,599,544 | 9,454,032 |
| **Benefits** | | | | |
| Employees retirement | 5,265,599 | 1,084,635 | 4,180,964 | 1,084,635 |
| Dental insurance | 280,405 | 77,610 | 202,795 | 77,610 |
| Health insurance | 7,461,960 | 1,862,873 | 5,599,087 | 1,856,221 |
| OPEB contribution | 6,394,396 | 1,598,599 | 4,795,797 | 1,598,599 |
| Civil service | 60,000 | 14,250 | 45,750 | 14,250 |
| Subtotal Benefits | 19,462,360 | 4,637,967 | 14,824,393 | 4,631,315 |
| Total salaries and benefits | 62,515,936 | 14,091,999 | 48,423,937 | 14,085,347 |
| **Building occupancy:** | | | | |
| Building security and vending | 405,423 | 343,094 | 62,329 | 40,922 |
| Building supplies and expenses | 136,000 | 42,994 | 93,006 | 29,988 |
| Heat, light and power | 370,000 | 142,105 | 227,895 | 142,105 |
| Insurance | 570,000 | 1,238 | 568,762 | 1,238 |
| Municipal assessments | 227,500 | 44,952 | 182,548 | 44,952 |
| Office supplies and expenses | 172,850 | 42,977 | 129,873 | 28,711 |
| Storage | 60,000 | 50,651 | 9,349 | 7,509 |
| Telephone | 615,000 | 258,242 | 356,758 | 129,497 |
| Total building occupancy | 2,556,773 | 926,253 | 1,630,520 | 424,922 |
| **Computer:** | | | | |
| IT Hardware Purchases | 850,000 | 332,539 | 517,461 | 96,103 |
| IT Software Purchases | 535,000 | 421,604 | 113,396 | 413,509 |
| Software and support services | 4,669,955 | 1,261,347 | 3,408,608 | 465,256 |
| Computer supplies | 20,000 | — | 20,000 | — |
| Total computer | 6,074,955 | 2,015,490 | 4,059,465 | 974,868 |

Compared to Budget Appropriations for 2022-2023

| | Budget Appropriations 2022-2023 | Expenses and Encumbrances YTD 09/30/2022 | Remaining Balance 9/30/2022 | Actual Expenses YTD 09/30/2022 |
|---|---|---|---|---|
| **Personnel and meeting:** | | | | |
| Board - meetings, travel and education | 126,000 | 46,073 | 79,927 | 30,698 |
| Delegates meeting | 65,000 | 547,747 | (482,747) | 22,747 |
| Dues | 351,885 | 33,086 | 318,799 | 33,086 |
| Library | 48,570 | 7,939 | 40,631 | 5,280 |
| Overtime meals | 2,150 | 91 | 2,059 | 91 |
| Personnel expenses | 83,000 | 68,053 | 14,947 | 42,977 |
| Pre-retirement seminars | 90,000 | — | 90,000 | — |
| Staff schooling | 601,045 | 96,549 | 504,496 | 65,628 |
| Travel and automobile expense | 187,050 | 45,885 | 141,165 | 45,885 |
| Tuition assistance | 50,000 | 6,374 | 43,626 | 6,374 |
| Wellness fund | 9,000 | 350 | 8,650 | — |
| Total personnel and meeting | 1,613,700 | 852,147 | 761,553 | 252,766 |
| **Professional and governmental services:** | | | | |
| Auditors - financial | 420,000 | 323,730 | 96,270 | 96,480 |
| Auditors - insurance department | 160,000 | — | 160,000 | — |
| Disability medical examinations | 100,000 | 20,585 | 79,415 | 20,585 |
| Postage and cartage | 780,150 | 273,287 | 506,863 | 273,287 |
| Professional fees and services | 1,973,255 | 615,314 | 1,357,941 | 277,671 |
| Publications | 170,000 | 121,410 | 48,590 | 56,769 |
| Statutory custodian charges | 140,000 | 36,250 | 103,750 | 36,250 |
| Total professional and governmental services | 3,743,405 | 1,390,576 | 2,352,829 | 761,042 |
| **Capital improvement program:** | | | | |
| Depreciation - building and improvements | 1,977,943 | 514,000 | 1,463,943 | 514,000 |
| Depreciation - equipment | 228,844 | 31,592 | 197,252 | 31,592 |
| Amort./depreciation - computer micro | 1,043,381 | 226,495 | 816,886 | 226,495 |
| Building improvement expense | 125,000 | 113,853 | 11,147 | 17,711 |
| Building maintenance contracts | 693,000 | 107,041 | 585,959 | 34,052 |
| Equipment | 121,000 | 14,480 | 106,520 | 14,480 |
| Equipment maintenance | 76,838 | 8,731 | 68,107 | 8,731 |
| Computer equipment maintenance | 387,788 | — | 387,788 | — |
| Fleet maintenance | 30,000 | 11,472 | 18,528 | 11,472 |
| Capital contingency | 566,206 | — | 566,206 | — |
| Total capital improvement program | 5,250,000 | 1,027,664 | 4,222,336 | 858,533 |
| Total Administration Expenses | $ 81,754,769 | $ 20,304,129 | $ 61,450,640 | $ 17,357,478 |

NEW YORK STATE
TEACHERS' RETIREMENT SYSTEM
10 Corporate Woods Drive, Albany NY

Ethics Committee Meeting

A meeting of the Ethics Committee of the Retirement Board was held at the System on October 27, 2022. The meeting was called to order by Christopher Morin, Chair, at 8:28 a.m.

The following individuals were in attendance:

Committee Members: Juliet Benaquisto, Christopher Morin, Oliver Robinson, Thomas Lee, Don Ampansiri

Board Members: Elizabeth Chetney, Phyllis Harrington, Eric Iberger, David Keefe, Jennifer Longtin, Ruth Mahoney, Nicholas Smirensky

NYSTRS Staff: Matt Albano, Don Ampansiri

Upon motion of J. Benaquisto seconded by O. Robinson, the minutes from the August 3, 2022 meeting were approved.

M. Albano and D. Ampansiri gave an update on the conflicts of interest policy.

C. Morin asked the Committee if any discussion was needed on the EDCIO quarterly disclosures. The Committee agreed no further discussion was needed. There being no further business, the meeting unanimously adjourned at 8:29 a.m.

Respectfully submitted,

[redacted]

Thomas K. Lee

NEW YORK STATE
TEACHERS' RETIREMENT SYSTEM
Audit Committee Meeting

A meeting of the Audit Committee of the New York State Teachers' Retirement System was held at the System on October 27, 2022.

Committee Members: Phyllis Harrington, Eric Iberger, David Keefe, Jennifer Longtin, Oliver Robinson

Board Members: Juliet Benaquisto, Elizabeth Chetney, Ruth Mahoney, Christopher Morin, Nicholas Smirensky

NYSTRS Staff: Thomas K. Lee, Don Ampansiri, Ken Kasper, Kathy Ebert

Plante Moran: Jean Young, Manju Patnaik

O. Robinson, Chair, called the meeting to order at 8:30 a.m.

1. Approve Minutes from September 7, 2022

Upon motion of J. Longtin seconded by D. Keefe and unanimously carried, the committee approved the minutes of the September 7, 2022 meeting.

2. Plante Moran Annual Report

J. Young and M. Patnaik reviewed the System's audited financial statements for the year ended June 30, 2022, a copy of the report is annexed hereto and made a part hereof as Appendix A.

3. Resolution Accepting Plante Moran Annual Audit

Upon motion of J. Longtin, seconded by E. Iberger and unanimously approved, the Committee voted to recommend the following resolution to the Board:

> RESOLVED, That the report of Plante Moran on the financial statements of the Retirement System as of June 30, 2022 and for the

plan year then ended, as presented to the Retirement Board, is accepted.

There being no further business, the meeting concluded at 8:37 a.m.

Respectfully submitted,

[redacted]

Thomas K. Lee

# New York State Teachers' Retirement System

## Retirement System Audit Presentation – Audit Committee

October 27, 2022

# Introductions

Jean Young, CPA

Co-engagement Partner

Michelle Watterworth, CPA

Co-engagement Partner

Manju Patnaik, CPA

Senior Manager

# Agenda

- ✓ Audit timeline and deliverables
- ✓ Upcoming timeline and deliverables
- ✓ Audit scope
- ✓ Required communications
- ✓ Questions

# Audit timeline and deliverables

## Audit timeline:

- January/May 2022 – Initiated planning procedures and risk assessment phase
- January/May 2022 – Employer payroll census audits
- May/July 2022 – Performed interim procedures
- July/October 2022 – Performed year end audit procedures, including review of financial statements
- October 27, 2022 – Issuance of audit opinion and actuarial letter

## Deliverables:

- NYSTRS' audited financial statement opinion as of and for the year ended June 30, 2022
- Required Communications with the Board
- Actuarial letter – Review of the methods, procedures, and actuarial assumptions used by the System

# Upcoming audit timeline and deliverables

## Upcoming audit timeline:

- October/November 2022 – Complete testing of schedules of Collective Pension Amounts and Employer Allocations in accordance with GASB 68
- November 2022 – Issuance of report in accordance with GASB 68
- November 2022 – Issuance of opinion on NYSTRS ACFR
- December 2022 – Procedures on NYSTRS PAFR

## Upcoming deliverables:

- NYSTRS' Annual Comprehensive Financial Report (ACFR) opinion as of and for the year ended June 30, 2022
- Audit, in accordance with GASB 68, the Schedules of Collective Pension Amounts and Employer Allocations for the measurement year ended June 30, 2022

# Audit scope

| | |
|---|---|
| **Scope of work** | • Audit of the financial statements for NYSTRS as of and for the year ended June 30, 2022 |
| **Financial reporting framework** | • U.S. Generally Accepted Accounting Principles (GAAP) |
| **Auditing standards** | • We perform our audit in accordance with:<br>○ Auditing standards generally accepted in the United States of America |
| **Independence** | • We are independent of NYSTRS under all relevant professional and regulatory standards |
| **Audit areas of focus** | • Investment valuations<br>• Census data testing<br>• Actuarial assumptions and actuarial calculations<br>• Accuracy of benefit calculations and related payments<br>• Financial reporting |

# Required communications

| | |
|---|---|
| **Our responsibility under Generally Accepted Auditing Standards** | • Express an opinion on whether the financial statements are fairly presented in conformity with U.S. GAAP<br>• Plan and perform the audit to obtain reasonable, not absolute, assurance that the financial statements are free of material misstatement<br>• Planning our audit includes obtaining an understanding of internal controls over financial reporting<br>• The extent, timing, and nature of our procedures is determined based on risk assessments and our understanding of control and inherent risks to enable us to express an opinion on the financial statements<br>• Communicate significant matters related to the audit that are, in our professional judgment, relevant to your responsibilities in overseeing the financial reporting process<br>• Evaluate System's ability to continue as a going concern |
| **Management's responsibilities** | • Financial statements<br>• Selection and use of appropriate accounting policies<br>• Adopting and maintaining sound internal controls<br>• Evaluate System's ability to continue as a going concern |
| **Opinion** | • Expect unmodified opinion for the year ended June 30, 2022<br>  ○ Free from material misstatement<br>  ○ Highest level of assurance you can obtain<br>  ○ Includes updates from new Auditing Standards No. 134-140 |

# Required communications

| | |
|---|---|
| **Significant accounting policies** | • Note 2 to the financial statements<br>• No significant or unusual transactions occurred |
| **Significant accounting estimates** | • Fair value of harder-to-value investments, mainly the non-publicly traded investments, including alternative investments<br>• Assumptions utilized in the GASB 67 actuarial valuation, including long-term expected rate of return and mortality assumptions<br>• No changes in methodology<br>• We evaluated key factors and assumptions used<br>• Estimates are reasonable |
| **Significant disclosures** | • None |

# Required communications

| | |
|---|---|
| **Reportable control deficiencies** | • No material weaknesses or significant deficiencies in internal control over financial reporting identified |
| **Disagreements or difficulties with management** | • None |
| **Corrected and uncorrected misstatements** | • None |
| **Other matters** | • No significant issues discussed with management prior to or during the audit<br>• Management to provide management representation letter dated October 27, 2022<br>• No consultations with other accountants |

# Required communications

**Other information included in annual reports**

- The Annual Comprehensive Financial Report (ACFR) and Popular Annual Financial Report (PAFR) will be reviewed prior to issuance of the ACFR and PAFR to ensure they are not materially misstated or materially inconsistent with the information or manner of its presentation appearing in the financial statements

# Questions?

# Thank you!

*For more information contact:*


**Jean Young, CPA**
517-336-7458
Jean.Young@plantemoran.com

**Michelle Watterworth, CPA**
248-223-3520
Michelle.Watterworth@plantemoran.com

**Manju Patniak, CPA**
248-223-3768
Manju.Patniak@plantemoran.com

**NEW YORK STATE TEACHERS' RETIREMENT SYSTEM**

Basic Financial Statements and Supplemental Schedules

June 30, 2022 and 2021

(With Independent Auditors' Report Thereon)

# Financial

Page

Plante Moran, PC
P.O. Box 307
3000 Town Center, Suite 100
Southfield, MI 48075
Tel: 248.352.2500
Fax: 248.352.0018
plantemoran.com

**Independent Auditor's Report**

The Retirement Board
New York State Teachers' Retirement System

***Opinion***

We have audited the accompanying financial statements of New York State Teachers' Retirement System (System) as of and for the year ended June 30, 2022 and the related notes to the financial statements, which collectively comprise the System's basic financial statements, as listed in the table of contents.

In our opinion, the accompanying financial statements present fairly, in all material respects, the financial position of New York State Teachers' Retirement System as of June 30, 2022 and the changes in its financial position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

***Basis for Opinion***

We conducted our audit in accordance with auditing standards generally accepted in the United States of America (GAAS). Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of the System and to meet our other ethical responsibilities in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

***Report on Prior Year Financial Statements***

The basic financial statements of the New York State Teachers' Retirement System as of and for the year ended June 30, 2021 were audited by other auditors, who expressed an unmodified opinion on those basic financial statements on October 28, 2021.



***Responsibilities of Management for the Financial Statements***

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

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

***Auditor's Responsibilities for the Audit of the Financial Statements***

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

In performing an audit in accordance with GAAS, we:

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

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

***Required Supplementary Information***

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis and other required supplementary information, as identified in the table of contents, be presented to supplement the basic financial statements. Such information is the responsibility of management and, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, which 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.

***Supplemental Information***

Our audit was conducted for the purpose of forming opinions on the financial statements that collectively comprise New York State Teachers' Retirement System's basic financial statements. The other supplemental information, as identified in the table of contents, are presented for the purpose of additional analysis and are not a required part of the basic financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. The information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the other supplemental information is fairly stated in all material respects in relation to the basic financial statements as a whole.



October 27, 2022

plante moran

# MANAGEMENT'S DISCUSSION AND ANALYSIS

## June 30, 2022 and 2021

(Unaudited)

The following discussion and analysis of the financial performance of the New York State Teachers' Retirement System (NYSTRS or the System) provides an overview of its activities for the years ended June 30, 2022 and 2021. Its purpose is to provide explanations and insights into the information presented in the financial statements, notes to the financial statements, and required supplementary information.

### Financial Highlights

- The net position of the System represents funds available to pay current and future benefits. Net position was $132.0 billion as of the fiscal year ended 2022, and $148.1 billion and $120.5 billion as of the fiscal years ended 2021 and 2020, respectively. The change for the fiscal year ended 2022 was negative $16.1 billion or negative 10.9%, and the change for the fiscal year ended 2021 was positive $27.6 billion, or 23.0%.
- The System's investments experienced depreciation of $12.4 billion in 2022 and appreciation of $31.5 billion and $1.6 billion in 2021 and 2020, respectively.
- Contributions from employers were $1.7 billion in 2022, $1.6 billion in 2021, and $1.5 billion in 2020, consistent with the change in the employer contribution rate.
- While the number of active members has declined only slightly in the past five years, the number of retired members and beneficiaries receiving benefits has been steadily increasing, leading to an increase in the retirement benefits paid. Retirement benefits paid in 2022, 2021, and 2020 were $8.0 billion, $7.7 billion, and $7.5 billion, respectively.
- The System's funded ratio, a comparison of the actuarial value of assets to the accrued pension benefit liability, was 99.3% as of the 2021 valuation. Valuations in 2020 and 2019 resulted in the System's funded ratio of 98.9% and 99.6%, respectively.



### Overview of Financial Statements

The following discussion and analysis are intended to assist the reader in better understanding the purpose and meaning of each of the key components of NYSTRS' financial statements, which comprise the following:

1. The Statements of Fiduciary Net Position present NYSTRS' assets and deferred outflows of resources and liabilities and deferred inflows of resources by major categories and may serve over time as a useful indicator of the System's financial position. The difference between assets and deferred outflows of resources and liabilities and deferred inflows of resources represents the net position restricted for pensions. The statements also compare assets and deferred outflows of resources and liabilities and deferred inflows of resources by class to the previous year, which offers the reader the opportunity to note changes in each class from year to year.
2. The Statements of Changes in Fiduciary Net Position provide information on the change in the System's net position during the current year. The majority of additions are normally derived from net investment income, primarily in the form of changes in the fair value of assets from the prior year. Deductions include retirement benefit payments, beneficiary payments, return of contributions, and administrative expenses. For comparison purposes, information pertaining to the previous year's Statement of Changes in Fiduciary Net Position is also provided.
3. The Notes to the Basic Financial Statements are an essential part of the basic financial statements. They provide important background and detailed information about NYSTRS, the plan and the basic financial statements themselves.
4. The Required Supplementary Information (RSI) consists of information pertaining to NYSTRS' actuarial methods and assumptions and provides data on changes in the school districts' net pension liability, the composition of the school districts' net pension liability, and the school districts' contributions. Also included is information on NYSTRS' proportionate share of their pension liability to ERS as well as a schedule of their contributions to that plan. Lastly, the RSI includes a schedule of changes in the other post-employment benefits (OPEB) liability and NYSTRS' contributions toward that plan.

## MANAGEMENT'S DISCUSSION AND ANALYSIS *(continued)*
## June 30, 2022 and 2021
(Unaudited)

Other supplemental information is also presented and includes the schedules of administrative expenses, investment expenses, and consulting fees.

### Financial Analysis

Tables 1 and 2 summarize and compare the System's financial results for the years 2022 and 2021. Investments comprise the overwhelming majority of assets of the System. Investment performance, contributions and benefit payments are the primary drivers of changes in net fiduciary position.

### TABLE 1 - SUMMARY OF FIDUCIARY NET POSITION
(dollars in thousands)

| | June 30 | | | Amount increase (decrease) | Percentage change of total |
|---|---|---|---|---|---|
| | 2022 | 2021 | 2020 | 2021 to 2022 | 2021 to 2022 |
| Investments at fair value | $ 129,860,183 | $ 146,219,128 | $ 118,603,921 | $ (16,358,945) | (11.0) % |
| Receivables | 2,311,013 | 2,302,028 | 2,070,049 | 8,985 | 0.0 |
| Securities lending collateral — invested | 709,827 | 481,018 | 486,845 | 228,809 | 0.2 |
| Member Loans | 232,473 | 236,944 | 256,935 | (4,471) | 0.0 |
| Other Assets | 31,956 | 41,308 | 60,140 | (9,352) | 0.0 |
| Total Assets | 133,145,452 | 149,280,426 | 121,477,890 | (16,134,974) | (10.9) |
| Total Deferred Outflows of Resources | 28,756 | 32,671 | 25,261 | (3,915) | 0.0 |
| Securities lending collateral — due to borrowers | 707,887 | 479,186 | 484,150 | 228,701 | 0.2 |
| Investment Purchases Payable | 278,472 | 450,377 | 314,679 | (171,905) | (0.1) |
| Other Liabilities | 176,269 | 198,526 | 217,360 | (22,257) | 0.0 |
| Total Liabilities | 1,162,628 | 1,128,089 | 1,016,189 | 34,539 | 0.0 |
| Total Deferred Inflows of Resources | 46,998 | 36,551 | 7,457 | 10,447 | 0.0 |
| **Net position restricted for pensions** | **$ 131,964,582** | **$ 148,148,457** | **$ 120,479,505** | **$ (16,183,875)** | **(10.9)%** |



The decrease in the investment value as of June 30, 2022 is attributable to depreciation of the investment portfolio due to particularly weak market performance. The portfolio earned a time-weighted rate of return of negative 7.15%, compared to an assumed rate of return of 6.95%.

The increase in the investment value as of June 30, 2021 is attributable to appreciation of the investment portfolio due to particularly strong market performance, net of benefit payments. The portfolio earned a time-weighted rate of return of 28.98%, compared to an assumed rate of return of 7.1%. The increase in receivables through June 30, 2021 is due to two factors: 1) amounts due from employers increased $109 million due to the increase in the employer contribution rate from 8.86% to 9.53%, and 2) timing of investment sales caused an increase in the amount receivable from $226 million to $320 million.

## MANAGEMENT'S DISCUSSION AND ANALYSIS *(continued)*
June 30, 2022 and 2021
(Unaudited)

### TABLE 2 - SUMMARY OF CHANGES IN FIDUCIARY NET POSITION
(dollars in thousands)

| | Years ended June 30 | | | Amount increase (decrease) | Percentage change of total 2021 |
|---|---|---|---|---|---|
| | 2022 | 2021 | 2020 | 2021 to 2022 | to 2022 |
| Net (depreciation) appreciation in fair value of investments | $ (12,446,619) | $ 31,499,853 | $ 1,643,319 | $ (43,946,472) | (29.7) % |
| Other investment income | 2,367,805 | 2,168,155 | 2,280,314 | 199,650 | 0.1 |
| Contributions- Employer and Member | 1,934,793 | 1,788,336 | 1,653,677 | 146,457 | 0.1 |
| Total (Deductions) Additions | (8,144,021) | 35,456,344 | 5,577,310 | (43,600,365) | (29.4) |
| | | | | | |
| Retirement benefits | (7,961,870) | (7,717,521) | (7,484,462) | (244,349) | (0.2) |
| Other deductions | (77,984) | (69,871) | (90,824) | (8,113) | 0.0 |
| Total Deductions | (8,039,854) | (7,787,392) | (7,575,286) | (252,462) | (0.2) |
| Net (decrease) increase in net position | (16,183,875) | 27,668,952 | (1,997,976) | (43,852,827) | (29.6) |
| | | | | | |
| Net position, beginning of year | 148,148,457 | 120,479,505 | 122,477,481 | 27,668,952 | 18.7 |
| **Net position, end of year** | **$131,964,582** | **$148,148,457** | **$120,479,505** | **$(16,183,875)** | **(10.9)%** |

### *Net Investment Income*

For the year ended June 30, 2022, NYSTRS reported net investment loss of $10.1 billion compared to net investment income of $33.7 billion in 2021 and $3.9 billion in 2020. The loss in 2022 was due to diminished market returns, primarily in the equity segments. The net appreciation (depreciation) by asset class and year is shown in the table below:

### TABLE 3 - NET APPRECIATION (DEPRECIATION) ON INVESTMENTS *
(dollars in thousands)

| | Years ended June 30 | | | Amount increase (decrease) |
|---|---|---|---|---|
| | 2022 | 2021 | 2020 | 2021 to 2022 |
| Domestic equity | $ (5,876,449) | $ 15,646,731 | $ 1,751,965 | $ (21,523,180) |
| International equity | (5,203,533) | 6,762,617 | (1,016,484) | (11,966,150) |
| Global equity | (947,017) | 1,527,191 | 46,357 | (2,474,208) |
| Real estate equity | 1,780,335 | 1,947,403 | (21,446) | (167,068) |
| Private equity | 917,693 | 5,679,894 | 534,144 | (4,762,201) |
| Domestic fixed income | (2,128,080) | (452,552) | 870,989 | (1,675,528) |
| High-yield bonds | (178,770) | 55,978 | (8,969) | (234,748) |
| Global bonds | (391,260) | (22,191) | 135,675 | (369,069) |
| Real estate debt | (534,179) | 130,075 | (698,772) | (664,254) |
| Private debt | 117,213 | 221,004 | (6,908) | (103,791) |
| Cash equivalents | 3,942 | 2,492 | 56,538 | 1,450 |
| Other | (6,514) | 1,211 | 230 | (7,725) |
| **Totals** | **$ (12,446,619)** | **$ 31,499,853** | **$ 1,643,319** | **$ (43,946,472)** |

*net of purchases, sales and maturities

MANAGEMENT'S DISCUSSION AND ANALYSIS *(continued)*
June 30, 2022 and 2021
(Unaudited)

### *Economic Factors*

The economic factor that is of primary significance to NYSTRS is the investment rate of return earned in the capital markets. Legislative, demographic, and actuarial assumption changes can also have a significant impact on the net pension liability and funded status of the plan. All of these factors are incorporated into the annual actuarial valuation, which determines the rate at which participating employers must contribute in order to appropriately fund member benefits. In terms of demographics, the System will likely continue to experience a shift toward a greater proportion of retirees relative to active members. This year the System experienced a depreciation on investments due to particularly weak market performance. Investment returns are smoothed (averaged) by NYSTRS over a five-year period for purposes of computing the actuarial value of assets used to determine the employer contribution rate. Industry forecasts of a decrease in expected future investment returns contributed to an increase in the employer contribution rate, from 9.53% on 2020-21 member salaries to 9.80% on 2021-22 member salaries.

### *Requests for Information*

This financial report is designed to provide active members, retirees, employers, and anyone else who is interested, with a general overview of the financial activities of NYSTRS. Questions about this report or requests for additional financial information should be addressed to the Public Information Office, New York State Teachers' Retirement System, 10 Corporate Woods Drive, Albany, NY 12211, or by email at communit@nystrs.org.

## STATEMENTS OF FIDUCIARY NET POSITION

June 30, 2022 and 2021

**(dollars in thousands)**

| **Assets:** | **2022** | **2021** |
|---|---|---|
| Investments — at fair value (notes 4, 5 and 6): | | |
| Domestic equity | **$ 41,961,629** | $ 50,050,654 |
| International equity | **19,509,375** | 24,795,559 |
| Global equity | **4,218,623** | 5,097,105 |
| Real estate equity | **16,491,592** | 14,844,615 |
| Private equity | **14,073,681** | 14,783,219 |
| Domestic fixed income | **18,271,844** | 18,815,502 |
| High-yield bonds | **958,586** | 941,987 |
| Global bonds | **2,950,256** | 3,305,959 |
| Real estate debt | **7,730,876** | 7,460,772 |
| Private debt | **1,424,443** | 1,163,794 |
| Cash equivalents | **2,269,278** | 4,959,962 |
| Total investments | **129,860,183** | 146,219,128 |
| Receivables: | | |
| Employer | **1,695,040** | 1,581,828 |
| Member contributions | **167,254** | 135,357 |
| Investment income | **291,344** | 264,854 |
| Investment sales | **157,375** | 319,989 |
| Total receivables | **2,311,013** | 2,302,028 |
| Other assets: | | |
| Securities lending collateral — invested (note 5) | **709,827** | 481,018 |
| Member loans | **232,473** | 236,944 |
| Capital assets, net of depreciation | **20,722** | 22,962 |
| Miscellaneous assets | **11,234** | 18,346 |
| Total other assets | **974,256** | 759,270 |
| Total assets | **133,145,452** | 149,280,426 |
| **Deferred outflows of resources:** | | |
| Changes in net OPEB liability (note 10) | **10,703** | 10,904 |
| Changes in net pension liability (note 9) | **18,053** | 21,767 |
| Total deferred outflows of resources | **28,756** | 32,671 |
| **Liabilities:** | | |
| Securities lending collateral — due to borrowers (note 5) | **707,887** | 479,186 |
| Investment purchases payable | **278,472** | 450,377 |
| Mortgage escrows and deposits — net of investments | **12,895** | 6,755 |
| Net OPEB liability (note 10) | **34,792** | 47,187 |
| Other liabilities (notes 5 and 9) | **128,582** | 144,584 |
| Total liabilities | **1,162,628** | 1,128,089 |
| **Deferred inflows of resources:** | | |
| Changes in net OPEB liability (note 10) | **13,230** | 4,276 |
| Changes in net pension liability (note 9) | **33,768** | 32,275 |
| Total deferred inflows of resources | **46,998** | 36,551 |
| Net position restricted for pensions (note 3) | **$ 131,964,582** | $ 148,148,457 |

*See accompanying notes to financial statements.*

## STATEMENTS OF CHANGES IN FIDUCIARY NET POSITION

### Fiscal Years Ended June 30, 2022 and 2021

**(dollars in thousands)**

| **Additions:** | **2022** | **2021** |
|---|---|---|
| Investment income: | | |
| Net (decrease) increase in fair value of investments | $ (12,446,619) | $ 31,499,853 |
| Interest income | 785,225 | 762,391 |
| Dividend income | 1,442,149 | 1,306,813 |
| Real estate — net operating income | 525,001 | 416,860 |
| Securities lending — gross earnings | 4,007 | 3,456 |
| Other — net | 10,969 | 17,060 |
| | (9,679,268) | 34,006,433 |
| Less: | | |
| Investment expenses | 399,564 | 339,540 |
| Securities lending: | | |
| Broker rebates | (523) | (2,849) |
| Management fees | 613 | 871 |
| (Appreciation) depreciation on collateral | (108) | 863 |
| Net investment (loss) income | (10,078,814) | 33,668,008 |
| Contributions: | | |
| Employer (note 1) | 1,735,255 | 1,618,437 |
| Member contributions | 190,853 | 159,874 |
| Transfers (to)/from other systems | 8,685 | 10,025 |
| Total contributions | 1,934,793 | 1,788,336 |
| Net (deductions) additions | (8,144,021) | 35,456,344 |
| **Deductions:** | | |
| Retirement benefit payments — periodic | 7,895,257 | 7,659,950 |
| Beneficiary payments | 66,613 | 57,571 |
| Return of contributions | 16,754 | 14,379 |
| Administrative expenses | 61,230 | 55,492 |
| Total deductions | 8,039,854 | 7,787,392 |
| Net (decrease) increase in net position | (16,183,875) | 27,668,952 |
| Net position restricted for pensions, beginning of year | 148,148,457 | 120,479,505 |
| Net position restricted for pensions, end of year | $ 131,964,582 | $ 148,148,457 |

*See accompanying notes to financial statements.*

# NOTES TO FINANCIAL STATEMENTS

June 30, 2022 and 2021

**(dollars in thousands)**

## (1) Plan Description

The New York State Teachers' Retirement System (NYSTRS or the System) was created and exists, pursuant to Article 11 of the New York State Education Law. The System is the administrator of a cost-sharing, multiple-employer, defined benefit public employee retirement system (PERS), administered by a 10-member Board to provide pension benefits for teachers employed by participating employers in the State of New York, excluding New York City. The System's Board is composed of:

- Three teacher members elected from the active membership.
- One retired member elected by a mail vote of all retired members.
- Two school administrators appointed by the Commissioner of Education.
- Two present or former school board members, experienced in the fields of finance and investment, elected by the Board of Regents. At least one of these individuals must have experience as an executive of an insurance company.
- One present or former bank executive elected by the Board of Regents.
- The State Comptroller or the Comptroller's designee.

Funding of the System is accomplished through member and employer contributions and investment earnings, according to New York State Education Law.

As of June 30, the number of participating employers was:

| | 2022 | 2021 |
|---|---|---|
| Public school districts | 679 | 679 |
| Boards of Cooperative Educational Services (BOCES) | 37 | 37 |
| SUNY | 31 | 31 |
| Community colleges | 30 | 30 |
| Charter schools | 27 | 26 |
| Special act districts | 9 | 9 |
| Other | 9 | 9 |
| Total | 822 | 821 |



As of June 30, the System's membership consisted of:

| | 2022 | 2021 |
|---|---|---|
| Retired members and beneficiaries currently receiving benefits | 178,569 | 175,790 |
| Members: | | |
| Active members | 253,258 | 249,355 |
| Terminated members entitled to but not yet receiving benefits | 10,217 | 9,803 |
| Subtotal | 263,475 | 259,158 |
| Total | 442,044 | 434,948 |

NOTES TO FINANCIAL STATEMENTS *(continued)*
June 30, 2022 and 2021
**(dollars in thousands)**

*(a) Benefits*

The benefits provided to members of the System are established by New York State law and may be amended only by the Legislature with the Governor's approval. Benefit provisions vary depending on date of membership and are subdivided into the following six classes:

**Tier 1**
Members who last joined prior to July 1, 1973 are covered by the provisions of Article 11 of the Education Law.

**Tier 2**
Members who last joined on or after July 1, 1973 and prior to July 27, 1976 are covered by the provisions of Article 11 of the Education Law and Article 11 of the Retirement and Social Security Law (RSSL).

**Tier 3**
Members who last joined on or after July 27, 1976 and prior to September 1, 1983 are covered by the provisions of Article 14 and Article 15 of the RSSL.

**Tier 4**
Members who last joined on or after September 1, 1983 and prior to January 1, 2010 are covered by the provisions of Article 15 of the RSSL.

**Tier 5**
Members who joined on or after January 1, 2010 and prior to April 1, 2012 are covered by the provisions of Article 15 of the RSSL.

**Tier 6**
Members who joined on or after April 1, 2012 are covered by the provisions of Article 15 of the RSSL.



*(b) Service Retirements*

Tier 1 and 2 members are generally eligible for a service retirement benefit of 2.0% per year of credited service times final average salary (FAS). A 5% reduction generally applies for each full year of state service under 20 years (prorated for partial years with a maximum reduction of 50%). Tier 1 and 2 members may retire as early as age 55 with five or more years of state service credit. Retirement may also occur for Tier 1 members at age 55 with less than five years of service if two years are credited since July 1, 1967, after the current membership date, and since the member turned age 53.

Generally, the maximum pension payable to Tier 1 and 2 members (with two years of credit under the Article 19 Benefit Enhancement law) is 79% of FAS. An age factor applies to Tier 2 members who retire before age 62 with less than 30 years of service. There is no age factor for Tier 1 members.

Tier 3 and 4 members are generally eligible for a service retirement benefit of 1.67% per year of credited service times FAS for less than 20 years of service, 2.0% per year for 20 to 30 years of service, and 60% of FAS plus 1.5% per year for service beyond 30 years. Tier 3 and 4 members may retire as early as age 55 with five years of state service credit. An age factor applies for Tier 3 and 4 members who retire before age 62 with less than 30 years of service.

Tier 5 members are generally eligible for a service retirement benefit of 1.67% per year of credited service times FAS for less than 25 years of service, 2.0% per year for 25 to 30 years of service, and 60% of FAS plus 1.5% per year for service beyond 30 years. Tier 5 members may retire as early as age 55 with five years of state service credit. An age factor applies to Tier 5 members who retire before age 57 or retire between age 57 and 62 with less than 30 years of service.

Tier 6 members are generally eligible for a service retirement benefit of 1.67% per year of credited service times FAS for less than 20 years of service, 1.75% per year for 20 years of service, and 35% of FAS plus 2% per year for service beyond 20 years.

## NOTES TO FINANCIAL STATEMENTS *(continued)*
## June 30, 2022 and 2021
**(dollars in thousands)**

Tier 6 members may retire as early as age 55 with five years of state service credit. An age factor applies for Tier 6 members who retire before age 63. In addition, vested Tier 6 members with an inactive membership must be at least 63 to retire.

### *(c) Vested Benefits*

Retirement benefits for Tiers 1-6 are now vested after five years of credited service. Prior to April 9, 2022, Tier 5 and 6 members needed to attain 10 years of state service credit to be vested. Benefits are payable at age 55 or greater with the limitations noted for service retirements above.

### *(d) Disability Retirement*

Members are eligible for disability retirement benefits after 10 years of credited New York State service, except for Tier 3 where disability retirement is permissible after five years of credited New York State service pursuant to the provisions of Article 14 of the RSSL. The Tier 3 benefit is integrated with Social Security.

### *(e) Death Benefits*

Death benefits are paid to the beneficiary of active members who die in service and certain retirees. For active members, the benefit is based on final salary, age and the number of years of credited service. For retired members, it is also based on the number of years in retirement.

### *(f) Prior and Military Service*

After two years of membership, members of all tiers may claim and receive credit for prior New York State public or teaching service. Only Tier 1 and 2 members may, under certain conditions, claim out-of-state service. Certain members may also claim military service credit prior to or interrupting membership.

### *(g) Tier Reinstatement*

In accordance with Chapter 640 of the Laws of 1998, any active member who had a prior membership may elect to be reinstated to their original date and tier of membership.

### *(h) Employer Contributions*



Pursuant to Article 11 of the New York State Education Law, employers are required to contribute at an actuarially determined rate adopted annually by the Retirement Board. The actuarially determined employer contribution rate applied to 2021-22 and 2020-21 member salaries is 9.80% and 9.53%, respectively. A reconciliation of total required employer contributions presented in the Schedule of the School Districts' Contributions and additions from employer contributions per the System's Statements of Changes in Fiduciary Net Position for fiscal years 2022 and 2021 is as follows:

| | June 30 | |
|---|---|---|
| | **2022** | **2021** |
| Total required employer contributions | $ 1,736,097 | $ 1,617,547 |
| Miscellaneous billing adjustments | (842) | 890 |
| Additions from employer contributions | $ 1,735,255 | $ 1,618,437 |

In April 2013, the System's Retirement Board adopted a Stable Contribution Option (SCO) provided for under Chapter 57 of the Laws of 2013. Under the law, BOCES and public school districts participating in NYSTRS were offered the choice of either paying the actuarially determined contribution (ADC) or electing to participate in the SCO program, thereby paying a stable contribution rate for up to seven years beginning with the rate applied to the 2013-14 salaries and concluding with the rate applied to the 2021-22 salaries; deferring payment of the difference between the ADC and the contribution determined applying the SCO rate. Interest on deferred contribution amounts were based on the monthly average yield on

## NOTES TO FINANCIAL STATEMENTS *(continued)*
## June 30, 2022 and 2021
**(dollars in thousands)**

10-year U.S. Treasury securities for the 12-month period that precedes August 1 of the applicable deferred year, plus 1.0%. As of June 30, 2017, all districts that participated in the SCO have opted out and have either paid their outstanding deferral in full or have opted to repay the System over five years. The SCO receivable balances at June 30, 2022 and 2021 were $0 and $2,722, respectively.

*(i) Member Contributions*

Tier 3 and Tier 4 members were required by law to contribute 3% of salary to the System. Effective October 2000, contributions were eliminated for Tier 3 and 4 members with 10 or more years of service or membership. Effective January 1, 2010, Tier 5 members are required by law to contribute 3.5% of salary throughout their active membership. Effective April 1, 2012, Tier 6 members are required by law to contribute between 3.0% and 6.0% of salary throughout their active membership in accordance with a schedule based upon salary earned. Pursuant to Article 14 and Article 15 of the RSSL, those member contributions are used to help fund the benefits provided by the System. However, if a member dies or leaves covered employment with less than five years of credited service for Tiers 3 - 6, the member contributions with interest calculated at 5.0% per annum are refunded to the employee or designated beneficiary. Eligible Tier 1 and Tier 2 members may make member contributions under certain conditions pursuant to the provisions of Article 11 of the Education Law and Article 11 of the RSSL. Upon termination of membership, such accumulated member contributions are refunded. At retirement, such accumulated member contributions can be withdrawn or are paid as a life annuity.

*(j) Permanent Cost-of-Living Adjustment (COLA)*

Section 532-a of the Education Law provides a permanent cost-of-living benefit to both current and future retired members. This benefit will be paid commencing September of each year to retired members who have attained age 62 and have been retired for five years or attained age 55 and have been retired for 10 years. Disability retirees must have been retired for five years, regardless of age, to be eligible. The annual COLA percentage is equal to 50.0% of the increase in the Consumer Price Index (CPI), not to exceed 3.0% nor be lower than 1.0%. It is applied to the first $18,000 dollars of the maximum annual benefit. The applicable percentage payable beginning September 2022 and 2021 is 3.0% and 1.4%, respectively.

Members who retired prior to July 1, 1970 are eligible for a minimum benefit of $17,500 dollars for 35 years of credited full-time New York State service. Certain members who retire pursuant to the provisions of Article 14 of the RSSL are eligible for automatic cost-of-living supplementation based on the increase in the CPI with a maximum per annum increase of 3.0%.



## (2) Summary of Significant Accounting Policies

*(a) Basis of Accounting*

The System's financial statements are prepared using the economic resource measurement focus and accrual basis of accounting. Plan member contributions are recognized in the period in which the contributions are due. Employer contributions are recognized when due and the employer has a legal requirement to provide the contributions. Benefits and refunds are recognized when due and payable in accordance with the terms of the plan. Investment purchases and sales are recorded on a trade-date basis.

*(b) Investments*

Plan investments are reported at fair value. Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Where plan investments do not have a readily determinable fair market value, fair value of the plan investments has been established using the net asset value per share (or its equivalent) of the investment to establish fair value where applicable . Refer to note 6 for more detail regarding the methods used to measure the fair value of investments.

## NOTES TO FINANCIAL STATEMENTS *(continued)*
## June 30, 2022 and 2021
**(dollars in thousands)**

*(c) System Employees' Pension Plan and Other Postemployment Benefits*

The System offers a defined benefit pension plan to its employees. The System records a net pension liability for the difference between the total pension liability calculated by the actuary and the pension plan's fiduciary net position. For purposes of measuring the net pension liability, deferred outflows of resources and deferred inflows of resources related to pensions and pension expense, information about the fiduciary net position of the Employees Retirement System (ERS) and additions to/deductions from ERS's fiduciary net position have been determined on the same basis as they are reported for ERS by the New York State and Local Retirement System (NYSLRS).

The System offers a defined benefit other postemployment benefits (OPEB) plan to its employees. The System records a net OPEB liability for the difference between the total OPEB liability calculated by the actuary and the OPEB plan's fiduciary net position. For purposes of measuring the net OPEB liability, deferred outflows of resources and deferred inflows of resources related to OPEB and OPEB expense, information about the fiduciary net position of the New York State Teachers' Retirement System Retired Employee Health Benefits Trust (the Trust) and additions to/deductions from the Trust's fiduciary net position have been determined on the same basis as they are reported for by the Trust.

For these purposes, benefit payments (including refunds of employee contributions) are recognized when due and payable in accordance with the benefit terms, and investments are reported at fair value for both plans.

In addition to assets, the statement of fiduciary net position will sometimes report a separate section for deferred outflows of resources. This separate financial statement element represents a consumption of net position that applies to a future period and will not be recognized as an outflow of resources (expense/expenditure) until then.

In addition to liabilities, the statement of fiduciary net position will sometimes report a separate section for deferred inflows of resources. This separate financial statement element represents an acquisition of net position that applies to a future period and will not be recognized as an inflow of resources (revenue) until that time.

The System reports deferred outflows of resources and deferred inflows of resources related to their employee's participation in separate pension and OPEB plans.



*(d) Capital Assets*

Capital assets with a useful life greater than one year and of one hundred thousand dollars or more are recorded at historical cost and capitalized over their useful life. Depreciation has been provided over the estimated useful lives using the straight-line method. The estimated useful lives are as follows:

| | Years |
|---|---|
| Building | 39 |
| Building improvements | 15 |
| Roads and shrubbery | 10 |
| Office furniture and equipment | 7 |
| Computer equipment and software | 3 - 5 |
| Automobiles | 5 |

*(e) Federal Tax Status*

The System is exempt from federal income taxes under Section 501(a) of the IRC.

*(f) Use of Estimates*

Management of the System has made a number of estimates and assumptions relating to the reporting of assets and liabilities and in the disclosure of contingencies to prepare these financial statements in conformity with U.S. generally

## NOTES TO FINANCIAL STATEMENTS *(continued)*
## June 30, 2022 and 2021
**(dollars in thousands)**

accepted accounting principles. The System's most significant estimates relate to assumptions made about future events as part of the annual actuarial valuation process and the valuation of investments. Due to the inherent nature of these estimates, actual results could differ from those estimates.

*(g) Reclassification*

Certain amounts in the 2021 basic financial statements have been reclassified to conform to 2022 presentation.

*(h) Accounting Pronouncements Applicable to the System, Issued but Not Yet Effective*

Governmental Accounting Standards Board (GASB) Statement No. 96 Subscription Based Information Technology Arrangements provides guidance on the accounting and financial reporting for subscription-based information technology arrangements (SBITAs) for government end users (governments). The requirements of this Statement are effective for fiscal years beginning after June 15, 2022, and all reporting periods thereafter. The System is evaluating the impact of this statement.

## (3) Funds



The following funds were established pursuant to the laws of the State of New York.

*(a) Annuity Savings Fund*

The fund in which contributions of Tier 1 and 2 members covered by the provisions of Article 11 of the Education Law and Article 11 of the RSSL are accumulated. For reporting purposes below, this fund is combined with the Annuity Reserve Fund.

*(b) Annuity Reserve Fund*

The fund from which the accumulated contributions of members covered by the provisions of Article 11 of the Education Law and Article 11 of the RSSL are paid as a life annuity. For reporting purposes below, this fund is combined with the Annuity Savings Fund.

*(c) Pension Accumulation Fund*

The fund in which all reserves for the payment of all benefits are accumulated with the exception of the annuity provided by the accumulated contributions of Tier 1 and 2 members, supplemental retirement allowances, and group term life insurance.

*(d) Pension Reserve Fund*

The fund that pays pensions with the reserves from the Pension Accumulation Fund.

*(e) Group Life Insurance Fund*

Pursuant to Article 4-B of the RSSL, the Retirement Board established a Group Life Insurance Fund. The Group Life Insurance Fund provides a group term death benefit not to exceed fifty thousand dollars, payable upon the death of eligible members. Group term death benefits paid for the years ended June 30, 2022 and 2021 were $25,209 and $19,836, respectively. For reporting purposes below, this fund is combined with the Pension Accumulation Fund.

NOTES TO FINANCIAL STATEMENTS *(continued)*
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*(f) CO-ESC Member Contributions Fund*

Members covered by the provisions of Article 14 and Article 15 of the RSSL contributed a range of 3% to 6% of salary depending on their tier to the System's CO-ESC Member Contribution Fund. Contributions to this fund were $144,019 and $126,946 for the years ended June 30, 2022 and 2021, respectively. For reporting purposes below, this fund is combined with the Pension Accumulation Fund.

*(g) Administrative Fund*

All operating expenses of the System are paid through this fund. The fund receives an allocation from employer contributions, which are designated by law to cover all non-investment-related operating expenses.

*(h) Summary of Fund Balances*

Net position restricted for pensions at June 30, 2022 and 2021 consist of the following:

| | 2022 | 2021 |
|---|---|---|
| Administrative fund | $ 62,053 | $ 62,807 |
| Annuity savings and reserve funds | 63,454 | 72,002 |
| Pension accumulation, group life insurance and CO-ESC funds | 58,826,877 | 76,692,887 |
| Pension reserve fund | 73,012,198 | 71,320,761 |
| Total | $ 131,964,582 | $ 148,148,457 |

## (4) Pension Plan Investments

*(a) Investment Policy*

The System has been authorized by the New York State Legislature pursuant to the Banking Law, Section 235; the Education Law, Article 11, Section 508; and the RSSL, Article 4-A, Sections 176 and 177, to invest in stocks, bonds, mortgages, real estate, and other investments. A specific investment within these broad asset classes may be subject to particular restrictions or limitations contained in the applicable statutory provision. The Leeway Clause of Section 177 provides that, subject to guidelines adopted by the Retirement Board, up to 25.0% of assets may be invested in types of assets not otherwise specifically authorized, provided the Retirement Board is satisfied such investments were made with the care, skill, prudence and diligence of a prudent person acting in a like capacity and familiar with such matters. Pursuant to regulations promulgated by the New York State Department of Financial Services, investments must be made in a manner consistent with those of a reasonably prudent person exercising care, skill and caution. In addition to applicable legal constraints, the Retirement Board has adopted policies governing the investments made by the System.

NOTES TO FINANCIAL STATEMENTS *(continued)*
June 30, 2022 and 2021
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*(b) Asset Allocation*

The System's asset allocation policy as of June 30, 2022 and 2021, as adopted by the Retirement Board is as follows:

| Asset Class | Target June 30, 2022 | Target June 30, 2021 | Range June 30, 2022 | Range June 30, 2021 |
|---|---|---|---|---|
| Domestic equity | 33% | 33% | 29-37% | 29-37% |
| International equity | 16 | 16 | 12-20 | 12-20 |
| Global equity | 4 | 4 | 0-8 | 0-8 |
| Real estate equity | 11 | 11 | 6-16 | 6-16 |
| Private equity | 8 | 8 | 3-13 | 3-13 |
| Total equity | 72 | 72 | | |
| Domestic fixed income | 16 | 16 | 12-20 | 12-20 |
| High-yield bonds | 1 | 1 | 0-3 | 0-3 |
| Global bonds | 2 | 2 | 0-4 | 0-3 |
| Real estate debt | 6 | 7 | 2-10 | 3-11 |
| Private debt | 2 | 1 | 0.5-5 | 0-5 |
| Cash equivalents | 1 | 1 | 1-4 | 0-4 |
| Total debt | 28 | 28 | | |
| Total | 100% | 100% | | |

*(c) Rate of Return*

The annual money-weighted rate of return on System investments, net of pension plan investment expense, was 28.97% for the year ended June 30, 2021, but was negative 7.12% for the year ended June 30, 2022. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

NOTES TO FINANCIAL STATEMENTS *(continued)*
June 30, 2022 and 2021
**(dollars in thousands)**

## (5) Deposit and Investment Risk Disclosure

### *(a) Credit Risk*

The quality ratings of investments in fixed income securities as described by nationally recognized statistical rating organizations at June 30, 2022 and 2021 are as follows:

| | 2022 | | 2021 | |
|---|---|---|---|---|
| Quality rating | Fair value | Percentage of portfolio | Fair value | Percentage of portfolio |
| Short-term: | | | | |
| P-1 | $ 1,899,118 | 7.2 % | $ 3,659,642 | 12.4 % |
| Long-term: | | | | |
| Aaa | 5,750,836 | 21.7 | 5,831,554 | 19.7 |
| Aa | 1,634,395 | 6.2 | 1,769,281 | 6.0 |
| A | 4,139,237 | 15.6 | 4,301,876 | 14.5 |
| Baa | 2,993,038 | 11.3 | 3,214,781 | 10.9 |
| Ba | 663,043 | 2.5 | 705,347 | 2.4 |
| B | 588,177 | 2.2 | 516,285 | 1.7 |
| Other | 17,223 | 0.1 | 33,722 | 0.1 |
| Total credit risk debt securities | 17,685,067 | 66.8 | 20,032,488 | 67.7 |
| U.S. government fixed income securities* | 8,807,561 | 33.2 | 9,550,305 | 32.3 |
| Total fixed income securities** | $ 26,492,628 | 100.0 % | $ 29,582,793 | 100.0 % |

** Obligations of the U.S. government or obligations explicitly guaranteed by the U.S. government are not considered to have credit risk and do not have purchase limitations.*

*** Cash equivalents, real estate debt, high-yield and global bond on the Statements of Fiduciary Net Position at June 30, 2022 and 2021 include $229,059 and $290,919, respectively, in cash and commingled commercial mortgage backed securities.*



Additionally, as of June 30, 2022 and 2021, the System held mortgages, secured by a lien of the properties, valued at $3.2 billion and $3.7 billion, respectively, that are not publicly traded assets and are not rated by the rating agencies.

### *(b) Custodial Credit Risk*

Custodial credit risk is the risk that, in the event of a failure of the counterparty, the System will not be able to recover the value of its deposit or investment, or collateral securities that are in the possession of an outside party. Deposits are exposed to custodial credit risk if they are uninsured and uncollateralized. Investment securities are exposed to custodial credit risk if the securities are uninsured, are not registered in the name of the System, and are held by either the counterparty or the counterparty's trust department or agent but not in the System's name.

The head of the Division of the Treasury in the New York State Department of Taxation and Finance (the Treasurer) is the statutory custodian of the funds of the System and, in this capacity, has arranged to have bank accounts collateralized. Collateral is held in the name of the Treasurer, as custodian for the System, by a bank that does not act as an agent for the System. The System's bank accounts were fully collateralized during the year. At June 30, 2022 and 2021, the System's bank balance was a negative $3,600 and a negative $3,128, respectively, representing a managed overdraft. Consistent with the System's investment policy, all of the System's securities are held by the System's custodial bank in the System's name.

*(c) Concentration of Investment and Credit Risk*

Concentration of credit risk is the risk of loss attributed to the magnitude of the System's investment in a single issuer.

As of June 30, 2022 and 2021, the System did not hold investments in any one issuer that would represent 5.0% or more of fiduciary net position. Obligations issued or explicitly guaranteed by the U.S. government and pooled investments are not considered subject to concentration of credit risk.

Issuer limits for investments held by the System are established for each investment area by the RSSL Article 4-A, Sections 176-179.

Short-term fixed income investments are generally limited to the following investment types maturing in one year or less:

- Obligations issued by any Federal Home Loan Bank or obligations fully guaranteed as to principal and interest by Fannie Mae or Freddie Mac.
- Commercial paper that has the highest rating by two nationally recognized rating services.

Fixed income securities are generally limited to the following investment types with maturities longer than one year:

- Obligations payable in U.S. dollars issued by any department, agency or political subdivision of the U.S. government or issued by any corporation, company or other issuer of any kind or description created or existing under the laws of the U.S.; any state of the U.S., District of Columbia or Commonwealth of Puerto Rico; and obligations of Canada or any province or city of Canada, provided each obligation shall be rated investment grade by two nationally recognized rating services. The aggregate investment by the System in the obligations of any one issuer shall not exceed 2.0% of the assets of the System or 5.0% of the direct liabilities of the issuer.
- Notwithstanding the 2.0% limitation stated above, the System may invest not more than 2.5% of its assets in the obligations of any one railroad or industrial corporation; or any one corporation engaged directly and primarily in the production, transportation, distribution or sale of electricity or gas; or the operations of telephone and telegraph systems or waterworks or in some combination thereof.
- In no event may more than 30.0% of the System's assets be invested in bonds of electric and gas corporations. Equipment trust certificates, subject to the provisions of the law, are not to exceed 5.0% of the assets of the System.
- Obligations issued or guaranteed by the Inter-American Development Bank, Asian Development Bank, the African Development Bank or the Youth Facilities Project Guarantee Fund and participations therein.
- Obligations of the Dominion of Canada, of any province of the Dominion of Canada, and of any city of the Dominion of Canada, payable in U.S. funds, provided that the aggregate unpaid principal amount of all such obligations at any time held by the System shall not exceed 5.0% of the System's assets.
- Bonds of the Savings and Loan Bank of the State of New York, Federal Land Bank, Federal Intermediate Credit Banks, and Banks for Cooperatives.
- Bonds of Freddie Mac, Federal Home Loan Banks, Tennessee Valley Authority, Fannie Mae, and the United States Postal Service.
- Obligations issued or guaranteed by the International Bank for Reconstruction and Development, provided the aggregate unpaid principal amount of such obligations at any time held by the System shall not exceed 5.0% of the System's assets.
- Bonds and notes of any bank, trust company, savings bank, or savings and loan association organized under the laws of New York State having a net worth of at least $10 million, which meet all applicable statutes, provided the aggregate unpaid principal amount of bonds and notes secured by conventional mortgages shall not exceed 5.0% of the assets of the System.

## NOTES TO FINANCIAL STATEMENTS *(continued)*
## June 30, 2022 and 2021
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- Mortgage pass-through certificates, provided the certificates evidence ownership of undivided interests in pools or mortgage loans secured by first mortgages on real property located in New York state improved by one-to-four family residential dwellings, which meet all applicable statutes. The aggregate unpaid principal on conventional mortgages securing mortgage pass-through certificates cannot exceed 10.0% of the assets of the System nor can the total unpaid principal on any single pool of conventional mortgages securing mortgage pass-through certificates exceed 1.0% of the assets of the System.

- Collateralized Mortgage Obligations, which meet the requirements of applicable statutes.

- Private placements, where the purchase of unrated obligations is authorized by the Banking Law or the RSSL governing fixed income obligations; if not so provided, private placements as well as other domestic fixed income not otherwise provided for may be purchased under the Leeway Clause.

The System may invest in domestic equity securities and interest-bearing obligations payable in U.S. funds, which are convertible into equity securities of any corporation created or existing under the laws of the U.S., any state of the U.S., District of Columbia, and the Commonwealth of Puerto Rico; or any investment company, as defined by, and which is registered under, an act of Congress of the United States, entitled to the Investment Company Act of 1940, as amended, subject to certain limitations.

The System's international equity investments may not exceed 10.0% of the System's assets including emerging market equity securities. To the extent the 10.0% limitation is exceeded, the System's international equity securities may be invested in Leeway investments (which amount shall not exceed 25.0% of System assets).

The maximum amount invested within the System's equities, including domestic and international, may not exceed, in any one year, 15.0% of System assets or 70.0% of the total System assets in aggregate. The System may not own more than 5.0% of the total issued and outstanding equity securities of any one corporation.

The System's real estate investments will be diversified across geographic regions to allow for competitive portfolio performance in the event of a temporary weakness in any one region and to allow for differing urban and suburban market trends within any region. The System may invest in certain conventional mortgages constituting a first lien upon real property located in the U.S. pursuant to statute subject to certain provisions. The value of all real property held by the System shall not exceed ten percent (10.0%) of System assets and the cost of each parcel of real property shall not exceed two percent (2.0%) of the System's assets.



Alternative investments are made pursuant to the Leeway Clause of the RSSL.

NOTES TO FINANCIAL STATEMENTS *(continued)*
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**(dollars in thousands)**

*Interest Rate Risk*

Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of the investment. The System is exposed to interest rate risk at June 30, 2022 and 2021 as follows:

| | 2022 | | 2021 | |
|---|---|---|---|---|
| **Investment type** | **Fair value** | **Duration (in years)** | **Fair value** | **Duration (in years)** |
| Mortgages | $ 3,200,577 | 1.840 | $ 3,707,599 | 3.017 |
| | | | | |
| Cash equivalents* | 2,269,278 | 0.068 | 4,959,962 | 0.118 |
| Domestic fixed income | 18,271,844 | 4.334 | 18,815,502 | 3.979 |
| CMBS | 2,271,723 | 0.496 | 1,850,302 | 0.428 |
| High-yield bonds | 958,586 | 0.207 | 941,987 | 0.177 |
| Global bonds | 2,950,256 | 6.810 | 3,305,959 | 7.540 |
| Total fair value | $ 26,721,687 | | $ 29,873,712 | |
| Cash equivalents and fixed income portfolio modified duration | | 4.810 | | 4.170 |

*Commercial paper, negotiable certificates of deposit and U.S. Treasury, agency, supranational and floating debt issues.

Duration is a measure of a debt investment's exposure to fair value changes arising from changing interest rates. The greater the duration, the greater its price volatility will be in response to a change in interest rates and vice versa.

NOTES TO FINANCIAL STATEMENTS *(continued)*
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*(d) 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. The System has exposure through global and international holdings in commingled investment trust funds and separate accounts, global real estate investment trusts (REITs), global bonds, and alternatives. The "alternatives" represent private equity and real estate investments denominated in foreign currency. With respect to global bond investments, the majority of currency risk inherent in non-U.S. dollar denominated bonds owned by the System in a separate account is hedged away by the managers through currency forwards. The System has an exposure to foreign currency fluctuation at June 30, 2022 and 2021 as follows:

| | 2022 | | 2021 | |
|---|---|---|---|---|
| | Equity Securities and REITs | Alternatives, Cash, and Global Bonds | Equity Securities and REITs | Alternatives, Cash, and Global Bonds |
| Currency: | | | | |
| Euro | $ 4,405,253 | $ 1,963,947 | $ 5,693,619 | $ 2,794,323 |
| Japanese Yen | 3,217,012 | 242,259 | 4,108,954 | 273,212 |
| British Pound Sterling | 2,100,950 | 685,158 | 2,432,008 | 801,998 |
| Canadian Dollar | 1,536,996 | 85,709 | 1,697,618 | 110,929 |
| Hong Kong Dollar | 1,369,233 | 84 | 1,803,830 | — |
| Swiss Franc | 1,230,812 | 6,720 | 1,484,802 | 9,311 |
| Australian Dollar | 959,661 | 213,899 | 1,082,800 | 146,540 |
| China Renminbi | 1,176,177 | — | 1,533,140 | (21) |
| New Taiwan Dollar | 831,925 | 23 | 1,106,896 | (21) |
| South Korean Won | 689,169 | 40,792 | 1,137,216 | 45,698 |
| Indian Rupee | 606,821 | 9 | 652,103 | (1) |
| Swedish Krona | 525,244 | 6,657 | 744,941 | 17,840 |
| Danish Krone | 404,039 | 2,059 | 475,474 | 13,990 |
| Brazilian Real | 308,605 | 7,139 | 451,539 | 4,771 |
| South African Rand | 212,651 | 16,724 | 274,992 | 12,442 |
| Other | 1,423,659 | 93,522 | 1,465,696 | 95,802 |
| Totals | $ 20,998,207 | $ 3,364,701 | $ 26,145,628 | $ 4,326,813 |



*(e) Securities Lending Transactions*

The Retirement and Social Security Law authorizes the System to enter into agreements to loan securities. Agreements to lend a security must be with a broker dealer or with New York State or nationally chartered banks and must not exceed a period of one year. The market value of securities loaned may not exceed 20% of the market value of the System's invested assets. The System lends domestic and international bonds and equities. Initial collateral of at least 102% of the market value of loaned securities is received from the borrower for domestic securities and 105% for international securities. Securities on loan are marked to market daily and collateral for the loan is required not to fall below 100%. The fair value of invested cash collateral is reported as an asset and cash collateral due to borrowers is reported as a liability on the Statement of Fiduciary Net Position. The fair value of the cash collateral invested exceeded the amount the System owed borrowers by approximately $1.9 million as of June 30, 2022 and $1.8 million as of June 30, 2021. Non-cash collateral is not reported on the Statement of Fiduciary Net Position as the System does not have the ability to pledge or sell collateral securities without a borrower default. For each year-end, the System had limited credit risk exposure to borrowers because

NOTES TO FINANCIAL STATEMENTS *(continued)*
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the amounts the System owes the borrowers (the collateral) exceeds the amounts the borrowers owe the System (the loaned securities).

As of June 30, 2022 and 2021, JP Morgan Chase Bank, N.A. (JP Morgan) acted as agent for the domestic equity and fixed income securities lending program while Bank of New York Mellon (BNY Mellon) acted as agent for the international equity, global bond, and global equity securities lending program. Under the terms of the contracts with the lending agents, the System is fully indemnified against losses resulting from the failure of the borrowers to return the loaned securities (to the extent the collateral is inadequate to replace the loaned securities) or failure to pay the System for income distributions by the securities' issuers while the securities are on loan. There were no significant violations of legal or contractual provisions, no borrower or lending agent defaults, and no material recoveries of prior period losses during the year. The majority of securities on loan can be recalled by the System on demand or returned by the borrower at any time. Cash collateral is invested by the System's lending agents in short-term investment funds managed by the agent lenders pursuant to System approved investment guidelines. There is no direct match of the maturities of the collateral investments with the maturities of the securities loans. Investments are restricted to issuers with a short-term credit rating issued by Standard & Poor's and Moody's Investors Service, not lower than A- 1/P -1 or long-term ratings not lower than A/A2, respectively, or the equivalent thereof. Non-cash collateral received is limited to high-quality U.S. Treasuries, agency securities and agency mortgage-backed securities. At June 30, 2022 and 2021, the average effective duration of the funds managed by JP Morgan was four and 21 days respectively and of those managed by BNY Mellon and State Street was four days compared to three days, respectively. Securities loans and related collateral investments are monitored on a daily basis to ensure compliance with collateral requirements, limitations and cash collateral investment guidelines.



| Securities Lending Program | | 2022 | | 2021 |
|---|---|---|---|---|
| Fair value of securities on loan — cash collateral | $ | 688,474 | $ | 459,107 |
| Fair value of securities on loan — non-cash collateral | | 853,622 | | 941,509 |
| Total fair value of securities on loan | $ | 1,542,096 | $ | 1,400,616 |
| | | | | |
| Fair value of liabilities to borrowers — cash collateral | $ | 707,887 | $ | 479,186 |
| Fair value of liabilities to borrowers — non-cash collateral | | 876,174 | | 962,850 |
| Total collateral due to borrowers | $ | 1,584,061 | $ | 1,442,036 |
| | | | | |
| Fair value of cash collateral invested by System | $ | 709,827 | $ | 481,018 |
| Fair value of non-cash collateral held by System | | 876,174 | | 962,850 |
| Total collateral invested and held by the System | $ | 1,586,001 | $ | 1,443,868 |

## (6) Fair Value Measurement

NYSTRS' investments measured and reported at fair value are classified according to the following hierarchy in which the levels are based on the nature of inputs used to measure the fair value of the investment:

Level 1 – Investments' fair values based on prices quoted in active markets for identical assets.

Level 2 – Investments' fair values based on observable inputs for the assets either directly or indirectly, other than those considered Level 1 inputs, which may include quoted prices for identical assets in markets that are not considered to be active, and quoted prices of similar assets in active or inactive markets.

Level 3 – Investments' fair values based upon unobservable inputs.

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The categorization of investments within the hierarchy above is based solely upon the objectivity of the inputs used in the measurement of fair value of the investments and does not reflect the level of risk associated with the investments.

Investments classified in Level 1 of the fair value hierarchy are valued from predetermined external pricing vendors or primary dealers who source quoted prices in active markets which are readily attainable exit values of these securities. Investments classified in Level 2 are subject to alternative pricing sources, including a combination of price sources, descriptive data and pricing models based on attributes such as spread data, sector, quality, duration, and prepayment characteristics. Investments classified as Level 3 are valued using best available sources such as property appraisals, discounted cash flow models and public market comparables of similar assets where applicable. The values are supplied by advisers or general partners who hold those or similar assets in investments vehicles they oversee. These pricing sources may or may not be indicative of realizable exit value attainable for the assets.

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NYSTRS' investments and securities lending collateral reinvested have the following fair value measurements or net asset values (NAV) as of June 30, 2022 and 2021, respectively:

| | | Fair Value Measurements Using | | |
|---|---|---|---|---|
| **Investments by Fair Value Level** | **June 30, 2022** | **Quoted Prices in Active Markets for Identical Assets (Level 1)** | **Significant Other Observable Inputs (Level 2)** | **Significant Unobservable Inputs (Level 3)** |
| **Domestic equity** | $ 41,961,610 | $ 41,958,863 | $ 2,646 | $ 101 |
| **International equity** | 18,598,195 | 18,438,864 | 157,797 | 1,534 |
| **Global equity** | 4,264,158 | 4,129,267 | 134,852 | 39 |
| **Real estate equity:** | | | | |
| Direct equity real estate and joint venture investments | 4,639,383 | — | — | 4,639,383 |
| Real estate alternative investments | 283,439 | — | — | 283,439 |
| Domestic REIT | 2,681,606 | 2,470,522 | 211,084 | — |
| International REIT | — | — | — | — |
| Global REIT | 1,341,873 | 1,327,542 | 13,802 | 529 |
| **Total real estate equity** | $ 8,946,301 | $ 3,798,064 | $ 224,886 | $ 4,923,351 |
| **Domestic fixed income** | 18,271,844 | 100,966 | 18,170,878 | — |
| **High-yield bonds** | 958,564 | 1,213 | 956,433 | 918 |
| **Global bonds** | 2,920,498 | 39,718 | 2,880,780 | — |
| **Real estate debt:** | | | | |
| Domestic commercial mortgage backed securities | 2,271,723 | 28,674 | 2,243,049 | — |
| Real estate alternative investments | 559,903 | — | — | 559,903 |
| Mortgages | 3,200,577 | — | — | 3,200,577 |
| **Total real estate debt** | $ 6,032,203 | $ 28,674 | $ 2,243,049 | $ 3,760,480 |
| **Cash Equivalents*** | 2,257,952 | — | 2,257,952 | — |
| **Securities Lending Collateral, Invested** | 709,827 | — | 708,364 | 1,463 |
| **Total investments by fair value level** | $ 104,921,152 | $ 68,495,629 | $ 27,737,637 | $ 8,687,886 |

*Commercial paper, negotiable certificates of deposit and U.S. Treasury, agency, supranational and floating debt issues.

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| Investments Measured at the NAV | | June 30, 2022 | | Unfunded Commitments | Redemption Frequency | Redemption Notice Period |
|---|---|---|---|---|---|---|
| Commingled international equity funds (1) | | 813,333 | | — | Daily or Monthly | 5-30 days |
| Privately held real estate investment trusts (2) | | 1,524,520 | | 85,000 | NA | NA |
| Real estate equity funds (3) | | | | | | |
| Closed-end funds | | 4,687,493 | | 4,242,949 | | |
| Open-end funds | | 1,331,798 | | 86,707 | Quarterly | 30-120 days |
| Private equity closed-end funds (4) | | 14,073,681 | | 6,449,962 | | |
| Real estate debt funds (5) | | | | | | |
| Closed-end funds | | 1,584,217 | | 2,051,393 | | |
| Open-end funds | | 114,456 | | — | Quarterly | 90 days |
| Private debt closed-end funds (6) | | 1,424,443 | | 1,539,290 | | |
| Total investments measured at the NAV | $ | 25,553,941 | $ | 14,455,301 | | |
| | | | | | | |
| Investment related cash, receivables and payables not included in above | | 94,917 | | | | |
| **Total investments and securities lending collateral reinvested** | $ | 130,570,010 | | | | |

NOTES TO FINANCIAL STATEMENTS *(continued)*
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| | | Fair Value Measurements Using | | |
|---|---|---|---|---|
| **Investments by Fair Value Level** | **June 30, 2021** | **Quoted Prices in Active Markets for Identical Assets (Level 1)** | **Significant Other Observable Inputs (Level 2)** | **Significant Unobservable Inputs (Level 3)** |
| **Domestic equity** | $ 50,052,876 | $ 50,030,865 | $ 21,903 | $ 108 |
| **International equity** | 23,505,592 | 23,355,851 | 147,888 | 1,853 |
| **Global equity** | 5,081,316 | 4,968,274 | 113,042 | — |
| **Real estate equity:** | | | | |
| Direct equity real estate and joint venture investments | 3,273,467 | — | — | 3,273,467 |
| Real estate alternative investments | 300,716 | — | — | 300,716 |
| Domestic REIT | 3,082,892 | 2,931,615 | 151,277 | — |
| International REIT | — | — | — | — |
| Global REIT | 1,532,577 | 1,521,169 | 11,402 | 6 |
| **Total real estate equity** | $ 8,189,652 | $ 4,452,784 | $ 162,679 | $ 3,574,189 |
| **Domestic fixed income** | 18,815,503 | 356,055 | 18,459,418 | 30 |
| **High-yield bonds** | 941,593 | 1,740 | 939,604 | 249 |
| **Global bonds** | 3,284,833 | 40,913 | 3,243,920 | — |
| **Real estate debt:** | | | | |
| Domestic commercial mortgage backed securities | 1,860,302 | — | 1,860,302 | — |
| Real estate alternative investments | 549,603 | — | — | 549,603 |
| Mortgages | 3,707,599 | — | — | 3,707,599 |
| **Total real estate debt** | $ 6,117,504 | $ — | $ 1,860,302 | $ 4,257,202 |
| **Cash Equivalents*** | 4,941,136 | – | 4,941,136 | – |
| **Securities Lending Collateral, Invested** | 481,018 | – | 479,412 | 1,606 |
| **Total investments by fair value level** | $ 121,411,023 | $ 83,206,482 | $ 30,369,304 | $ 7,835,237 |

*Commercial paper, negotiable certificates of deposit and U.S. Treasury, agency, supranational and floating debt issues.

NOTES TO FINANCIAL STATEMENTS *(continued)*
June 30, 2022 and 2021
**(dollars in thousands)**

| Investments Measured at the NAV | June 30, 2021 | Unfunded Commitments | Redemption Frequency | Redemption Notice Period |
|---|---|---|---|---|
| Commingled international equity funds (1) | 1,185,388 | — | Daily or Monthly | 5-30 days |
| Privately held real estate investment trusts (2) | 1,785,335 | 135,000 | NA | NA |
| Real estate equity funds (3) | | | | |
| Closed-end funds | 3,818,185 | 3,208,548 | | |
| Open-end funds | 1,050,544 | 74,981 | Quarterly | 30-120 days |
| Private equity closed-end funds (4) | 14,780,950 | 7,139,617 | | |
| Real estate debt funds (5) | | | | |
| Closed-end funds | 1,242,091 | 1,741,723 | | |
| Open-end funds | 111,177 | — | Quarterly | 90 days |
| Private debt closed-end funds (6) | 1,163,794 | 1,333,484 | | |
| Total investments measured at the NAV | $ 25,137,464 | $ 13,633,353 | | |
| Investment related cash, receivables and payables not included in above | 151,659 | | | |
| **Total investments and securities lending collateral reinvested** | $ 146,700,146 | | | |



(1) Commingled international equity funds consist of three commingled investment vehicles which invest primarily in publicly traded global equity securities. The funds are valued at the net asset value of units held at the end of the period based upon the fair value of the underlying investments.

(2) Privately held real estate investment trusts consist of two trusts which primarily invest in U.S. commercial real estate. The fair values of the investments in this group have been determined using the net asset value of units held at the end of the period based upon the property appraisals of the underlying assets. The trusts are perpetual in nature, making periodic operating distributions to shareholders. Capital calls and redemptions are determined by a unanimous vote of the trust board members.

(3) Real estate equity funds invest primarily in U.S. commercial real estate with some investing in global commercial real estate. The investment structures are either open-end funds or closed-end funds. In these structures, NYSTRS commits funds along with other investors to create a pool of capital that the fund manager then invests according to an agreed upon strategy such as core, value add or opportunistic. The fair values of the investments in this group have been determined using the NAV per share (or its equivalent) of the Plan's ownership interest in partners' capital. Open-end funds may be redeemed on a quarterly basis with notice. Closed-end funds are not redeemable; however, distributions will be received as the underlying investments of the funds are liquidated, which on average can occur over the span of eight to ten years after final closing.

(4) Private equity funds include buyout, growth equity, venture capital, co-investment, and turnaround/restructuring strategies. These investments are accessed through primary commitments to commingled funds, secondary funds, fund of funds and separately managed accounts. The fair values have been determined using the NAV per share (or its equivalent) of the Plan’s ownership interest in partners’ capital.

(5) Real estate debt funds invest primarily in transitional first mortgage, mezzanine, and subordinate debt positions. The fair values of the investments in this group have been determined using the NAV per share (or its equivalent) of the Plan’s ownership, interest in partners’ capital. Open-end funds may be redeemed on a quarterly basis with notice.

NOTES TO FINANCIAL STATEMENTS *(continued)*
June 30, 2022 and 2021
**(dollars in thousands)**

Closed-end Funds are not redeemable; however, distributions will be received as the underlying investments of the funds are liquidated, which on average can occur over the span of eight to ten years after final closing.

(6) Private debt funds consist of direct lending, mezzanine, distressed and special situations. These investments are accessed through primary commitments to closed-end commingled funds and evergreen funds. The fair values have been determined using the NAV per share (or its equivalent) of the Plan's ownership interest in partners' capital.

## (7) Net Pension Liability (Asset) of NYSTRS Participating School Districts

The components of the net pension liability (asset) of the NYSTRS participating school districts at June 30, 2022 and 2021 were as follows:

| | 2022 | 2021 |
|---|---|---|
| Total pension liability | $ 133,883,474 | $ 130,819,415 |
| Plan fiduciary net position | 131,964,582 | 148,148,457 |
| School districts' net pension liability (asset) | $ 1,918,892 | $ (17,329,042) |
| Plan fiduciary net position as a percentage of total pension liability | 98.6% | 113.2% |

## NOTES TO FINANCIAL STATEMENTS *(continued)*
## June 30, 2022 and 2021
**(dollars in thousands)**

*(a) Actuarial Methods and Assumptions*

The total pension liability at June 30, 2022 was determined using an actuarial valuation as of June 30, 2021, with update procedures used to roll forward the total pension liability to June 30, 2022. The total pension liability at June 30, 2021 was determined using an actuarial valuation as of June 30, 2020, with update procedures used to roll forward the total pension liability to June 30, 2021. These actuarial valuations applied the following actuarial methods and assumptions:

| | |
|---|---|
| Actuarial cost method | Entry age normal |
| Inflation | 2.40% for June 30, 2022 and June 20, 2021 |
| Projected salary increases | Rates of increase differ based on service |
| | They have been calculated based upon recent NYSTRS member experience. |

| Service | Rate |
|---|---|
| 5 | 5.18% |
| 15 | 3.64 |
| 25 | 2.50 |
| 35 | 1.95 |

| | |
|---|---|
| Projected COLAs | 1.3% for June 30, 2022 and June 30, 2021 |
| Investment rate of return | 6.95% for June 30, 2022 and June 30, 2021 measurement of total pension liability. The rates are compounded annually, net of pension plan investment expense, including inflation. |
| Mortality | Annuitant and active mortality rates are based on plan member experience, with adjustments for mortality improvements based on Society of Actuaries Scale MP2021 for June 30, 2022 and Scale MP2020 for June 30, 2021, applied on a generational basis. |
| Experience Period | The demographic actuarial assumptions and the salary scale are based on the results of an actuarial experience study for the period July 1, 2015 to June 30, 2020. NYSTRS runs one-year and five-year experience studies annually in order to gauge the appropriateness of the assumptions and has updated the mortality improvement assumption as of June 30, 2022. |

The long-term expected rate of return on pension plan investments was determined in accordance with Actuarial Standard of Practice (ASOP) No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations* and generally accepted accounting principles. ASOP No. 27 provides guidance on the selection of an appropriate assumed investment rate of return. Consideration was given to expected future real rates of return (expected returns, net of pension plan investment expense and inflation) for each major asset class as well as historical investment data and plan performance.

## NOTES TO FINANCIAL STATEMENTS *(continued)*
## June 30, 2022 and 2021
**(dollars in thousands)**

The Long-Term Expected Real Rates of Return are presented by asset allocation classification. Best estimates of arithmetic real rates of return for each major asset class included in the System's target asset allocation as of the measurement date of June 30, 2022 and June 30, 2021 (see the discussion of the pension plan's investment policy) are summarized in the following table:

| Long-Term Expected Real Rate of Return* | | |
|---|---|---|
| **Asset Class** | **2022** | **2021** |
| Domestic equity | 6.5% | 6.8% |
| International equity | 7.2 | 7.6 |
| Global equity | 6.9 | 7.1 |
| Real estate equity | 6.2 | 6.5 |
| Private equity | 9.9 | 10.0 |
| Domestic fixed income | 1.1 | 1.3 |
| Global bonds | 0.6 | 0.8 |
| Private debt | 5.3 | 5.9 |
| Real estate debt | 2.4 | 3.3 |
| High-yield bonds | 3.3 | 3.8 |
| Cash equivalents | (0.3) | (0.2) |

**Real rates of return are net of the long-term inflation assumption of 2.4% for 2022 and 2.4% for 2021.*



### (b) Discount Rate

The discount rate used to measure the total pension liability was 6.95% as of June 30, 2022 and 6.95% as of June 30, 2021. The projection of cash flows used to determine the discount rate assumed that contributions from plan members will be made at the current member contribution rates and that contributions from school districts will be made at statutorily required rates, actuarially determined. Based on those assumptions, the System's fiduciary net position was projected to be available to make all projected future benefit payments of current 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.

### (c) Sensitivity of the Net Pension Liability (Asset) to Changes in the Discount Rate

The following presents the net pension liability (asset) of the NYSTRS participating school districts calculated using the discount rate of 6.95% for June 30, 2022 and 6.95% for June 30, 2021, as well as what the school districts' net pension liability (asset) would be if it were calculated using a discount rate that is one percentage point lower or one percentage point higher than the current rate:

| System's Net Pension Liability (Asset) | | | |
|---|---|---|---|
| | 1% Decrease (5.95%) | Current Discount Rate (6.95%) | 1% Increase (7.95%) |
| June 30, 2022 | $ $17,693,081 | $ $1,918,892 | $ $(11,347,098) |
| June 30, 2021 | $ $(1,818,430) | $ $(17,329,042) | $ $(30,364,586) |

NOTES TO FINANCIAL STATEMENTS *(continued)*
June 30, 2022 and 2021
**(dollars in thousands)**

## (8) Commitments and Contingencies

The System, in the normal course of business, enters into commitments with off-balance-sheet risk. The System adheres to the same credit policies, financial and administrative controls, and risk limiting and monitoring procedures for commitments as for on-balance-sheet investments.

The commitments for loans on real estate or purchases of real estate are subject to satisfactory appraisals prior to closing. Once investments are made, the System's exposure to potential loss is determined by the value of the underlying collateral.

The future financial commitments outstanding at June 30, 2022 and 2021, respectively, were: real estate and real estate alternative investments of $4.5 billion and $3.6 billion; mortgages and real estate debt funds of $2.2 billion and $1.8 billion; CMBS $123.9 million and $0.0 million; private equity $6.4 billion and $7.1 billion; and private debt investments of $1.5 billion and $1.3 billion.

## (9) System Employees' Pension Plan

*(a) Plan Description*

As an employer, the System participates in ERS, a cost-sharing, multiple-employer defined benefit pension plan which falls under NYSLRS and is administered by the Comptroller of the State of New York. ERS provides retirement, disability, withdrawal, and death benefits to plan members and beneficiaries as authorized by the RSSL of the State of New York. Benefits are guaranteed by the state Constitution and cannot be diminished or impaired. Benefits can be reduced for future members only by an act of the state Legislature. The NYSLRS issues a publicly available financial report that contains financial statements and required supplementary information for ERS. The report may be obtained on the Comptroller's website at www.osc.state.ny.us/pension.



*(b) Benefits*

The classes of employees covered under ERS range from Tiers 1 – 6. In order to be eligible for retirement, all members must be at least age 55 and have a minimum of five years of service. There is no minimum service requirement for Tier 1 members. Generally, all members are eligible for early retirement at age 55 with a benefit calculation of 1.67% of final average salary. Benefit calculations for Tier 1 – 5 members with greater than 20 years of service credit are 2.0% of final average salary. Tier 3 – 5 members are eligible for an additional 1.5% of final average salary applied to each year of service over 30 years. Generally, Tier 6 member retirement benefits are 1.8% of final average salary with 20 years of service, with an additional 2.0% of final average salary for each year of service over 20 years.

For Tiers 1 – 5, final average salary is the average of the wages earned in the three highest consecutive years of employment. Tier 6 final average salary is the average of the wages earned in the five highest consecutive years of employment.

Other benefits provided under ERS include ordinary disability, accidental disability and post-retirement benefit increases.

*(c) Funding Policy*

Funding of ERS is accomplished through member and employer contributions and investment earnings, according to the New York State RSSL.

Plan members are required to contribute between 0% and 6% throughout active service. Employers are required to contribute at an actuarially determined rate. An average employer contribution rate for the tiers of 16.1% and 14.5% was

## NOTES TO FINANCIAL STATEMENTS *(continued)*
## June 30, 2022 and 2021
**(dollars in thousands)**

applicable to the annual covered payroll for the years ended March 31, 2022 and March 31, 2021, respectively. The contributions paid to ERS during the System's years ended June 30, 2022 and 2021 were $5.4 million and $4.5 million, respectively, and were 100% of the contributions required.

*(d) Pension Liabilities, Pension Expense, Deferred Outflows of Resources, and Deferred Inflows of Resources Related to Pensions*

At June 30, 2022 and 2021, the System reported a liability of negative $9.9 million and $0.1 million, respectively, for its proportionate share of the ERS net pension liability measured as of March 31, 2022 and 2021, respectively. The balance is reported within "other liabilities".

NYSTRS' proportion of the ERS net pension liability was based on the projection of the long-term share of contributions to ERS relative to the projected contributions of all participating employers, actuarially determined. At March 31, 2022, the System's proportion was 0.1207750% and was 0.1108277% at March 31, 2021.

For the years ended June 30, 2022 and 2021, the System recognized pension expense of $0.6 million and $2.5 million, respectively.

Deferred outflows of resources were $18.1 million and $21.8 million at June 30, 2022 and 2021, respectively. Deferred inflows of resources were $33.8 million and $32.3 million at June 30, 2022 and 2021, respectively.

The following presents a summary of deferred outflows of resources and deferred inflows of resources at June 30, 2022 and 2021:

| | | 2022 | | 2021 |
|---|---|---|---|---|
| Deferred outflows of resources: | | | | |
| Difference between expected and actual experience | $ | 748 | $ | 1,348 |
| Changes of assumptions | | 16,477 | | 20,291 |
| Changes in proportion and differences between employer contributions and proportionate share of contributions | | 828 | | 128 |
| | $ | 18,053 | $ | 21,767 |
| Deferred inflows of resources: | | | | |
| Difference between expected and actual experience | $ | 970 | $ | — |
| Net differences between projected and actual investment earnings on pension plan investments | | 32,329 | | 31,700 |
| Changes of assumptions | | 278 | | 383 |
| Changes in proportion and differences between employer contributions and proportionate share of contributions | | 191 | | 192 |
| | $ | 33,768 | $ | 32,275 |

Amounts reported as deferred outflows of resources and deferred inflows of resources at June 30, 2022 related to pensions will be recognized in pension expense as follows:

Year Ended June 30:

| | | |
|---|---|---|
| 2023 | $ | (2,355) |
| 2024 | | (3,490) |
| 2025 | | (8,282) |
| 2026 | | (1,588) |

NOTES TO FINANCIAL STATEMENTS *(continued)*
June 30, 2022 and 2021
**(dollars in thousands)**

*(e) Actuarial Assumptions*

The total pension liability for the March 31, 2022 measurement date was determined by using an actuarial valuation as of April 1, 2021, with update procedures used to roll forward the total pension liability to March 31, 2022. The total pension liability for the March 31, 2021 measurement date was determined by using an actuarial valuation as of April 1, 2020, with update procedures used to roll forward the total pension liability to March 31, 2021. These actuarial valuations applied the following actuarial assumptions

| | |
|---|---|
| Inflation | 2.7% |
| Salary scale | 4.4%, indexed by service |
| Investment rate of return, including inflation | 5.9% compounded annually, net of investment expenses |
| Cost of living adjustments | 1.4% annually |
| Decrements | Developed from the Plan's experience study of the period April 1, 2015 through March 31, 2020 |
| Mortality improvement | Society of Actuaries Scale MP-2020 |

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 return, net of investment expenses 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 for the measurement period March 31, 2022 and 2021 are summarized in the following table:

| | 2022 | | 2021 | |
|---|---|---|---|---|
| Asset class | Target allocation | Long-term expected real rate of return | Target allocation | Long-term expected real rate of return |
| Domestic equity | 32 % | 3.30 % | 32 % | 4.05 % |
| International equity | 15 | 5.85 | 15 | 6.30 |
| Private equity | 10 | 6.50 | 10 | 6.75 |
| Real estate | 9 | 5.00 | 9 | 4.95 |
| Opportunistic/ARS portfolio | 3 | 4.10 | 3 | 4.50 |
| Credit | 4 | 3.78 | 4 | 3.63 |
| Real assets | 3 | 5.58 | 3 | 5.95 |
| Fixed income | 23 | — | 23 | — |
| Cash | 1 | (1.00) | 1 | 0.50 |
| | 100 % | | 100 % | |

*(f) Discount Rate*

The discount rate used to calculate the total pension liability was 5.9% for years ending March 31, 2022 and 2021. The projection of cash flows used to determine the discount rate assumes that contributions from plan members will be made at the current contribution rates and that contributions from employers will be made at statutorily required rates, actuarially determined. Based upon those assumptions, the ERS's fiduciary net position was projected to be available to

## NOTES TO FINANCIAL STATEMENTS *(continued)*
## June 30, 2022 and 2021
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make all projected future benefit payments of current 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.

*(g) Sensitivity of the System's Proportionate Share of the ERS Net Pension Liability*

The following presents the System's proportionate share of the ERS net pension liability calculated using the discount rate of 5.9% for the years ending June 30, 2022 and 2021, as well as what the System's proportionate share of the ERS net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower or 1-percentage-point higher than the current rate:

| System's net pension liability (asset) | | | |
|---|---|---|---|
| | 1% Decrease (4.9%) | Current discount rate (5.9%) | 1% Increase (6.9%) |
| June 30, 2022 | $ 25,413 | $ (9,873) | $ (39,387) |
| June 30, 2021 | $ 30,630 | $ 110 | $ (28,036) |

## (10) System Employees' Other Post-Employment Benefits

*(a) Plan Description*

The System's Board established the Trust in 2008 to provide post-employment health insurance benefits. Contributions from the System to the Trust are irrevocable.

The Trust is a defined-benefit, single-employer other post-employment benefit (OPEB) plan that accumulates resources to pay current and future health insurance premiums for retired System employees and beneficiaries. The Trust is administered by a 10-member Board whose members are the same as the System Board. The Trust is a legally separate entity with standalone financial statements and required supplementary information, which can be found on the System's website at www.nystrs.org. The fiduciary net position of the OPEB and changes in fiduciary net position of the OPEB have been determined on the same basis as they are reported in the financial statements of the Trust.



*(b) Benefits*

Pursuant to contractual agreement and policy, the System provides post-employment healthcare benefits to eligible System employees who retire from the System and reimburses Medicare eligible retirees for their Medicare Part B premiums. The System is a voluntary participating employer in the New York State Health Insurance Program (NYSHIP), administered by the State of New York. Article XI of the New York State Civil Service Law assigns the authority to NYSHIP to establish and amend the benefit provisions of the plan and to establish maximum obligations of the plan members to contribute to the plan. The System's Board is authorized to establish the contribution rates of System employees and retirees up to those set by Civil Service Law, and they are set as part of the collective bargaining process.

In order to be eligible, employees must have worked for at least 10 years for the System, retire directly from System employment, and commence receipt of their pension from ERS. Dependents may also be covered.

System retirees are required to contribute toward the cost of their coverage. Employees who retire on or after July 1, 1985 contribute an amount equal to 14.0% of the premium up to the premium of the Empire Plan option. If more expensive coverage is elected, the retiree pays 14.0% of the Empire Plan option and 100% of the difference between the two.

Employees who retire on or after April 1, 1991, are eligible to have accumulated unused sick leave converted into a credit to offset their contribution requirement.

## NOTES TO FINANCIAL STATEMENTS *(continued)*
## June 30, 2022 and 2021
**(dollars in thousands)**

As of June 30, 2022, 676 participants including 365 current employees and 311 retired and/or spouses of retired employees participated in the healthcare plan. As of June 30, 2021, 673 participants including 374 current employees and 299 retired and/or spouses of retired employees participated in the healthcare plan.

*(c) Employer Contribution*

The employer contribution, or funding, of the System's OPEB obligation is at the discretion of the System's management and Board. The System's current policy is to prefund benefits by contributing an amount that is, at a minimum, equal to the ADC. At June 30, 2022 and 2021, the Trust recognized contributions of $6.0 million and $6.3 million, respectively, which were approximately 112.4% and 107.5% of the ADC or 18.1% and 19.5% of covered payroll, respectively.

*(d) OPEB Liabilities, OPEB Expense, Deferred Outflows of Resources and Deferred Inflows of Resources Related to OPEB*

At June 30, 2022 and 2021, the System reported a net OPEB liability of $34.8 million and $47.2 million, respectively. The June 30, 2022 OPEB liability was determined using an actuarial valuation as of July 1, 2020, with update procedures used to roll forward the total OPEB liability to the measurement date of June 30, 2021. The total OPEB liability at June 30, 2021 was determined using an actuarial valuation as of July 1, 2019, with update procedures used to roll forward the total OPEB liability to June 30, 2020.

For the years ended June 30, 2022 and 2021, the System recognized OPEB expense of $2.8 million and negative $4.4 million, respectively.

Deferred outflows of resources were $10.7 million for June 30, 2022 and $10.9 million for June 30, 2021. Deferred inflows of resources were $13.2 million at June 30, 2022 and $4.3 million at June 30, 2021.

The following presents a summary of deferred outflows of resources and deferred inflows of resources at June 30, 2022 and 2021:

| | 2022 | 2021 |
|---|---|---|
| Deferred outflows of resources: | | |
| Difference between expected and actual experience | $ 1,459 | $ 542 |
| Changes in assumptions | 3,244 | 4,101 |
| Contributions subsequent to the measurement date | 6,000 | 6,261 |
| | $ 10,703 | $ 10,904 |
| Deferred inflows of resources: | | |
| Difference between expected and actual experience | $ 724 | $ 1,208 |
| Changes in assumptions | 3,500 | 2,540 |
| Net difference between projected and actual earnings | 9,006 | 528 |
| | $ 13,230 | $ 4,276 |

## NOTES TO FINANCIAL STATEMENTS *(continued)*
## June 30, 2022 and 2021
**(dollars in thousands)**

Amounts reported as deferred outflows and deferred inflows of resources will be recognized in OPEB expense as follows:

**Year ended June 30:**

| | | |
|---|---|---|
| 2023 | $ | (3,136) |
| 2024 | $ | (2,004) |
| 2025 | $ | (1,426) |
| 2026 | $ | (1,763) |
| 2027 | $ | (198) |
| Thereafter | $ | — |

### *(e) Actuarial Assumptions*

| | 2022 | 2021 |
|---|---|---|
| Valuation date | July 1, 2020 | July 1, 2019 |
| Investment rate of return | 6.50% | 6.75% |
| Payroll increase rate | 3.00% | 3.00% |
| Salary increase rate | Varies by service from 3.00%-8.00% | Varies by service from 3.00%-8.00% |
| Maximum retiree contribution based on salary at retirement | Increase $100 per year after 2025 | Increase $100 per year after 2024 |
| Healthcare cost and premium trend rates: | | |
| Non-Medicare | 7.70% graded to 4.34% over 20 years | 6.70% graded to 4.25% over 14 years |
| Medicare | 8.80% graded to 4.34% over 20 years | 7.65% graded to 4.50% over 14 years |
| Medicare Part B | 3.50% | 3.50% |
| Blended Medicare | 7.69% graded to 4.16% over 20 years | 6.78% graded to 4.29% over 14 years |
| Pre-retirement mortality | The Pub-2010 General Employee Headcount-Weighted Mortality table (PubG.H-2010 Employee) as published by the Society of Actuaries (SOA) with an 98.75% adjustment for both males and females, and with future improvement from the base year of 2010 on a generational basis using SOA's Scale MP-2020. All pre-retirement deaths are assumed ordinary deaths | Mortality rates are based on those used in the NYS/SUNY "Development of Recommended Actuarial Assumptions Participating Agency Version" dated December 2017. |

NOTES TO FINANCIAL STATEMENTS *(continued)*
June 30, 2022 and 2021
**(dollars in thousands)**

| | | |
|---|---|---|
| Post-retirement mortality | • **Healthy Retirees:** The Pub-2010 General Healthy Retiree Headcount-Weighted Mortality table (PubG.H-2010 Healthy Retiree) as published by the SOA with a 98.75% adjustment for both males and females, and with future improvement from the base year of 2010 on a generational basis using SOA's Scale MP-2020.<br>• **Beneficiaries:** Pub-2010 General Contingent Survivors Headcount-Weighted Mortality (PubG.H-2010 Contingent Survivors) as published by the SOA with a 98.75% adjustment for both males and females, and with future improvement from the base year of 2010 on a generational basis using SOA's Scale MP-2020.<br>• **Disabled Retirees:** The Pub-2010 General Disabled Retiree Headcount-Weighted Mortality table (PubG.H-2010 Disabled Retiree) as published by the SOA with a 98.75% adjustment for both males and females, and with future improvement from the base year of 2010 on a generational basis using SOA's Scale MP-2020. | Mortality rates are based on SOA RP-2014 with White Collar for Healthy Annuitants, which is derived using base year 2006 and then is projected generationally from 2006 to 2014 with Scale MP-2014. These 2014 rates are then projected generationally using Scale MP-2019 with base year 2014. |
| Banked sick leave | Participants are assumed to accrue 4.74 days of unused sick leave per year and use 100% of accumulated leave at retirement for the sick leave offset. | Participants are assumed to accrue 4.74 days of unused sick leave per year and use 100% of accumulated leave at retirement for the sick leave offset. |



The long-term expected rate of return on OPEB plan investments was determined using a building-block method in which best estimate ranges of expected future rates of return (expected returns, net of investment expense and inflation) are developed for each major asset class. These returns 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.

Best estimates of arithmetic real rates of return for each major asset class included in the System's target asset allocation as of June 30, 2021 and June 30, 2020 are summarized in the following table:

NOTES TO FINANCIAL STATEMENTS *(continued)*
June 30, 2022 and 2021
**(dollars in thousands)**

| Long-Term Expected Real Rate of Return* | | |
|---|---|---|
| **Asset Class** | **2021** | **2020** |
| Domestic equity | 6.06 % | 5.84 % |
| International equity | 6.83 | 7.16 |
| Domestic fixed income | 0.12 | 0.99 |
| Cash equivalents | -0.32 | 0.57 |

* Real rates of return are net of the long-term inflation assumption of 2.60% and 2.50% for 2020 and 2019.

### *(f) Sensitivity of the Net OPEB Liability to Changes in the Healthcare Cost Trend Rates*

Healthcare cost trend rates measure the anticipated overall rate at which health plan costs are expected to increase in future years. The following presents the net OPEB liability of the System using the healthcare cost trend rates presented previously in the actuarial assumptions, as well as what the System's net OPEB liability would be if it were calculated using healthcare cost trend rates that are 1-percentage-point lower or 1-percentage-point higher than the applied healthcare cost trend rates:

| System's Net OPEB Liability | | | |
|---|---|---|---|
| **Reporting Date** | **1% Decrease** | **Current Healthcare Cost Trend Rates** | **1% Increase** |
| June 30, 2022 | $ 22,218 | $ 34,792 | $ 50,200 |
| June 30, 2021 | 34,469 | 47,187 | 62,936 |



### *(g) Discount Rate*

The discount rate used to measure the total pension liability as of June 30, 2022 and 2021 was 6.50%. The projection of cash flows used to determine the discount rate assumed that contributions would be made at rates equal to the actuarially determined contribution rates. Based on these assumptions, the OPEB Plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan participants. Therefore, the long-term expected rate of return on plan investments was applied to all periods of projected benefit payments to determine the total OPEB liability.

### *(h) Sensitivity of the Net OPEB Liability to Changes in the Discount Rate*

The following presents the net OPEB liability of the System as well as what the System's net OPEB liability would be if it were calculated using a discount rate that is 1-percentage-point lower or 1-percentage-point higher than the applied rate:

| System's Net OPEB Liability | | | |
|---|---|---|---|
| **Reporting Date** | **1% Decrease** | **Current Discount Rate** | **1% Increase** |
| June 30, 2022 | $ 48,613 | $ 34,792 | $ 23,387 |
| June 30, 2021 | 61,175 | 47,187 | 35,761 |

NOTES TO FINANCIAL STATEMENTS *(continued)*
June 30, 2022 and 2021
**(dollars in thousands)**

## (11) Risk Management

The System is exposed to various risks of loss related to torts; theft of, damage to, and destruction of assets; errors and omissions; job-related illnesses or injuries to employees; and certain natural disasters for which the System carries commercial insurance. There were no settlements in the past three years that exceeded coverage. Management of the System believes there would be no material adverse effect on the financial statements as a result of the outcome of these matters if they occur.

## REQUIRED SUPPLEMENTARY INFORMATION

## SCHEDULE OF CHANGES IN THE SCHOOL DISTRICTS' NET PENSION LIABILITY (ASSET) (UNAUDITED)

(Last Ten Fiscal Years)

(dollars in thousands)

| | 2022 | 2021 | 2020 | 2019 | 2018 |
|---|---|---|---|---|---|
| **Total pension liability** | | | | | |
| Service cost | $ 1,751,453 | $ 1,755,405 | $ 1,563,222 | $ 1,528,402 | $ 1,319,513 |
| Interest | 8,959,475 | 8,752,345 | 8,418,885 | 8,189,405 | 8,224,221 |
| Changes of benefit terms | 10,091 | — | 678 | 815 | — |
| Differences between expected and actual experience | 251,733 | 558,905 | 1,169,842 | 753,802 | 964,258 |
| Changes of assumptions | 69,931 | 4,241,884 | (285,424) | (1,392,886) | — |
| Benefit payments, incl. refunds of member contributions | (7,978,624) | (7,731,900) | (7,503,901) | (7,307,318) | (7,108,999) |
| **Net change in total pension liability** | 3,064,059 | 7,576,639 | 3,363,302 | 1,772,220 | 3,398,993 |
| **Total pension liability — beginning** | 130,819,415 | 123,242,776 | 119,879,474 | 118,107,254 | 114,708,261 |
| **Total pension liability — ending (a)** | $ 133,883,474 | $ 130,819,415 | $ 123,242,776 | $ 119,879,474 | $ 118,107,254 |
| **Plan fiduciary net position** | | | | | |
| Contributions — employer | $ 1,735,255 | $ 1,618,437 | $ 1,504,688 | $ 1,774,646 | $ 1,597,139 |
| Contributions — member | 190,853 | 159,874 | 145,034 | 136,610 | 131,595 |
| Net investment income | (10,078,814) | 33,668,008 | 3,923,633 | 8,023,180 | 9,928,011 |
| Benefit payments, incl. refunds of member contributions | (7,978,624) | (7,731,900) | (7,503,901) | (7,307,318) | (7,108,999) |
| Administrative expenses | (61,230) | (55,492) | (71,385) | (74,242) | (60,610) |
| Other | 8,685 | 10,025 | 3,955 | 9,087 | 9,278 |
| **Net change in plan fiduciary net position** | (16,183,875) | 27,668,952 | (1,997,976) | 2,561,963 | 4,496,414 |
| **Plan fiduciary net position — beginning** | 148,148,457 | 120,479,505 | 122,477,481 | 119,915,518 | 115,468,360 |
| Cumulative effect of change in accounting principle | — | — | — | — | (49,256) |
| Beginning balance as restated | 148,148,457 | 120,479,505 | 122,477,481 | 119,915,518 | 115,419,104 |
| **Plan fiduciary net position — ending (b)** | $ 131,964,582 | $ 148,148,457 | $ 120,479,505 | $ 122,477,481 | $ 119,915,518 |
| **School districts' net pension liability (asset) — ending (a) — (b)** | $ 1,918,892 | $ (17,329,042) | $ 2,763,271 | $ (2,598,007) | $ (1,808,264) |



*See accompanying independent auditors' report.*

## REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

### SCHEDULE OF CHANGES IN THE SCHOOL DISTRICTS' NET PENSION LIABILITY (ASSET) (UNAUDITED) *(continued)*
### (Last Ten Fiscal Years)
(dollars in thousands)

| | 2017 | 2016 | 2015 | 2014 | 2013 |
|---|---|---|---|---|---|
| **Total pension liability** | | | | | |
| Service cost | $ 1,292,143 | $ 1,181,609 | $ 1,396,824 | $ 1,397,547 | $ 1,406,084 |
| Interest | 7,988,167 | 7,809,566 | 7,611,757 | 7,434,764 | 7,252,357 |
| Changes of benefit terms | — | — | — | — | — |
| Differences between expected and actual | 727,895 | (111,652) | (161,043) | (181,834) | (128,194) |
| Changes of assumptions | 3,045,909 | 7,085,423 | — | — | — |
| Benefit payments, incl. refunds of member contributions | (6,923,037) | (6,719,866) | (6,531,140) | (6,343,538) | (6,139,718) |
| **Net change in total pension liability** | 6,131,077 | 9,245,080 | 2,316,398 | 2,306,939 | 2,390,529 |
| **Total pension liability — beginning** | 108,577,184 | 99,332,104 | 97,015,706 | 94,708,767 | 92,318,238 |
| **Total pension liability — ending (a)** | $ 114,708,261 | $ 108,577,184 | $ 99,332,104 | $ 97,015,706 | $ 94,708,767 |
| **Plan fiduciary net position** | | | | | |
| Contributions — employer | $ 1,857,359 | $ 2,046,562 | $ 2,633,682 | $ 2,400,386 | $ 1,734,908 |
| Contributions — member | 129,770 | 124,587 | 119,411 | 120,762 | 128,903 |
| Net investment income | 12,951,892 | 2,392,354 | 5,400,265 | 16,664,703 | 11,636,480 |
| Benefit payments, incl. refunds of member contributions | (6,923,037) | (6,719,866) | (6,531,140) | (6,343,538) | (6,139,718) |
| Administrative expenses | (61,611) | (60,426) | (56,948) | (55,616) | (54,338) |
| Other | 7,845 | 4,014 | 3,213 | 1,365 | 4,522 |
| **Net change in plan fiduciary net position** | 7,962,218 | (2,212,775) | 1,568,483 | 12,788,062 | 7,310,757 |
| **Plan fiduciary net position — beginning** | 107,506,142 | 109,718,917 | 108,155,083 | 95,367,021 | 88,056,264 |
| Cumulative effect of change in accounting principle | — | — | (4,649) | — | — |
| Beginning balance as restated | 107,506,142 | 109,718,917 | 108,150,434 | 95,367,021 | 88,056,264 |
| **Plan fiduciary net position — ending (b)** | $ 115,468,360 | $ 107,506,142 | $ 109,718,917 | $ 108,155,083 | $ 95,367,021 |
| **School districts' net pension liability (asset) — ending (a) — (b)** | $ (760,099) | $ 1,071,042 | $ (10,386,813) | $ (11,139,377) | $ (658,254) |



*See accompanying **independent** auditors' report.*

REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

## SCHEDULE OF THE SCHOOL DISTRICTS' NET PENSION LIABILITY (ASSET) (UNAUDITED)

(Last Ten Fiscal Years)

(dollars in thousands)

| | 2022 | 2021 | 2020 | 2019 | 2018 |
|---|---|---|---|---|---|
| Total pension liability | $ 133,883,474 | $ 130,819,415 | $ 123,242,776 | $ 119,879,474 | $ 118,107,254 |
| Plan fiduciary net position | 131,964,582 | 148,148,457 | 120,479,505 | 122,477,481 | 119,915,518 |
| School districts' net pension liability (asset) | $ 1,918,892 | $ (17,329,042) | $ 2,763,271 | $ (2,598,007) | $ (1,808,264) |
| Plan fiduciary net position as a percentage of the total pension liability | 98.6% | 113.2% | 97.8% | 102.2% | 101.5% |
| Covered payroll | $ 17,715,273 | $ 16,973,207 | $ 16,973,171 | $ 16,691,626 | $ 16,288,884 |
| School districts' net pension liability (asset) as a percentage of covered payroll | 10.8% | (102.1)% | 16.3% | (15.6)% | (11.1)% |



## SCHEDULE OF THE SCHOOL DISTRICTS' CONTRIBUTIONS (UNAUDITED)

(Last Ten Fiscal Years)

(dollars in thousands)

| | 2022 | 2021 | 2020 | 2019 | 2018 |
|---|---|---|---|---|---|
| Actuarially determined contribution | $ 1,736,097 | $ 1,617,547 | $ 1,503,823 | $ 1,772,651 | $ 1,596,311 |
| Contributions in relation to the actuarially determined contribution | 1,736,097 | 1,617,547 | 1,503,823 | 1,772,651 | 1,596,311 |
| Contribution deficiency | $ — | $ — | $ — | $ — | $ — |
| Covered payroll | $ 17,715,273 | $ 16,973,207 | $ 16,973,171 | $ 16,691,626 | $ 16,288,884 |
| Contributions as a percentage of covered payroll | 9.80% | 9.53% | 8.86% | 10.62% | 9.80% |

*See accompanying independent auditors' report.*

## REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

### SCHEDULE OF THE SCHOOL DISTRICTS' NET PENSION LIABILITY (ASSET) (UNAUDITED) *(continued)*
### (Last Ten Fiscal Years)

(dollars in thousands)

| | 2017 | 2016 | 2015 | 2014 | 2013 |
|---|---|---|---|---|---|
| Total pension liability | $ 114,708,261 | $ 108,577,184 | $ 99,332,104 | $ 97,015,706 | $ 94,708,767 |
| Plan fiduciary net position | 115,468,360 | 107,506,142 | 109,718,917 | 108,155,083 | 95,367,021 |
| School districts' net pension liability (asset) | $ (760,099) | $ 1,071,042 | $ (10,386,813) | $ (11,139,377) | $ (658,254) |
| Plan fiduciary net position as a percentage of the total pension liability | 100.7% | 99.0% | 110.5% | 111.5% | 100.7% |
| Covered payroll | $ 15,846,705 | $ 15,431,009 | $ 15,021,357 | $ 14,771,301 | $ 14,647,830 |
| School districts' net pension liability (asset) as a percentage of covered payroll | (4.8)% | 6.9% | (69.1)% | (75.4)% | (4.5)% |



### SCHEDULE OF THE SCHOOL DISTRICTS' CONTRIBUTIONS (UNAUDITED) *(continued)*
### (Last Ten Fiscal Years)

(dollars in thousands)

| | 2017 | 2016 | 2015 | 2014 | 2013 |
|---|---|---|---|---|---|
| Actuarially determined contribution | $ 1,857,234 | $ 2,046,152 | $ 2,633,244 | $ 2,400,378 | $ 1,734,303 |
| Contributions in relation to the actuarially determined contribution | 1,857,234 | 2,046,152 | 2,608,266 | 2,383,145 | 1,734,303 |
| Contribution deficiency | $ — | $ — | $ 24,978 | $ 17,233 | $ — |
| Covered payroll | $ 15,846,705 | $ 15,431,009 | $ 15,021,357 | $ 14,771,301 | $ 14,647,830 |
| Contributions as a percentage of covered payroll | 11.72% | 13.26% | 17.36% | 16.13% | 11.84% |

*See accompanying independent auditors' report.*

REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

## SCHEDULE OF INVESTMENT RETURNS (UNAUDITED)
(Last Ten Fiscal Years)

| | 2022 | 2021 | 2020 | 2019 | 2018 | 2017 | 2016 | 2015 | 2014 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|
| Annual money-weighted rate of return, net of investment expense | (7.12)% | 28.97% | 3.32% | 6.93% | 8.95% | 13.05% | 2.28% | 5.18% | 18.16% | 13.73% |



*See accompanying independent auditors' report.*

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REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

## SCHEDULE OF NYSTRS' PROPORTIONATE SHARE OF THE NET PENSION LIABILITY NEW YORK STATE AND LOCAL EMPLOYEES' RETIREMENT SYSTEM (ERS)

(Last Nine Fiscal Years)

(dollars in thousands)

| | 2022 | 2021 | 2020 | 2019 | 2018 |
|---|---|---|---|---|---|
| System's proportion of the net pension liability | 0.1207750 % | 0.1108277 % | 0.1120455 % | 0.1095732 % | 0.1115115 % |
| System's proportionate share of the net pension (asset) liability | $ (9,873) | $ 110 | $ 29,670 | $ 7,764 | $ 3,599 |
| System's covered payroll | 34,055 | 33,718 | 31,466 | 30,546 | 29,728 |
| System's proportionate share of the net pension liability as a percentage of covered payroll | (29.0)% | — % | 94.3 % | 25.4 % | 12.1 % |
| ERS fiduciary net position as a percentage of the total pension liability | 103.65 % | 99.95 % | 86.39 % | 96.27 % | 98.24 % |

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.



*See accompanying independent auditors' report.*

## REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

## SCHEDULE OF NYSTRS' PROPORTIONATE SHARE OF THE NET PENSION LIABILITY NEW YORK STATE AND LOCAL EMPLOYEES' RETIREMENT SYSTEM (ERS) *(continued)* (Last Nine Fiscal Years)

(dollars in thousands)

| | 2017 | 2016 | 2015 | 2014 |
|---|---|---|---|---|
| System's proportion of the net pension liability | 0.1098533 % | 0.1095719 % | 0.1028788 % | 0.1028788 % |
| System's proportionate share of the net pension (asset) liability | $ 10,322 | $ 17,587 | $ 3,475 | $ 4,649 |
| System's covered payroll | 28,994 | 28,251 | 28,067 | 26,188 |
| System's proportionate share of the net pension liability as a percentage of covered payroll | 35.6 % | 62.3 % | 12.4 % | 17.8 % |
| ERS fiduciary net position as a percentage of the total pension liability | 94.70 % | 90.70 % | 97.90 % | 97.20 % |

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.



*See accompanying independent auditors' report.*

REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

## SCHEDULE OF NYSTRS' CONTRIBUTIONS (UNAUDITED)
## NEW YORK STATE AND LOCAL EMPLOYEES' RETIREMENT SYSTEM (ERS)
(Last Ten Fiscal Years)

(dollars in thousands)

| | 2022 | 2021 | 2020 | 2019 | 2018 |
|---|---|---|---|---|---|
| Actuarially determined contribution | $ 5,377 | $ 4,499 | $ 4,360 | $ 4,308 | $ 4,310 |
| Contributions in relation to the actuarially determined contribution | 5,377 | 4,499 | 4,360 | 4,308 | 4,310 |
| Contribution deficiency | $ — | $ — | $ — | $ — | $ — |
| Covered payroll | $ 34,055 | $ 33,718 | $ 31,466 | $ 30,546 | $ 29,728 |
| Contributions as a percentage of covered payroll | 15.79 % | 13.34 % | 13.86 % | 14.10 % | 14.50 % |



*See accompanying independent auditors' report*

REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

## SCHEDULE OF NYSTRS' CONTRIBUTIONS (UNAUDITED)
### NEW YORK STATE AND LOCAL EMPLOYEES' RETIREMENT SYSTEM (ERS) *(continued)*
### (Last Ten Fiscal Years)

(dollars in thousands)

| | 2017 | 2016 | 2015 | 2014 | 2013 |
|---|---|---|---|---|---|
| Actuarially determined contribution | $ 4,318 | $ 5,289 | $ 5,131 | $ 5,250 | $ 4,807 |
| Contributions in relation to the actuarially determined contribution | 4,318 | 5,289 | 5,131 | 5,250 | 4,807 |
| Contribution deficiency | $ — | $ — | $ — | $ — | $ — |
| Covered payroll | $ 28,994 | $ 28,251 | $ 28,067 | $ 26,188 | $ 26,259 |
| Contributions as a percentage of covered payroll | 14.89 % | 18.72 % | 18.28 % | 20.05 % | 18.31 % |



*See accompanying independent auditors' report*

REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

## SCHEDULE OF CHANGES IN THE SYSTEM'S NET OPEB LIABILITY AND RELATED RATIOS (UNAUDITED)

(Last Six Fiscal Years)

(dollars in thousands)

Total OPEB liability:

| Reporting Date: | 2022 | 2021 | 2020 | 2019 |
|---|---|---|---|---|
| Measurement Date: | 2021 | 2020 | 2019 | 2018 |
| Service cost | $ 2,985 | $ 2,915 | $ 2,907 | $ 2,604 |
| Interest | 6,586 | 6,622 | 6,169 | 5,747 |
| Changes of benefit terms | — | (9,789) | — | 6,211 |
| Differences between expected and actual experience | 1,259 | 79 | 714 | (842) |
| Changes of assumptions | (2,450) | 4,039 | 1,102 | (878) |
| Benefit payments | (4,527) | (4,413) | (3,965) | (3,757) |
| Net change in total OPEB liability | 3,853 | (547) | 6,927 | 9,085 |
| Total OPEB liability - beginning | 96,810 | 97,357 | 90,430 | 81,344 |
| Total OPEB liability - ending (a) | $ 100,663 | $ 96,810 | $ 97,357 | $ 90,430 |
| Plan fiduciary net position: | | | | |
| Contributions - employer | $ 6,261 | $ 6,004 | $ 5,500 | $ 5,500 |
| Net investment income | 14,535 | 2,673 | 3,155 | 3,213 |
| Benefit payments | (4,527) | (4,413) | (3,965) | (3,757) |
| Professional fees and services | (20) | (66) | (19) | (53) |
| Net change in plan fiduciary net position | 16,248 | 4,199 | 4,671 | 4,902 |
| Plan fiduciary net position - beginning | 49,622 | 45,424 | 40,752 | 35,850 |
| Plan fiduciary net position - ending (b) | $ 65,871 | $ 49,622 | $ 45,424 | $ 40,752 |
| System's net OPEB liability - ending (a) - (b) | $ 34,792 | $ 47,187 | $ 51,933 | $ 49,677 |
| Plan fiduciary net position as a percentage of the total OPEB liability | 65.44 % | 51.26 % | 46.66 % | 45.07 % |
| Covered payroll | $ 33,142 | $ 32,125 | $ 31,189 | $ 30,683 |
| System's net OPEB liability as a percentage of covered payroll | 104.98 % | 146.89 % | 166.51 % | 161.90 % |



*See accompanying independent auditors' report*

## REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

## SCHEDULE OF CHANGES IN THE SYSTEM'S NET OPEB LIABILITY AND RELATED RATIOS (UNAUDITED)
*(continued)*
### (Last Six Fiscal Years)

(dollars in thousands)

| Reporting Date: | 2018 | 2017 |
|---|---|---|
| Measurement Date: | 2017 | 2016 |
| Total OPEB liability: | | |
| Service cost | $ 2,491 | $ 2,579 |
| Interest | 5,959 | 5,589 |
| Changes of benefit terms | — | — |
| Differences between expected and actual experience | (2,166) | 400 |
| Changes of assumptions | (5,849) | — |
| Benefit payments | (3,412) | (2,980) |
| Net change in total OPEB liability | (2,977) | 5,589 |
| Total OPEB liability - beginning | 84,321 | 78,732 |
| Total OPEB liability - ending (a) | $ 81,344 | $ 84,321 |
| Plan fiduciary net position: | | |
| Contributions - employer | $ 5,500 | $ 5,500 |
| Net investment income | 4,212 | 382 |
| Benefit payments | (3,412) | (2,980) |
| Professional fees and services | (15) | (13) |
| Net change in plan fiduciary net position | 6,285 | 2,890 |
| Plan fiduciary net position - beginning | 29,565 | 26,675 |
| Plan fiduciary net position - ending (b) | $ 35,850 | $ 29,565 |
| System's net OPEB liability - ending (a) - (b) | $ 45,494 | $ 54,756 |
| Plan fiduciary net position as a percentage of the total OPEB liability | 44.07 % | 35.06 % |
| Covered payroll | $ 29,753 | $ 29,087 |
| System's net OPEB liability as a percentage of covered payroll | 152.91 % | 188.25 % |

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

*See accompanying independent auditors' report*

REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

## SCHEDULE OF SYSTEM AND OTHER CONTRIBUTING ENTITY CONTRIBUTIONS (UNAUDITED)

(Last Ten Fiscal Years)

(dollars in thousands)

| | 2022 | 2021 | 2020 | 2019 | 2018 |
|---|---|---|---|---|---|
| Actuarially determined contribution | $ 5,340 | $ 5,822 | $ 5,958 | $ 5,349 | $ 5,279 |
| Contributions in relation to the actuarially determined contribution: | | | | | |
| System | 6,000 | 6,261 | 6,004 | 5,500 | 5,500 |
| Other contributing entity | — | — | — | — | — |
| Total contributions | 6,000 | 6,261 | 6,004 | 5,500 | 5,500 |
| Contribution deficiency (excess) | $ (660) | $ (439) | $ (46) | $ (151) | $ (221) |
| Covered payroll | $ 35,423 | $ 33,142 | $ 32,125 | $ 31,189 | $ 30,683 |
| Contributions as a percentage of covered payroll | 16.94 % | 18.89 % | 18.69 % | 17.63 % | 17.93 % |



*See accompanying independent auditors' report*

## REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

## SCHEDULE OF SYSTEM AND OTHER CONTRIBUTING ENTITY CONTRIBUTIONS (UNAUDITED)

*(continued)*

(Last Ten Fiscal Years)

(dollars in thousands)

| | 2017 | 2016 | 2015 | 2014 | 2013 |
|---|---|---|---|---|---|
| Actuarially determined contribution | $ 5,374 | $ 4,782 | $ 4,542 | $ 4,767 | $ 5,240 |
| Contributions in relation to the actuarially determined contribution: | | | | | |
| System | 5,500 | 5,500 | 5,500 | 5,500 | 5,240 |
| Other contributing entity | — | — | — | 1 | 95 |
| Total contributions | 5,500 | 5,500 | 5,500 | 5,501 | 5,335 |
| Contribution deficiency (excess) | $ (126) | $ (718) | $ (958) | $ (734) | $ (95) |
| Covered payroll | $ 29,753 | $ 29,087 | $ 26,507 | $ 25,556 | $ 26,500 |
| Contributions as a percentage of covered payroll | 18.49 % | 18.91 % | 20.75 % | 21.53 % | 20.13 % |



*See accompanying independent auditors' report*

REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

## NOTES TO REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)
(Last Ten Fiscal Years)

*Method and assumptions used in calculations of school districts' Total Pension Liability (TPL)*

*Changes of benefit terms.* Effective with the 2022 actuarial valuation, the following plan change was effective: The number of years of credited service required for vesting changed from ten years to five years for Tier 5 and 6 members for purposes of eligibility for a service retirement benefit or a deferred-vested benefit.

*Changes of assumptions*. Actuarial assumptions are revised periodically to more closely reflect actual, as well as anticipated future experience. The actuarial assumptions were revised and adopted by the Retirement Board on October 28, 2021 and first used in the 2021 determination of the Total Pension Liability.

The System's long-term rate of return assumption for purposes of the NPL is 6.95%, effective with the 2021 actuarial valuation. For the 2020 and 2019 actuarial valuations, the System's long-term rate of return assumption was 7.10%. For the 2018 and 2017 actuarial valuations, the System's long-term rate of return assumption was 7.25%. For the 2016 actuarial valuation, the System's long-term rate of return assumption was 7.50%. Prior to the 2016 actuarial valuation, the System's long-term rate of return was 8.00%.

The System's assumed annual inflation rate is 2.40% for 2021 and 2022 and 2.20% for 2019 and 2020. For the 2018 and 2017 actuarial valuations, the System's annual inflation assumption was 2.25%. For the 2016 actuarial valuation, the System's annual inflation assumption was 2.5%. Prior to the 2016 actuarial valuation, the System's annual inflation assumption was 3.00%.

Effective with the 2019 actuarial valuation, COLAs are projected to increase at a rate of 1.30% annually. Effective with the 2015 actuarial valuation, COLAs were projected to increase at a rate of 1.50% annually. Prior to the 2015 actuarial valuation, COLAs were projected to increase at a rate of 1.625% annually.

Effective with the 2022 actuarial valuation, the assumed scale for mortality improvement was changed from MP2020 to MP2021. Effective with the 2021 actuarial valuation, the assumed scale for mortality improvement was changed from MP2019 to MP2020. Effective with the 2020 actuarial valuation, the assumed scale for mortality improvement was changed from MP2018 to MP2019. Effective with the 2019 actuarial valuation, the assumed scale for mortality improvement was changed from MP2014 to MP2018.



*See accompanying independent auditors' report.*

## REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

### NOTES TO REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED) *(continued)*
### (Last Ten Fiscal Years)

*Method and assumptions used in calculations of school districts' actuarially determined contributions.* The actuarially determined contribution rates in the schedule of school districts' contributions are calculated as of June 30, two years prior to the end of the fiscal year in which contributions are reported. The following actuarial methods and assumptions were used to determine school districts' contributions in 2022. For assumptions and plan provisions used in contributions reported for years prior to 2022, refer to the Annual Actuarial Report for two years prior to the end of the fiscal year in which contributions are reported.

| | |
|---|---|
| Valuation Date | June 30, 2020 |
| Actuarial cost method | Aggregate (level percent of payroll)* |
| Amortization method | n/a* |
| Remaining amortization period | n/a* |
| Asset valuation method | Five-year phased-in deferred recognition of each year's net investment income/loss in excess of (or less than) the assumed valuation rate of interest at a rate of 20.0% per year, until fully recognized after 5 years. |
| Inflation | 2.20% |
| Projected salary increases | Rates of increase differ based on service.<br>They have been calculated based upon recent NYSTRS member experience. |

| Service | Rate |
|---|---|
| 5 | 4.72% |
| 15 | 3.46 |
| 25 | 2.37 |
| 35 | 1.90 |

| | |
|---|---|
| Projected COLAs | 1.3% compounded annually |
| Valuation rate of interest | 7.10% compounded annually, net of pension plan investment expense. |

** The System is funded in accordance with the Aggregate Cost Method, which does not identify or separately amortize unfunded actuarial liabilities. Costs are determined by amortizing the unfunded present value of benefits over the average future working lifetime of active plan members, which currently for NYSTRS is approximately 13 years.*

*Key Methods and Assumptions Used to Determine OPEB Contribution Rates:*

| | |
|---|---|
| Asset Valuation Method: | Market Value |
| Amortization Method: | 30-Year Closed Amortization, level percentage of payroll |
| Remaining Amortization Period: | 25 years as of July 1, 2021 |
| Discount Rate: | 6.50% per annum |
| Expected Return on Assets: | 6.50% per annum |
| Salary Increases: | Varies by service from 3.00% - 8.00% |
| Healthcare cost and premium trend rates: | |
| Non-Medicare | 7.70% graded to 4.34% over 20 years |
| Medicare | 8.80% graded to 4.34% over 20 years |
| Medicare Part B | 3.50% |
| Blended Medicare | 7.69% graded to 4.16% over 20 years |
| Pre-Retirement Mortality: | SOA Pub-2010 General Employees Headcount-Weighted Mortality Table, base year 2010 and on a generational Improvement Scale MP-2020, with a 98.75% adjustment to base rates. |
| Healthy Retirees Mortality: | SOA Pub-2010 General Healthy Retiree Headcount-Weighted Mortality Table, base year 2010 and on a generational Improvement Scale MP-2020, with a 98.75% adjustment to base rates. |
| Beneficiaries: | SOA Pub-2010 General Contingent Survivors Headcount-Weighted Mortality Table, base year 2010 and on a generational Improvement Scale MP-2020, with a 98.75% adjustment to base rates. |
| Disabled Retirees: | SOA Pub-2010 General Disabled Retiree Headcount-Weighted Mortality Table, base year 2010 and on a generational Improvement Scale MP-2020, with a 98.75% adjustment to base rates. |

*See accompanying independent auditors' report.*

# OTHER SUPPLEMENTAL SCHEDULES

## SCHEDULES OF ADMINISTRATIVE EXPENSES

Years ended June 30, 2022 and 2021

(dollars in thousands)

| | 2022 | 2021 |
|---|---|---|
| **Salaries and benefits:** | | |
| Salaries | $ 36,038 | $ 35,141 |
| Civil service | 57 | 50 |
| Employees retirement | 4,451 | 4,383 |
| Health and dental insurance | 12,019 | 12,679 |
| Overtime salaries | 28 | 12 |
| Social Security | 2,511 | 2,461 |
| Total salaries and benefits | 55,104 | 54,726 |
| **Building occupancy expenses:** | | |
| Building, grounds and equipment | $ 1,815 | $ 1,680 |
| Depreciation - building and improvements | 1,950 | 1,996 |
| Depreciation - Equipment | 146 | 189 |
| Office supplies and expenses | 164 | 114 |
| Utilities and municipal assessments | 1,127 | 911 |
| Total building occupancy expenses | 5,202 | 4,890 |
| **Computer expenses:** | | |
| Amortization/depreciation - computer equipment | $ 1,108 | $ 1,379 |
| Computer hardware and software | 4,027 | 4,350 |
| Computer maintenance and supplies | 44 | 65 |
| Total computer expenses | 5,179 | 5,794 |
| **Personnel and meeting expenses:** | | |
| Board - meetings, travel and education | $ 72 | $ 28 |
| Delegates meeting | 5 | 3 |
| Pre-retirement seminars | (3) | — |
| Professional development | 636 | 561 |
| Travel and automobile expense | 68 | 3 |
| Other personnel expenses | 116 | 65 |
| Total personnel and meeting expenses | 894 | 660 |
| **Professional and governmental services:** | | |
| Auditors - financial* | $ 482 | $ 61 |
| Auditors - Department of Financial Services | — | 139 |
| Disability medical examinations | 96 | 94 |
| Postage and cartage | 804 | 780 |
| Professional fees and services | 1,218 | 688 |
| Publications | 130 | 152 |
| Statutory custodian charges | 136 | 130 |
| Total professional and governmental services | 2,866 | 2,044 |
| Total administrative fund expenses | 69,245 | 68,114 |
| Reconciliation of contribution expense to pension and OPEB expense | (8,015) | (12,622) |
| **Total Administrative Expenses** | $ 61,230 | $ 55,492 |

**Presented on an accrual basis for 2021. Expenses incurred in fiscal year 2022 when services performed.*

*See accompanying independent auditors' report.*

OTHER SUPPLEMENTAL SCHEDULES *(continued)*

## SCHEDULES OF INVESTMENT EXPENSES

### Years ended June 30, 2022 and 2021

(dollars in thousands)

| Investment Category | 2022 Fair Value of Assets Serviced or Under Management | 2022 Expenses | 2021 Fair Value of Assets Serviced or Under Management | 2021 Expenses |
|---|---|---|---|---|
| **Externally managed/serviced assets:** | | | | |
| International equity | $ 19,449,286 | $ 30,362 | $ 24,720,161 | $ 29,958 |
| Real estate equity | 16,486,742 | 134,387 | 14,839,765 | 94,632 |
| Private equity | 14,073,681 | 149,217 | 14,780,950 | 137,707 |
| Real estate debt | 5,756,791 | 17,590 | 5,083,135 | 15,713 |
| Global equity | 1,147,137 | 4,418 | 5,097,105 | 17,702 |
| Global bonds | 4,218,623 | 19,896 | 3,305,959 | 5,834 |
| Domestic equity | 2,950,256 | 5,589 | 2,162,554 | 5,729 |
| Private debt | 1,424,443 | 22,272 | 1,163,794 | 17,491 |
| High-yield bonds | 958,586 | 3,992 | 941,987 | 2,806 |
| Sub-total | 66,465,545 | 387,723 | 72,095,410 | 327,572 |
| **General expenses** | — | 11,841 | — | 11,968 |
| **Totals** | **$ 66,465,545** | **$ 399,564** | **$ 72,095,410** | **$ 339,540** |



*See accompanying independent auditors' report.*

OTHER SUPPLEMENTAL SCHEDULES *(continued)*

## SCHEDULE OF CONSULTING FEES

Year ended June 30, 2022

Fees in excess of $50,000 for outside professionals other than investment advisers.

| Name | Amount | Nature |
|---|---|---|
| Stepstone Group LP | $ 1,444,800 | Investment Consulting |
| Callan LLC | 652,303 | Investment Consulting |
| Turner Construction | 496,004 | Construction Management |
| KPMG LLP | 421,576 | Accounting Services |
| Graybar Electric Company Inc | 401,008 | Engineering Services |
| WCGS Architects, P.C. | 286,341 | Architectural & Engineering Services |
| Seward & Kissel LLP | 221,287 | Investment Consulting |
| Sidley Austin LLP | 171,615 | Legal Services |
| Nixon Peabody LLP | 164,727 | Legal Services |
| Cheiron Inc. | 126,627 | Actuarial Consulting |
| Mercer Investments LLC | 117,500 | Investment Consulting |
| Linea Secure LLC | 115,970 | IT Professional Services |
| Nossaman LLP | 88,750 | Legal Services |
| DLA Piper LLP (US) | 85,353 | Legal Services |
| Hirschler Fleischer | 76,501 | Legal Services |
| Grant Thornton Public Sector LLC | 75,000 | Accounting Services |
| Katten Muchin Rosenman LLP | 65,979 | Legal Services |
| Sheppard Mullin Richter & Hampton LLP | 64,497 | Legal Services |
| Plante Moran PC | 64,320 | Accounting Services |
| Charles Law PLCC | 60,637 | Legal Services |
| JP Morgan Asset Management | 59,492 | Legal Services |
| Lisa Mari Bergqvist | 57,300 | MWBE Consulting |
| Robinson Bradshaw | 54,027 | Legal Services |

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**Retirement Board**

**Re: New York State Teachers' Retirement System:**

As part of our audit of the financial statements of the New York State Teachers' Retirement System (the System) for the year ended June 30, 2022, we performed reviews of the actuarial assumptions, methods, and procedures used by the System's Actuary to calculate the employer contributions for the System to determine the reasonableness of the employer contributions reported in the System's June 30, 2022 basic financial statements. As part of those reviews, an actuary from our firm reviewed the following for reasonableness as compared to Actuarial Standard of Practice (ASOP) No. 4, Measuring Pension Obligations, as adopted by the Actuarial Standards Board:

- The actuarial assumptions, methods and procedures described in the System's Actuarial Valuation Report as of June 30, 2020, used to derive the resultant employer contribution rate of 9.80% applied to employer payroll for the fiscal year ended June 30, 2022.

- The System's Experience Studies incorporated in the System's Actuarial Report as of June 30, 2020, and the opinions of the System's Actuary presented therein.

Based on the results of the above review, we determined that the methods, procedures, and actuarial assumptions used to develop the employer contributions reported in the System's 2022 basic financial statements appeared reasonable in the context of ASOP No. 4.

This report is intended solely for the use of the New York State Teachers Retirement System and should not be used for any other purpose.



**PLANTE MORAN, PC**
**EMPLOYEE BENEFIT CONSULTING**
October 27, 2022

NEW YORK STATE
TEACHERS' RETIREMENT SYSTEM

A meeting of the Trustees of the New York State Teachers' Retirement System Retired Employee Health Benefits Trust was held at the System on October 27, 2022.

Board Members: Juliet Benaquisto, Elizabeth Chetney, Phyllis Harrington, Eric Iberger, David Keefe, Jennifer Longtin, Ruth Mahoney, Christopher Morin, Oliver Robinson, Nicholas Smirensky

NYSTRS Staff: Thomas K. Lee, Don Ampansiri, Ken Kasper, Kathy Ebert

Plante Moran: Jean Young, Manju Patnaik

The meeting was called to order by D. Keefe at 8:37 a.m.

1. Approval of Minutes of August 3, 2022

Upon motion of O. Robinson, seconded by J. Longtin and unanimously adopted by the Trustees, the minutes of the August 3, 2022 meeting were approved.

2. Review of GASB 74/75 Report (attached Appendix A)
3. Review of Trust Financial Statements Quarter Ended September 30, 2022 (attached Appendix B).
4. Review of Trust Financial Statements with Independent Auditor's Report Year Ended June 30, 2022

   J. Young and M. Patnaik of Plante Moran reviewed the Trust's audited financial statements for the year ended June 30, 2022 (attached as Appendix C).

5. Resolution Accepting Plante Moran Annual Audit – Trust

P. Harrington, moved the following resolution, seconded by J. Longtin and unanimously adopted by the Trustees:

> RESOLVED, That the report of Plante Moran on the financial statements of the New York State Teachers' Retirement System Retired Employee Health Benefits Trust as of June 30, 2022 and for the Trust year then ended, as presented to the Trustees, is accepted.

There being no further business, the meeting adjourned at 8:41 a.m.

Respectfully submitted,

[redacted]

____________________________

Thomas K. Lee

Classic Values, Innovative Advice

Schedule A

Celebrating 20 years

# New York State Teachers' Retirement System

## Other Postemployment Benefits (OPEB) for NYSTRS Staff Plan

## GASB 74/75 Report as of June 30, 2022 Measurement Date

## Reporting Date June 30, 2023 for GASB 75

## Reporting Date June 30, 2022 for GASB 74

**Produced by Cheiron**

**September 2022**

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***Letter of Transmittal***

September 1, 2022

Mr. Richard A. Young
Actuary
New York State Teachers' Retirement System
10 Corporate Woods Drive
Albany, NY 12211-2395

Dear Richard:

The purpose of this report is to provide accounting and financial disclosure information under Governmental Accounting Standards Board Statement 74 (GASB 74) for the postemployment benefit plan provided by the New York State Teachers' Retirement System (NYSTRS) and under GASB No. 75 (GASB 75) for NYSTRS as an employer. Postemployment benefits other than pensions in this report refer to the retiree medical and associated benefits provided to eligible retired employees of NYSTRS.

This actuarial valuation reflects a roll-forward valuation with the updated census. This report provides GASB 74 and 75 results valued as of a measurement date of June 30, 2022. NYSTRS has elected to apply the one-year look-back method as permitted under GASB. Valuation results in this report apply for the fiscal year commencing July 1, 2022 and ending June 30, 2023 under GASB 75. Census data gathered are based upon June 30, 2021 plan information while claims experience and enrollment data are based upon June 30, 2020 plan information trended forward to June 30, 2021. The actuarial valuation was performed as of July 1, 2021 with results rolled forward to June 30, 2022.

This report presents results of the valuation as highlighted below:

- Total OPEB Liability of $106,354,619, Plan fiduciary net position of $57,507,625, Net OPEB Liability of $48,846,994, Plan fiduciary net position as a percentage of the Total OPEB Liability of 54.07% (Please see Table V-4.)
- Recognition of the Net OPEB Liability on NYSTRS's net position of $42,387,719, as part of GASB 75 and prior to any contributions after the measurement date (Please see Table I-1.)
- Determination of annual expense of $5,069,146 in accordance with GASB 75 for the fiscal year commencing July 1, 2022 and ending June 30, 2023 (Please see Table I-1 and Table VI-3.)
- Development of the discount rate applied in this valuation. This is a funded progam, and the discount rate reflects the long-term yield on plan assets. The long-term yield on assets is monitored and aligned with the asset allocation and projected yields. Please note that this valuation reflects the rate of 6.50% per annum, the same rate as last year. (Please see Table III-1.)

- Reconciliation of plan obligations from the prior year to this year (per Table V-1)
- Required sensitivity results for changes in both discount rate and long-term trends (Please see Tables V-2 and V-3.)
- Summary of census information gathered for active employees and retirees (per Appendix A)
- Summary of depletion testing for GASB 74/75 discount rate (per Appendix B)
- Summary of actuarial assumptions and methods in effect (per Appendix C)
- Summary of plan provisions in effect (per Appendix D)

If you have any questions about the report or need additional information, please let us know.

Sincerely,
Cheiron

Michele Domash, FSA, MAAA
Principal Consulting Actuary

Margaret A. Tempkin, FSA, EA, MAAA
Principal Consulting Actuary

Ryan Benitez, ASA, MAAA
Associate Actuary

## SECTION I – BOARD SUMMARY

The purpose of this report is to provide accounting and financial disclosure information under Governmental Accounting Standards Board (GASB) Statement No. 74 for the postemployment benefit plan provided by the New York State Teachers' Retirement System and under GASB No. 75 for NYSTRS as an employer. This information includes:

- Determination of the discount rate as of June 30, 2022,
- Total OPEB liability sensitivity information,
- Note disclosures and required supplementary information under GASB 74 for the Plan, and
- Determination of amounts under GASB 75.

## Highlights

Under GASB 75, the measurement date for the postemployment benefits provided by the New York State Teachers' Retirement System contained in this report is June 30, 2022; the reporting date is June 30, 2023. Measurements are based upon the fair value of assets and OPEB liabilities as of June 30, 2022, the measurement date. However, under GASB 74, the measurement date is the same as the reporting date.

The table below provides a summary of the key results during this measurement period for the Plan in total. In addition to the information shown below, any contributions between the measurement date and the reporting date would be reported as deferred outflows to resources to offset the cash outflows reported.

**Table I - 1**
**Summary of Key Results**

| Reporting Date under GASB 75 | 6/30/2023 | 6/30/2022 |
|---|---|---|
| Measurement Date under GASB 74/75 | 6/30/2022 | 6/30/2021 |
| Net OPEB Liability | $ 48,846,994 | $ 34,792,089 |
| Deferred Outflows | 8,708,737 | 4,703,193 |
| Deferred Inflows | 2,249,462 | 13,229,677 |
| Net Impact on Statement of Net Position | $ 42,387,719 | $ 43,318,573 |
| Contributions Subsequent to Measurement Date | 6,394,396 | 6,000,000 |
| Net Impact on Statement of Net Position | $ 35,993,323 | $ 37,318,573 |
| OPEB Expense ($ Amount) | $ 5,069,146 | $ 2,758,780 |
| OPEB Expense (% of Payroll) | 14.31% | 8.32% |

## SECTION I – BOARD SUMMARY

The net OPEB liability (NOL) increased during the measurement period. The change in NOL due to investment gains and losses is recognized into OPEB expense over five years, beginning in the year of occurrence. The change in NOL due to actuarial gains and losses as well as assumption changes are recognized over the average remaining service life, determined at the beginning of each measurement period, which is six years as of the current and prior measurement period for the Plan. Unrecognized amounts are reported as deferred outflows of resources (DOR) and deferred inflows of resources (DIR).

At the June 30, 2022 measurement date, New York State Teachers' Retirement System will report a net OPEB liability (asset) of $48,846,994, deferred outflows of resources of $8,708,737, and deferred inflows of resources of $2,249,462 related to the Plan. Consequently, the net impact, equal to the NOL minus the DOR plus the DIR, on NYSTRS' statement of net position due to the Plan would be $42,387,719 [$42,387,719 = $48,846,994 - $8,708,737 + $2,249,462] as of the June 30, 2022 measurement date.

For the measurement year ending June 30, 2022, reporting year ending June 30, 2023, the collective annual OPEB expense is $5,069,146 or 14.31% of covered-employee payroll. This amount is not related to NYSTRS' contribution to the Plan, equal to $6,000,000 during the measurement period, but instead represents the aggregate employer contributions plus the change in the net impact on the employer's statement of net position [$5,069,146 = $6,000,000 +$42,387,719 - $43,318,573].

Volatility in OPEB expense from year to year is to be expected. It will largely be driven by asset gains and losses, but other changes can also have a significant impact. Components of the net OPEB expense are provided in Section VI of this report.

## SECTION II – CERTIFICATION

The purpose of this report is to provide accounting and financial reporting information under GASB Nos. 74 and 75 for the postemployment benefits provided by the New York State Teachers' Retirement System. This report is for the use of the New York State Teachers' Retirement System and their auditors in preparing financial reports in accordance with applicable law and accounting requirements. This report is not appropriate for other purposes, including the measurement of funding requirements for the Plan.

In preparing our report, we relied on information (some oral and some written) supplied by the Plan. This information includes, but is not limited to, the plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23.

Future actuarial measurements may differ significantly from the current measurements due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions, changes in economic or demographic assumptions, and changes in plan provisions or applicable law.

This report does not contain any adjustments for the potential impact of COVID-19. We anticipate the virus will impact both mortality and claims in the short term, as well as potentially other demographic experience. However, the net impact is not determinable at this time.

We hereby certify that this report and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices and our understanding of the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board as well as applicable laws and regulations. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this report. This report does not address any contractual or legal issues. We are not attorneys, and our firm does not provide any legal services or advice.

This report was prepared for the Plan for the purposes described herein and for the use by the plan and employer auditors in completing an audit related to the matters herein. Other users of this report are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any other user.

Michele Domash, FSA, MAAA
Principal Consulting Actuary

Margaret A. Tempkin, FSA, EA, MAAA
Principal Consulting Actuary

Ryan Benitez, ASA, MAAA
Associate Actuary

## SECTION III – DETERMINATION OF DISCOUNT RATE

The discount rate used to measure the Total OPEB Liability (TOL) as of June 30, 2022 was 6.50%, which was the same as the long-term rate of return as of June 30, 2022. The discount rate used to measure the Total OPEB Liability (TOL) as of June 30, 2021 was 6.50%, also consistent with the long-term rate of return as of June 30, 2021.

The long-term expected rate of return on OPEB plan investments was determined using a building block method in which best estimate ranges of expected future rates of return are developed for each major asset class. The arithmetic returns are combined to produce the long-term expected arithmetic rate of return by weighting the expected future rates of return by the target asset allocation percentage. The target allocation, projected arithmetic rates of return for each major asset class, and the expected total plan geometric return used in the derivation of the long-term expected investment rate of return assumption are summarized in the table below.

**Table III - 1**

| OPEB Trust Asset Allocation | Weight | 20 Year - Arithmetic | Standard Deviation |
|---|---|---|---|
| US Equity - Large Cap | 37.50% | 7.96% | 16.42% |
| US Equity - Small/Mid Cap | 12.50% | 9.01% | 20.17% |
| Non-US Equity - Developed | 21.25% | 8.79% | 18.32% |
| Non-US Equity - Emerging | 3.75% | 10.78% | 24.33% |
| US Corporate Bonds - Core | 7.50% | 3.38% | 5.52% |
| US Treasuries (Cash Equivalents) | 17.50% | 1.91% | 1.30% |
| | 100.00% | 6.97% | 12.71% |
| **20-Year Geometric Return** | | **6.22%** | |
| **Selected Long-Term Return** | | **6.50%** | |

In the table above, we reflect Horizon's Survey of Capital Market Assumptions 2021 Edition as one recognized benchmark of the long-term returns and utilize those in the determination of the weighted average arithmetic yield amount. We apply the Horizon study published as of the valuation measurement date and based upon the 50th percentile results in such study, consistent with the prior year method. Other methods and studies are available; the above reflects a solid and reasonable approach.

In developing the projection of cash flows used to determine the discount rate, we have assumed that employer contributions to the Plan will continue to follow the written contribution policy for fiscal year 2021-22, as well as following the historical contributions, thus funding at least the ADC in the future. The total employer contribution rate is the sum of the normal cost rate plus an amortization of the Plan's unfunded actuarial liability (UAL). The normal cost rate is determined under the entry age actuarial cost method while the UAL rate is that necessary to pay down the UAL over a closed 24-year period and determined as a level percentage of participant payroll. The Plan has historically contributed more than the required actuarially determined contributions.

## SECTION III – DETERMINATION OF DISCOUNT RATE

Based on these assumptions, the Plan's Fiduciary Net Position was projected to be available to make all projected future benefit payments for current members following the procedures described in paragraphs 48-50 of GASB 74. Consequently, the single equivalent rate used to determine the Total OPEB Liability as of June 30, 2022 is 6.50%, the long-term expected rate-of-return as defined by GASB 74 as of that date.

**Table III - 2**
**Schedule of Investment Returns**

| FYE | Annual Money Weighted Rate of Return, Net of Investment Expense |
|---|---|
| 2013 | 11.6% |
| 2014 | 17.1% |
| 2015 | 2.9% |
| 2016 | 1.3% |
| 2017 | 13.1% |
| 2018 | 8.8% |
| 2019 | 7.6% |
| 2020 | 5.8% |
| 2021 | 28.8% |
| 2022 | -14.4% |

## SECTION IV – TOTAL OPEB LIABILITY SENSITIVITY

The table below shows the total OPEB liability (TOL) amounts at discount rates equal to the rate used for measuring the TOL at the June 30, 2022 measurement date as well as plus and minus one percent from that rate.

**Table IV - 1**
**Projection of the Total OPEB Liability from Valuation Date to Measurement Date**

| Discount Rate | 5.50% | 6.50% | 7.50% |
|---|---|---|---|
| Total OPEB Liability, 6/30/2022 | $ 120,967,129 | $ 106,354,619 | $ 94,295,268 |

The table below shows the total OPEB liability (TOL) amounts at healthcare trend rates equal to the rate used for measuring the TOL at the June 30, 2022 measurement date as well as plus and minus one percent from that rate.

**Table IV - 2**
**Projection of the Total OPEB Liability from Valuation Date to Measurement Date**

| Healthcare Trends | -1.00% | Baseline | 1.00% |
|---|---|---|---|
| Total OPEB Liability, 6/30/2022 | $ 93,003,964 | $ 106,354,619 | $ 122,706,774 |

Net OPEB liability (NOL) sensitivity disclosures required under GASB No. 74 are developed based on this information in Tables V-2 and V-3 in Section V of this report.

## SECTION V – GASB 74 REPORTING INFORMATION

# Note Disclosures

The table below shows the changes in the total OPEB liability (TOL), the Plan fiduciary net position (i.e., fair value of Plan assets) (FNP), and the net OPEB liability (NOL) during the measurement period ending on June 30, 2022, as well as the prior two measurement periods.

**Table V - 1**
**Change in Net OPEB Liability**

| Reporting Date under GASB 75 | 6/30/2023 | 6/30/2022 | 6/30/2021 |
|---|---|---|---|
| Measurement Date under GASB 74/75 | 6/30/2022 | 6/30/2021 | 6/30/2020 |
| **Total OPEB Liability** | | | |
| **Total OPEB Liability at BOY** | **$ 100,662,726** | **$ 96,809,772** | **$ 97,356,540** |
| **Changes for the year:** | | | |
| Service cost | 3,069,185 | 2,984,622 | 2,914,852 |
| Interest | 6,587,914 | 6,585,821 | 6,621,826 |
| Changes of benefits | 0 | 0 | (9,789,000) |
| Differences between expected and actual experience | 869,679 | 1,259,391 | 79,202 |
| Changes of assumptions | 0 | (2,449,602) | 4,038,931 |
| Benefit payments | (4,834,885) | (4,527,278) | (4,412,579) |
| **Net changes** | 5,691,893 | 3,852,954 | (546,768) |
| **Total OPEB Liability at EOY** | $ 106,354,619 | $ 100,662,726 | $ 96,809,772 |
| **Plan Fiduciary Net Position** | | | |
| **Plan Fiduciary Net Position at BOY** | **$ 65,870,637** | **$ 49,622,279** | **$ 45,423,656** |
| **Changes for the year:** | | | |
| Contributions - employer | 6,000,000 | 6,261,000 | 6,004,000 |
| Contributions - member | 0 | 0 | 0 |
| Net investment income | (9,584,492) | 14,534,551 | 2,672,787 |
| Benefit payments | (4,834,885) | (4,527,278) | (4,412,579) |
| Administrative expense | 56,365 | (19,915) | (65,585) |
| **Net changes** | (8,363,012) | 16,248,358 | 4,198,623 |
| **Plan Fiduciary Net Position at EOY** | $ 57,507,625 | $ 65,870,637 | $ 49,622,279 |
| **Net OPEB Liability** | | | |
| **Net OPEB Liability at BOY** | **$ 34,792,089** | **$ 47,187,493** | **$ 51,932,884** |
| **Changes for the year:** | | | |
| Service cost | 3,069,185 | 2,984,622 | 2,914,852 |
| Interest | 6,587,914 | 6,585,821 | 6,621,826 |
| Changes of benefits | 0 | 0 | (9,789,000) |
| Differences between expected and actual experience | 869,679 | 1,259,391 | 79,202 |
| Changes of assumptions | 0 | (2,449,602) | 4,038,931 |
| Contributions - employer | (6,000,000) | (6,261,000) | (6,004,000) |
| Contributions - member | 0 | 0 | 0 |
| Net investment income | 9,584,492 | (14,534,551) | (2,672,787) |
| Benefit payments | 0 | 0 | 0 |
| Administrative expense | (56,365) | 19,915 | 65,585 |
| **Net changes** | 14,054,905 | (12,395,404) | (4,745,391) |
| **Net OPEB Liability at EOY** | $ 48,846,994 | $ 34,792,089 | $ 47,187,493 |

## SECTION V – GASB 74 REPORTING INFORMATION

During the measurement year, the NOL increased by approximately $14.05 million.

- The service cost and interest cost increased the NOL by approximately $9.66 million.
- Investment losses related to plan assets offset by contributions and administrative expense gains increased the NOL by approximately $3.52 million.
- An experience loss, primarily due to higher than expected rates of retirement and lower than expected rates of mortality, increased the TOL by approximately $0.87 million.

## SECTION V – GASB 74 REPORTING INFORMATION

Changes in the discount rate affect the measurement of the TOL. Lower discount rates produce a higher TOL, and higher discount rates produce a lower TOL. The table below shows the sensitivity of the NOL to the discount rate.

**Table V - 2**
**Sensitivity of Net OPEB Liability to Changes in Discount Rate**
**Reporting Date June 30, 2023**
**Measurement Date June 30, 2022**

| | 1% Decrease 5.50% | Discount Rate 6.50% | 1% Increase 7.50% |
|---|---|---|---|
| Total OPEB Liability | $ 120,967,129 | $ 106,354,619 | $ 94,295,268 |
| Plan Fiduciary Net Position | 57,507,625 | 57,507,625 | 57,507,625 |
| Net OPEB Liability | $ 63,459,504 | $ 48,846,994 | $ 36,787,643 |
| Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability | 47.5% | 54.1% | 61.0% |

A one percent decrease in the discount rate increases the TOL by approximately 14% and increases the NOL by approximately 30%. A one percent increase in the discount rate decreases the TOL by approximately 11% and decreases the NOL by approximately 25%.

Changes in the healthcare trends affect the measurement of the TOL. Lower healthcare trends produce a lower TOL, and higher healthcare trends produce a higher TOL. The table below shows the sensitivity of the NOL to the healthcare trends.

**Table V - 3**
**Sensitivity of Net OPEB Liability to Changes in Healthcare Cost Trend Rates**
**Reporting Date June 30, 2023**
**Measurement Date June 30, 2022**

| | 1% Decrease | Healthcare Trend | 1% Increase |
|---|---|---|---|
| Total OPEB Liability | $ 93,003,964 | $ 106,354,619 | $ 122,706,774 |
| Plan Fiduciary Net Position | 57,507,625 | 57,507,625 | 57,507,625 |
| Net OPEB Liability | $ 35,496,339 | $ 48,846,994 | $ 65,199,149 |
| Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability | 61.8% | 54.1% | 46.9% |

A one percent decrease in the healthcare trends decreases the TOL by approximately 13% and decreases the NOL by approximately 27%. A one percent increase in the healthcare trends increases the TOL by approximately 15% and increases the NOL by approximately 33%.

## SECTION V – GASB 74 REPORTING INFORMATION

### Required Supplementary Information

Schedules of Required Supplementary Information generally start with information as of the implementation of GASB 74, and eventually build up to 10 years of information. The schedule below shows the changes in NOL and related ratios required by GASB.

**Table V - 4**
**Schedule of Changes in Net OPEB Liability and Related Ratios**

| Reporting Date under GASB 75 | 6/30/2023 | 6/30/2022 | 6/30/2021 | 6/30/2020 | 6/30/2019 | 6/30/2018 |
|---|---|---|---|---|---|---|
| Measurement Date under GASB 74/75 | 6/30/2022 | 6/30/2021 | 6/30/2020 | 6/30/2019 | 6/30/2018 | 6/30/2017 |
| **Total OPEB Liability** | | | | | | |
| Service cost | $ 3,069,185 | $ 2,984,622 | $ 2,914,852 | $ 2,907,107 | $ 2,604,313 | $ 2,490,519 |
| Interest (includes interest on service cost) | 6,587,914 | 6,585,821 | 6,621,826 | 6,168,584 | 5,747,125 | 5,959,407 |
| Changes of benefit terms | 0 | 0 | (9,789,000) | 0 | 6,211,000 | 0 |
| Differences between expected and actual experience | 869,679 | 1,259,391 | 79,202 | 714,079 | (841,844) | (2,165,915) |
| Changes of assumptions | 0 | (2,449,602) | 4,038,931 | 1,102,479 | (878,222) | (5,848,836) |
| Benefit payments + expenses, including refunds of member contributions | (4,834,885) | (4,527,278) | (4,412,579) | (3,965,315) | (3,756,945) | (3,412,013) |
| **Net change in total OPEB liability** | **$ 5,691,893** | **$ 3,852,954** | **$ (546,768)** | **$ 6,926,934** | **$ 9,085,427** | **$ (2,976,838)** |
| **Total OPEB liability - beginning** | **100,662,726** | **96,809,772** | **97,356,540** | **90,429,606** | **81,344,179** | **84,321,017** |
| **Total OPEB liability - ending** | **$ 106,354,619** | **$ 100,662,726** | **$ 96,809,772** | **$ 97,356,540** | **$ 90,429,606** | **$ 81,344,179** |
| **Plan fiduciary net position** | | | | | | |
| Contributions - employer | $ 6,000,000 | $ 6,261,000 | $ 6,004,000 | $ 5,500,000 | $ 5,500,000 | $ 5,500,000 |
| Contributions - member | 0 | 0 | 0 | 0 | 0 | 0 |
| Net investment income | (9,584,492) | 14,534,551 | 2,672,787 | 3,155,344 | 3,212,503 | 4,212,256 |
| Benefit payments, including refunds of member contributions | (4,834,885) | (4,527,278) | (4,412,579) | (3,965,315) | (3,756,945) | (3,412,013) |
| Administrative expense | 56,365 | (19,915) | (65,585) | (18,575) | (53,435) | (15,000) |
| **Net change in plan fiduciary net position** | **$ (8,363,012)** | **$ 16,248,358** | **$ 4,198,623** | **$ 4,671,454** | **$ 4,902,123** | **$ 6,285,243** |
| **Plan fiduciary net position - beginning** | **65,870,637** | **49,622,279** | **45,423,656** | **40,752,202** | **35,850,079** | **29,564,836** |
| **Plan fiduciary net position - ending** | **$ 57,507,625** | **$ 65,870,637** | **$ 49,622,279** | **$ 45,423,656** | **$ 40,752,202** | **$ 35,850,079** |
| **Net OPEB liability - ending** | **$ 48,846,994** | **$ 34,792,089** | **$ 47,187,493** | **$ 51,932,884** | **$ 49,677,404** | **$ 45,494,100** |
| **Plan fiduciary net position as a percentage of the total OPEB liability** | 54.07% | 65.44% | 51.26% | 46.66% | 45.07% | 44.07% |
| **Covered payroll** | $ 35,423,191 | $ 33,142,258 | $ 32,124,845 | $ 31,189,170 | $ 30,682,745 | $ 29,752,583 |
| **Net OPEB liability as a percentage of covered payroll** | 137.90% | 104.98% | 146.89% | 166.51% | 161.91% | 152.91% |

## SECTION V – GASB 74 REPORTING INFORMATION

If an Actuarially Determined Contribution (ADC) is calculated, the following schedule is required. An ADC is a contribution amount determined in accordance with Actuarial Standards of Practice.

**Table V - 5**
**Schedule of Employer Contributions**

| Reporting Date under GASB 75 | 6/30/2023 | 6/30/2022 | 6/30/2021 | 6/30/2020 | 6/30/2019 | 6/30/2018 |
|---|---|---|---|---|---|---|
| Measurement Date under GASB 74/75 | 6/30/2022 | 6/30/2021 | 6/30/2020 | 6/30/2019 | 6/30/2018 | 6/30/2017 |
| Normal Cost adjusted for timing | $ 3,483,944 | $ 3,167,363 | $ 3,083,708 | $ 3,011,622 | $ 2,949,204 | $ 2,670,757 |
| Amortization of the unfunded actuarial liability adjusted for timing | 2,910,452 | 2,172,493 | 2,738,348 | 2,946,246 | 2,400,171 | 2,607,989 |
| Actuarially Determined Contribution (ADC) | $ 6,394,396 | $ 5,339,856 | $ 5,822,056 | $ 5,957,868 | $ 5,349,375 | $ 5,278,747 |
| Actual Contribution related to ADC | | 6,000,000 | 6,261,000 | 6,004,000 | 5,500,000 | 5,500,000 |
| Contribution Deficiency/(Excess) relative to ADC | | $ (660,144) | $ (438,944) | $ (46,132) | $ (150,625) | $ (221,253) |
| Covered Payroll (Pay) | $ 35,423,191 | $ 33,142,258 | $ 32,124,845 | $ 31,189,170 | $ 30,682,745 | $ 29,752,583 |
| Actual Contributions as % of Pay | | 18.10% | 19.49% | 19.25% | 17.93% | 18.49% |

| Reporting Date under GASB 75 | 6/30/2017 | 6/30/2016 | 6/30/2015 | 6/30/2014 | 6/30/2013 |
|---|---|---|---|---|---|
| Measurement Date under GASB 74/75 | 6/30/2016 | 6/30/2015 | 6/30/2014 | 6/30/2013 | 6/30/2012 |
| Normal Cost adjusted for timing | | | | | |
| Amortization of the unfunded actuarial liability adjusted for timing | | | | | |
| Actuarially Determined Contribution (ADC) | $ 5,374,220 | $ 4,782,000 | $ 4,542,000 | $ 4,767,000 | $ 5,240,000 |
| Actual Contribution related to ADC | 5,500,000 | 5,500,000 | 5,500,000 | 5,500,000 | 5,240,000 |
| Contribution Deficiency/(Excess) relative to ADC | $ (125,780) | $ (718,000) | $ (958,000) | $ (733,000) | $ 0 |
| Covered Payroll (Pay) | $ 29,087,397 | $ 26,506,965 | $ 25,556,000 | $ 26,500,000 | $ 25,993,000 |
| Actual Contributions as % of Pay | 18.91% | 20.75% | 21.52% | 20.75% | 20.16% |

## SECTION V – GASB 74 REPORTING INFORMATION

The notes below summarize the key methods and assumptions used to determine the ADC for June 30, 2023.

**Notes to Schedule**

| | |
|---|---|
| Valuation Date: | July 1, 2021 with results rolled forward to June 30, 2022. |
| Timing: | Actuarially determined contributions are calculated based on the actuarial valuation at the beginning of the fiscal year. |

**Key Methods and Assumptions Used to Determine Contribution Rates**

| | |
|---|---|
| Actuarial Cost Method: | Entry Age Normal Cost Method, level percentage of payroll |
| Asset Valuation Method: | Market Value |
| Amortization Method: | 30-Year Closed Amortization, level percentage of payroll |
| Remaining Amortization Period: | 24 years as of July 1, 2022 |
| Discount Rate: | 6.50% per annum |
| Expected Return on Assets: | 6.50% per annum |
| Salary Increases: | Varies by service from 3.00% - 8.00% |
| Mortality: | SOA PUB-2010 Headcount Weighted for General Employees Mortality Table with base year 2010 and Improvement Scale MP-2020, with a 90% adjustment to base rates. |

## SECTION VI – GASB 75 REPORTING INFORMATION

NYSTRS was required to implement GASB 75 for their first fiscal year commencing after June 15, 2017. The amounts reported as of their fiscal year end (their reporting date) must be based on a measurement date up to 12 months and one day prior to their reporting date. For employers with a reporting date of June 30, the Fiscal Year End 2023 disclosures can be based upon either the June 30, 2022 or 2023 measurement dates. Since NYSTRS has elected to implement GASB 75 using a 12-month lookback, the exhibits on the following pages will be used for Fiscal Year End 2023 employer reporting.

The impact of experience gains or losses and assumption changes on the TOL are recognized in expense over the average expected remaining service life of all active and inactive members of the Plan. As of the measurement date, this recognition period was 6.00 (six) years.

During the year, there was an experience loss of $869,679. $144,947 of that loss was recognized in the current year, and an identical amount will be recognized in each of the next 5.00 years, resulting in a deferred outflow of resources as of June 30, 2022 of $724,732.

There were no changes in assumptions.

The impact of investment gains or losses is recognized over a period of five years. During the measurement year, there was an investment loss of $13,905,782. $2,781,156 of that loss was recognized in the current year, and an identical amount will be recognized in each of the next four years, resulting in a deferred outflow of resources as of June 30, 2022 of $11,124,626.

## SECTION VI – GASB 75 REPORTING INFORMATION

The table below summarizes the current balances of deferred outflows and deferred inflows of resources related to the Plan along with the net recognition over the next five years and the total recognition thereafter, if any.

### Table VI - 1

### Schedule of Deferred Inflows and Outflows of Resources as of Reporting Date June 30, 2023 Measurement Date June 30, 2022

| | Deferred Outflows of Resources | Deferred Inflows of Resources |
|---|---|---|
| Differences between expected and actual experience | $ 1,841,954 | $ 239,543 |
| Changes in assumptions | 2,386,957 | 2,009,919 |
| Net difference between projected and actual earnings on OPEB plan investments | 4,479,826 | 0 |
| Contributions subsequent to the measurement date | 6,394,396 | 0 |
| **Total** | **$ 15,103,133** | **$ 2,249,462** |

Amounts reported as deferred outflows and deferred inflows of resources will be recognized in OPEB expense as follows:

| **Year ended June 30:** | |
|---|---|
| 2024 | 923,537 |
| 2025 | 1,499,647 |
| 2026 | 1,163,413 |
| 2027 | 2,727,734 |
| 2028 | 144,944 |
| Thereafter | $ 0 |

# SECTION VI – GASB 75 REPORTING INFORMATION

**Table VI - 2**
**Schedule of Deferred Inflows and Outflows of Resources as of**
**June 30, 2023 Reporting Date**
**June 30, 2022 Measurement Date**
**June 30, 2022 Fiscal Year End**

**Recognition of Experience (Gains) and Losses**

| Experience Year | Recognition Period | Total Amount | BOY Remaining Amount | EOY Remaining Amount | Recognition Year 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2022 | 6.00 | $ 869,679 | $ 869,679 | $ 724,732 | $ 144,947 | $ 144,947 | $ 144,947 | $ 144,947 | $ 144,947 | $ 144,944 |
| 2021 | 6.00 | $ 1,259,391 | $ 1,049,492 | $ 839,593 | $ 209,899 | $ 209,899 | $ 209,899 | $ 209,899 | $ 209,896 | $ - |
| 2020 | 6.00 | $ 79,202 | $ 52,802 | $ 39,602 | $ 13,200 | $ 13,200 | $ 13,200 | $ 13,202 | $ - | $ - |
| 2019 | 6.00 | $ 714,079 | $ 357,040 | $ 238,027 | $ 119,013 | $ 119,013 | $ 119,014 | $ - | $ - | $ - |
| 2018* | 6.20 | $ (841,841) | $ (298,717) | $ (162,936) | $ (135,781) | $ (135,781) | $ (27,155) | $ - | $ - | $ - |
| 2017* | 6.22 | $ (2,165,915) | $ (424,825) | $ (76,607) | $ (348,218) | $ (76,607) | $ - | $ - | $ - | $ - |
| Recognition of liability gains and losses | | | $ 1,605,471 | $ 1,602,411 | $ 3,060 | $ 274,671 | $ 459,905 | $ 368,048 | $ 354,843 | $ 144,944 |

**Recognition of Assumption Changes (Gains) and Losses**

| Experience Year | Recognition Period | Total Amount | BOY Remaining Amount | EOY Remaining Amount | Recognition Year 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2022 | 6.00 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| 2021 | 6.00 | $ (2,449,602) | $ (2,041,335) | $ (1,633,068) | $ (408,267) | $ (408,267) | $ (408,267) | $ (408,267) | $ (408,267) | $ - |
| 2020 | 6.00 | $ 4,038,931 | $ 2,692,621 | $ 2,019,466 | $ 673,155 | $ 673,155 | $ 673,155 | $ 673,156 | $ - | $ - |
| 2019 | 6.00 | $ 1,102,479 | $ 551,238 | $ 367,491 | $ 183,747 | $ 183,747 | $ 183,744 | $ - | $ - | $ - |
| 2018* | 6.20 | $ (878,222) | $ (311,626) | $ (169,977) | $ (141,649) | $ (141,649) | $ (28,328) | $ - | $ - | $ - |
| 2017* | 6.22 | $ (5,848,836) | $ (1,147,201) | $ (206,874) | $ (940,327) | $ (206,874) | $ - | $ - | $ - | $ - |
| Recognition of assumption changes | | | $ (256,303) | $ 377,038 | $ (633,341) | $ 100,112 | $ 420,304 | $ 264,889 | $ (408,267) | $ - |

**Recognition of Investment (Gains) and Losses**

| Experience Year | Recognition Period | Total Amount | BOY Remaining Amount | EOY Remaining Amount | Recognition Year 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|
| 2022 | 5 | $ 13,905,782 | $ 13,905,782 | $ 11,124,626 | $ 2,781,156 | $ 2,781,156 | $ 2,781,156 | $ 2,781,156 | $ 2,781,158 |
| 2021 | 5 | $ (11,253,404) | $ (9,002,723) | $ (6,752,042) | $ (2,250,681) | $ (2,250,681) | $ (2,250,681) | $ (2,250,680) | $ - |
| 2020 | 5 | $ 444,807 | $ 266,885 | $ 177,924 | $ 88,961 | $ 88,961 | $ 88,963 | $ - | $ - |
| 2019 | 5 | $ (353,402) | $ (141,362) | $ (70,682) | $ (70,680) | $ (70,682) | $ - | $ - | $ - |
| 2018* | 5 | $ (643,861) | $ (128,773) | $ - | $ (128,773) | $ - | $ - | $ - | $ - |
| Recognition of investment gains and losses | | | $ 4,899,809 | $ 4,479,826 | $ 419,983 | $ 548,754 | $ 619,438 | $ 530,476 | $ 2,781,158 |

**Total (Gains) and Losses**

| | Total Amount | Remaining Amounts BOY | EOY | Recognition Year 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|---|---|
| **Total (Gains) and Losses** | **$ (2,020,733)** | **$ 6,248,977** | **$ 6,459,275** | **$ (210,298)** | **$ 923,537** | **$ 1,499,647** | **$ 1,163,413** | **$ 2,727,734** | **$ 144,944** |

*Based on results from the prior actuarial report with measurement date June 30, 2018.

## SECTION VI – GASB 75 REPORTING INFORMATION

The annual OPEB expense recognized by the employer can be calculated two different ways. First, it is the change in the amounts reported on the employers' Statements of Net Position that relate to the Plan and are not attributable to employer contributions. That is, it is the change in NOL minus the change in deferred outflows plus the change in deferred inflows plus employer contributions during the year.

Alternatively, annual OPEB expense can be calculated by its individual components. While GASB does not require or suggest the organization of the individual components shown in the table below, we believe it helps to understand the level and volatility of the OPEB expense.

The table below shows the development of the OPEB expense through both of these methodologies. In addition to the information shown below, any contributions between the measurement date and the reporting date would be reported as deferred outflows to resources to offset the cash outflows reported.

**Table VI - 3**
**Calculation of OPEB Expense**

| Reporting Date under GASB 74/75 | 6/30/2023 | 6/30/2022 |
|---|---|---|
| **Measurement Date under GASB 74/75** | **6/30/2022** | **6/30/2021** |
| Change in Net OPEB Liability | $ 14,054,905 | $ (12,395,404) |
| Change in Deferred Outflows | (4,005,544) | (60,377) |
| Change in Deferred Inflows | (10,980,215) | 8,953,561 |
| Employer Contributions | 6,000,000 | 6,261,000 |
| **OPEB Expense** | **$ 5,069,146** | **$ 2,758,780** |
| **OPEB Expense as % of Payroll** | **14.31%** | **8.32%** |
| **Operating Expenses** | | |
| Service cost | $ 3,069,185 | $ 2,984,622 |
| Administrative expenses | (56,365) | 19,915 |
| Total | $ 3,012,820 | $ 3,004,537 |
| **Financing Expenses** | | |
| Interest cost | $ 6,587,914 | $ 6,585,821 |
| Expected return on assets | (4,321,290) | (3,281,147) |
| Total | $ 2,266,624 | $ 3,304,674 |
| **Changes** | | |
| Benefit changes | $ 0 | $ 0 |
| Recognition of assumption changes | (633,341) | (633,341) |
| Recognition of liability gains and losses | 3,060 | (141,887) |
| Recognition of investment gains and losses | 419,983 | (2,775,203) |
| Total | $ (210,298) | $ (3,550,431) |
| **OPEB Expense** | **$ 5,069,146** | **$ 2,758,780** |

## SECTION VI – GASB 75 REPORTING INFORMATION

First, there are components referred to as operating expenses. These are items directly attributable to the operation of the Plan during the measurement year. Service cost less employee contributions represents the increase in employer-provided benefits attributable to the year, and administrative expenses are the cost of operating the Plan for the year.

Second, there are the financing expenses: the interest on the total OPEB liability less the expected return on assets.

The final category is changes. This category will drive most of the volatility in OPEB expense from year to year. It includes any changes in benefits made during the year and the recognized amounts due to assumption changes, gains or losses on the TOL, and investment gains or losses.

## APPENDIX A – MEMBERSHIP INFORMATION

### Participant Data Comparison:

| Census Date | 6/30/2020 | 6/30/2021 | % Change |
|---|---|---|---|
| **Active Employees:** | | | |
| Count | 351 | 374 | 6.55% |
| Average Age | 46.1 | 46.2 | 0.28% |
| Average Service | 11.3 | 10.9 | -3.10% |
| Covered Payroll | $ 32,176,950 | $ 34,391,448 | 6.88% |
| | | | |
| **Inactives:** | | | |
| Retirees* | 281 | 283 | 0.71% |
| Average Age | 69.0 | 69.4 | 0.55% |
| Surviving Spouses | 19 | 16 | -15.79% |
| Average Age | 83.0 | 82.4 | -0.68% |
| Spouses of Retirees | 122 | 127 | 4.10% |
| Average Age | 68.3 | 68.5 | 0.37% |

*2 deferred retirement as of 6/30/2021 treated as "retired" for valuation purposes

### Member Data as of June 30, 2021:

| Eligible Active Employees as of June 30, 2021 Years of Service | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Age Group | Under 5 | 5 to 9 | 10 to 14 | 15 to 19 | 20 to 24 | 25 to 29 | 30 to 34 | 35 to 39 | 40 & up | Total |
| Under 25 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **3** |
| 25 to 29 | 18 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **20** |
| 30 to 34 | 20 | 12 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | **33** |
| 35 to 39 | 22 | 20 | 4 | 3 | 1 | 0 | 0 | 0 | 0 | **50** |
| 40 to 44 | 8 | 25 | 8 | 10 | 2 | 0 | 0 | 0 | 0 | **53** |
| 45 to 49 | 11 | 10 | 11 | 10 | 1 | 0 | 0 | 0 | 0 | **43** |
| 50 to 54 | 9 | 19 | 13 | 10 | 9 | 6 | 5 | 0 | 0 | **71** |
| 55 to 59 | 6 | 4 | 6 | 18 | 10 | 6 | 8 | 2 | 0 | **60** |
| 60 to 64 | 7 | 1 | 4 | 4 | 5 | 4 | 2 | 1 | 2 | **30** |
| 65 to 69 | 1 | 1 | 1 | 0 | 3 | 1 | 0 | 0 | 1 | **8** |
| 70 & up | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | **3** |
| Total | **106** | **94** | **47** | **57** | **31** | **17** | **15** | **3** | **4** | **374** |

## APPENDIX A – MEMBERSHIP INFORMATION

| Retirees as of June 30, 2021 | | | |
|---|---|---|---|
| **Age Group** | **Males** | **Females** | **Total** |
| Under 50 | 0 | 1 | 1 |
| 50 to 54 | 0 | 0 | 0 |
| 55 to 59 | 6 | 21 | 27 |
| 60 to 64 | 17 | 50 | 67 |
| 65 to 69 | 18 | 42 | 60 |
| 70 to 74 | 24 | 39 | 63 |
| 75 to 79 | 20 | 22 | 42 |
| 80 to 84 | 8 | 6 | 14 |
| 85 to 89 | 4 | 4 | 8 |
| 90 to 94 | 0 | 0 | 0 |
| 95 to 99 | 0 | 1 | 1 |
| 100 & Over | 0 | 0 | 0 |
| **Under Age 65** | **23** | **72** | **95** |
| **Age 65 and Older** | **74** | **114** | **188** |
| **Total** | **97** | **186** | **283** |

| Status Reconciliation | | | | |
|---|---|---|---|---|
| | **Active** | **Retired** | **Surviving SP** | **Total** |
| **Members on June 30, 2020** | **351** | **281** | **19** | **651** |
| **Deceased** | | (6) | (4) | (10) |
| **Surviving Spouse Added** | | | 1 | 1 |
| **Added Records** | | | | 0 |
| **Terminations** | (5) | | | (5) |
| **Retired Coverage Waived** | | | | 0 |
| **Retired Coverage Deferred** | (1) | 1 | | 0 |
| **Retired Elected Coverage** | (8) | 8 | | 0 |
| **Newly Waived Coverage** | (2) | | | (2) |
| **Return to Work** | 1 | (1) | | 0 |
| **Newly Elected Coverage** | 4 | | | 4 |
| **New Hires** | 34 | | | 34 |
| **Members on June 30, 2021** | **374** | **283** | **16** | **673** |

*Treated as "Retired" for valuation purposes

| Distribution of Plan Coverage as of June 30, 2021 | | | |
|---|---|---|---|
| **Plan** | **Single** | **Family** | **Total** |
| Empire Plan | 191 | 231 | 422 |
| CDPHP | 74 | 128 | 202 |
| MVP | 13 | 17 | 30 |
| Pre-85 Empire | 0 | 0 | 0 |
| Waived Medical | 19 | 0 | 19 |
| **Total** | 297 | 376 | **673** |

# APPENDIX B – DEPLETION TEST

| Year Beginning July 1: | Year (A) | Projected Beginning Plan Fiduciary Net Position (B) | Projected Total Contributions (C) | Projected Benefit Payments and Administrative Expenses (D) | Projected Investment Earnings (E) | Projected Ending Plan Fiduciary Net Position (F) = (B) + (C) - (D) + (E) | Projected Beginning Fiduciary Net Position (G) = (B) | Projected Benefit Payments for current plan paticipants (H) | "Funded" Portion of Benefit Payments (I) = (D) if (B) >= (D), then 0 | "Unfunded" Portion of Benefit Payments (J) = (I) - (H) | Present Value of "Funded" Benefit Payments (K) = (I) / (1+ int)^(A) | Present Value of "Unfunded" Benefit Payments (L) = (J) / (1+bond rate)^(A) | Present Value of Benefit Payments Using the Single Discount Rate (M) = (H) / (1+ singlerate)^(A) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2022 | 1 | $ 57,507,625 | $ 6,394,396 | $ 5,186,667 | $ 3,776,629 | $ 62,491,983 | $ 57,507,625 | $ 5,186,667 | $ 5,186,667 | $ 0 | $ 4,870,110 | $ 0 | $ 4,870,110 |
| 2023 | 2 | 62,491,983 | 6,349,958 | 5,706,718 | 4,082,555 | 67,217,778 | 62,491,983 | 5,706,718 | 5,706,718 | 0 | 5,031,381 | 0 | 5,031,381 |
| 2024 | 3 | 67,217,778 | 6,354,507 | 5,912,813 | 4,383,285 | 72,042,757 | 67,217,778 | 5,912,813 | 5,912,813 | 0 | 4,894,917 | 0 | 4,894,917 |
| 2025 | 4 | 72,042,757 | 6,364,541 | 6,170,882 | 4,688,974 | 76,925,390 | 72,042,757 | 6,170,882 | 6,170,882 | 0 | 4,796,769 | 0 | 4,796,769 |
| 2026 | 5 | 76,925,390 | 6,379,401 | 6,667,452 | 4,990,936 | 81,628,275 | 76,925,390 | 6,667,452 | 6,667,452 | 0 | 4,866,445 | 0 | 4,866,445 |
| 2027 | 6 | 81,628,275 | 6,403,170 | 7,136,187 | 5,282,390 | 86,177,649 | 81,628,275 | 7,136,187 | 7,136,187 | 0 | 4,890,672 | 0 | 4,890,672 |
| 2028 | 7 | 86,177,649 | 6,402,556 | 7,528,013 | 5,565,546 | 90,617,737 | 86,177,649 | 7,528,013 | 7,528,013 | 0 | 4,844,323 | 0 | 4,844,323 |
| 2029 | 8 | 90,617,737 | 6,431,794 | 7,901,052 | 5,843,154 | 94,991,633 | 90,617,737 | 7,901,052 | 7,901,052 | 0 | 4,774,062 | 0 | 4,774,062 |
| 2030 | 9 | 94,991,633 | 6,465,864 | 8,272,340 | 6,116,670 | 99,301,827 | 94,991,633 | 8,272,340 | 8,272,340 | 0 | 4,693,339 | 0 | 4,693,339 |
| 2031 | 10 | 99,301,827 | 6,487,007 | 8,799,433 | 6,380,648 | 103,370,048 | 99,301,827 | 8,799,433 | 8,799,433 | 0 | 4,687,687 | 0 | 4,687,687 |
| 2032 | 11 | 103,370,048 | 6,506,888 | 9,127,811 | 6,635,214 | 107,384,340 | 103,370,048 | 9,127,811 | 9,127,811 | 0 | 4,565,843 | 0 | 4,565,843 |
| 2033 | 12 | 107,384,340 | 6,553,832 | 9,473,249 | 6,886,595 | 111,351,518 | 107,384,340 | 9,473,249 | 9,473,249 | 0 | 4,449,423 | 0 | 4,449,423 |
| 2034 | 13 | 111,351,518 | 6,594,944 | 9,897,680 | 7,132,200 | 115,180,982 | 111,351,518 | 9,897,680 | 9,897,680 | 0 | 4,365,043 | 0 | 4,365,043 |
| 2035 | 14 | 115,180,982 | 6,658,652 | 9,923,820 | 7,382,316 | 119,298,130 | 115,180,982 | 9,923,820 | 9,923,820 | 0 | 4,109,456 | 0 | 4,109,456 |
| 2036 | 15 | 119,298,130 | 6,751,390 | 10,315,412 | 7,640,371 | 123,374,479 | 119,298,130 | 10,315,412 | 10,315,412 | 0 | 4,010,906 | 0 | 4,010,906 |
| 2037 | 16 | 123,374,479 | 6,833,148 | 10,735,547 | 7,894,510 | 127,366,590 | 123,374,479 | 10,735,547 | 10,735,547 | 0 | 3,919,498 | 0 | 3,919,498 |
| 2038 | 17 | 127,366,590 | 6,920,085 | 11,091,152 | 8,145,403 | 131,340,926 | 127,366,590 | 11,091,152 | 11,091,152 | 0 | 3,802,186 | 0 | 3,802,186 |
| 2039 | 18 | 131,340,926 | 7,023,403 | 11,508,022 | 8,393,705 | 135,250,011 | 131,340,926 | 11,508,022 | 11,508,022 | 0 | 3,704,314 | 0 | 3,704,314 |
| 2040 | 19 | 135,250,011 | 7,140,151 | 11,808,304 | 8,641,924 | 139,223,783 | 135,250,011 | 11,808,304 | 11,808,304 | 0 | 3,568,987 | 0 | 3,568,987 |
| 2041 | 20 | 139,223,783 | 7,255,012 | 12,090,967 | 8,894,852 | 143,282,680 | 139,223,783 | 12,090,967 | 12,090,967 | 0 | 3,431,381 | 0 | 3,431,381 |
| 2042 | 21 | 143,282,680 | 7,421,283 | 12,237,927 | 9,159,298 | 147,625,334 | 143,282,680 | 12,237,927 | 12,237,927 | 0 | 3,261,115 | 0 | 3,261,115 |
| 2043 | 22 | 147,625,334 | 7,636,357 | 12,566,448 | 9,437,941 | 152,133,184 | 147,625,334 | 12,566,448 | 12,566,448 | 0 | 3,144,280 | 0 | 3,144,280 |
| 2044 | 23 | 152,133,184 | 7,925,766 | 12,795,838 | 9,732,871 | 156,995,983 | 152,133,184 | 12,795,838 | 12,795,838 | 0 | 3,006,268 | 0 | 3,006,268 |
| 2045 | 24 | 156,995,983 | 8,467,734 | 13,081,673 | 10,057,146 | 162,439,189 | 156,995,983 | 13,081,673 | 13,081,673 | 0 | 2,885,843 | 0 | 2,885,843 |
| 2046 | 25 | 162,439,189 | 1,435,033 | 13,296,367 | 10,179,123 | 160,756,978 | 162,439,189 | 13,296,367 | 13,296,367 | 0 | 2,754,183 | 0 | 2,754,183 |
| 2047 | 26 | 160,756,978 | 885,231 | 13,399,443 | 10,048,894 | 158,291,660 | 160,756,978 | 13,399,443 | 13,399,443 | 0 | 2,606,135 | 0 | 2,606,135 |
| 2048 | 27 | 158,291,660 | 757,176 | 13,401,107 | 9,884,499 | 155,532,228 | 158,291,660 | 13,401,107 | 13,401,107 | 0 | 2,447,379 | 0 | 2,447,379 |
| 2049 | 28 | 155,532,228 | 666,457 | 13,405,314 | 9,702,100 | 152,495,471 | 155,532,228 | 13,405,314 | 13,405,314 | 0 | 2,298,730 | 0 | 2,298,730 |
| 2050 | 29 | 152,495,471 | 589,621 | 13,250,449 | 9,507,206 | 149,341,849 | 152,495,471 | 13,250,449 | 13,250,449 | 0 | 2,133,497 | 0 | 2,133,497 |
| 2051 | 30 | 149,341,849 | 510,344 | 13,231,931 | 9,300,277 | 145,920,539 | 149,341,849 | 13,231,931 | 13,231,931 | 0 | 2,000,484 | 0 | 2,000,484 |
| 2052 | 31 | 145,920,539 | 434,640 | 13,055,362 | 9,081,119 | 142,380,936 | 145,920,539 | 13,055,362 | 13,055,362 | 0 | 1,853,323 | 0 | 1,853,323 |
| 2053 | 32 | 142,380,936 | 367,045 | 12,948,614 | 8,852,297 | 138,651,664 | 142,380,936 | 12,948,614 | 12,948,614 | 0 | 1,725,980 | 0 | 1,725,980 |
| 2054 | 33 | 138,651,664 | 299,542 | 12,837,305 | 8,611,296 | 134,725,197 | 138,651,664 | 12,837,305 | 12,837,305 | 0 | 1,606,707 | 0 | 1,606,707 |
| 2055 | 34 | 134,725,197 | 242,145 | 12,484,971 | 8,365,510 | 130,847,881 | 134,725,197 | 12,484,971 | 12,484,971 | 0 | 1,467,239 | 0 | 1,467,239 |
| 2056 | 35 | 130,847,881 | 191,168 | 12,427,502 | 8,113,692 | 126,725,239 | 130,847,881 | 12,427,502 | 12,427,502 | 0 | 1,371,348 | 0 | 1,371,348 |
| 2057 | 36 | 126,725,239 | 151,237 | 12,107,165 | 7,854,690 | 122,624,000 | 126,725,239 | 12,107,165 | 12,107,165 | 0 | 1,254,459 | 0 | 1,254,459 |
| 2058 | 37 | 122,624,000 | 118,362 | 11,867,373 | 7,594,728 | 118,469,717 | 122,624,000 | 11,867,373 | 11,867,373 | 0 | 1,154,567 | 0 | 1,154,567 |
| 2059 | 38 | 118,469,717 | 90,169 | 11,583,884 | 7,332,866 | 114,308,868 | 118,469,717 | 11,583,884 | 11,583,884 | 0 | 1,058,203 | 0 | 1,058,203 |
| 2060 | 39 | 114,308,868 | 68,492 | 11,192,672 | 7,074,232 | 110,258,920 | 114,308,868 | 11,192,672 | 11,192,672 | 0 | 960,062 | 0 | 960,062 |
| 2061 | 40 | 110,258,920 | 46,939 | 10,822,076 | 6,822,151 | 106,305,933 | 110,258,920 | 10,822,076 | 10,822,076 | 0 | 871,618 | 0 | 871,618 |
| 2062 | 41 | 106,305,933 | 38,392 | 10,467,940 | 6,576,261 | 102,452,646 | 106,305,933 | 10,467,940 | 10,467,940 | 0 | 791,639 | 0 | 791,639 |
| 2063 | 42 | 102,452,646 | 28,022 | 10,137,301 | 6,336,043 | 98,679,411 | 102,452,646 | 10,137,301 | 10,137,301 | 0 | 719,845 | 0 | 719,845 |
| 2064 | 43 | 98,679,411 | 20,326 | 9,871,824 | 6,099,028 | 94,926,940 | 98,679,411 | 9,871,824 | 9,871,824 | 0 | 658,210 | 0 | 658,210 |
| 2065 | 44 | 94,926,940 | 15,618 | 9,553,408 | 5,865,153 | 91,254,303 | 94,926,940 | 9,553,408 | 9,553,408 | 0 | 598,102 | 0 | 598,102 |
| 2066 | 45 | 91,254,303 | 8,671 | 9,287,354 | 5,634,720 | 87,610,340 | 91,254,303 | 9,287,354 | 9,287,354 | 0 | 545,959 | 0 | 545,959 |

## APPENDIX B – DEPLETION TEST

| Year Beginning July 1: | Year (A) | Projected Beginning Plan Fiduciary Net Position (B) | Projected Total Contributions (C) | Projected Benefit Payments and Administrative Expenses (D) | Projected Investment Earnings (E) | Projected Ending Plan Fiduciary Net Position (F) = (B) + (C) - (D) + (E) | Projected Beginning Fiduciary Net Position (G) = (B) | Projected Benefit Payments for current plan paticipants (H) | "Funded" Portion of Benefit Payments (I) = (D) if (B) >= (D), then 0 | "Unfunded" Portion of Benefit Payments (J) = (I) - (H) | Present Value of "Funded" Benefit Payments (K) = (I) / (1+ int)^(A) | Present Value of "Unfunded" Benefit Payments (L) = (J) / (1+bond rate)^(A) | Present Value of Benefit Payments Using the Single Discount Rate (M) = (H) / (1+ singlerate)^(A) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2067 | 46 | $ 87,610,340 | $ 4,935 | $ 9,005,607 | $ 5,406,755 | $ 84,016,424 | $ 87,610,340 | $ 9,005,607 | $ 9,005,607 | $ 0 | $ 497,085 | $ 0 | $ 497,085 |
| 2068 | 47 | 84,016,424 | 2,253 | 8,709,146 | 5,182,548 | 80,492,078 | 84,016,424 | 8,709,146 | 8,709,146 | 0 | 451,382 | 0 | 451,382 |
| 2069 | 48 | 80,492,078 | 704 | 8,397,135 | 4,963,397 | 77,059,044 | 80,492,078 | 8,397,135 | 8,397,135 | 0 | 408,649 | 0 | 408,649 |
| 2070 | 49 | 77,059,044 | 664 | 8,074,003 | 4,750,585 | 73,736,290 | 77,059,044 | 8,074,003 | 8,074,003 | 0 | 368,942 | 0 | 368,942 |
| 2071 | 50 | 73,736,290 | 0 | 7,737,817 | 4,545,339 | 70,543,812 | 73,736,290 | 7,737,817 | 7,737,817 | 0 | 332,000 | 0 | 332,000 |
| 2072 | 51 | 70,543,812 | 0 | 7,390,297 | 4,348,944 | 67,502,459 | 70,543,812 | 7,390,297 | 7,390,297 | 0 | 297,736 | 0 | 297,736 |
| 2073 | 52 | 67,502,459 | 0 | 7,031,687 | 4,162,728 | 64,633,500 | 67,502,459 | 7,031,687 | 7,031,687 | 0 | 265,999 | 0 | 265,999 |
| 2074 | 53 | 64,633,500 | 0 | 6,662,980 | 3,988,040 | 61,958,560 | 64,633,500 | 6,662,980 | 6,662,980 | 0 | 236,668 | 0 | 236,668 |
| 2075 | 54 | 61,958,560 | 0 | 6,285,152 | 3,826,255 | 59,499,663 | 61,958,560 | 6,285,152 | 6,285,152 | 0 | 209,622 | 0 | 209,622 |
| 2076 | 55 | 59,499,663 | 0 | 5,899,810 | 3,678,753 | 57,278,606 | 59,499,663 | 5,899,810 | 5,899,810 | 0 | 184,761 | 0 | 184,761 |
| 2077 | 56 | 57,278,606 | 0 | 5,509,306 | 3,546,876 | 55,316,176 | 57,278,606 | 5,509,306 | 5,509,306 | 0 | 162,001 | 0 | 162,001 |
| 2078 | 57 | 55,316,176 | 0 | 5,115,777 | 3,431,906 | 53,632,305 | 55,316,176 | 5,115,777 | 5,115,777 | 0 | 141,249 | 0 | 141,249 |
| 2079 | 58 | 53,632,305 | 0 | 4,722,708 | 3,335,028 | 52,244,625 | 53,632,305 | 4,722,708 | 4,722,708 | 0 | 122,437 | 0 | 122,437 |
| 2080 | 59 | 52,244,625 | 0 | 4,332,665 | 3,257,306 | 51,169,266 | 52,244,625 | 4,332,665 | 4,332,665 | 0 | 105,470 | 0 | 105,470 |
| 2081 | 60 | 51,169,266 | 0 | 3,948,720 | 3,199,689 | 50,420,235 | 51,169,266 | 3,948,720 | 3,948,720 | 0 | 90,257 | 0 | 90,257 |
| 2082 | 61 | 50,420,235 | 0 | 3,573,619 | 3,163,001 | 50,009,617 | 50,420,235 | 3,573,619 | 3,573,619 | 0 | 76,698 | 0 | 76,698 |
| 2083 | 62 | 50,009,617 | 0 | 3,210,621 | 3,147,923 | 49,946,919 | 50,009,617 | 3,210,621 | 3,210,621 | 0 | 64,701 | 0 | 64,701 |
| 2084 | 63 | 49,946,919 | 0 | 2,862,397 | 3,154,986 | 50,239,508 | 49,946,919 | 2,862,397 | 2,862,397 | 0 | 54,163 | 0 | 54,163 |
| 2085 | 64 | 50,239,508 | 0 | 2,530,981 | 3,184,606 | 50,893,133 | 50,239,508 | 2,530,981 | 2,530,981 | 0 | 44,969 | 0 | 44,969 |
| 2086 | 65 | 50,893,133 | 0 | 2,218,976 | 3,237,072 | 51,911,229 | 50,893,133 | 2,218,976 | 2,218,976 | 0 | 37,019 | 0 | 37,019 |
| 2087 | 66 | 51,911,229 | 0 | 1,927,471 | 3,312,573 | 53,296,331 | 51,911,229 | 1,927,471 | 1,927,471 | 0 | 30,194 | 0 | 30,194 |
| 2088 | 67 | 53,296,331 | 0 | 1,658,368 | 3,411,213 | 55,049,176 | 53,296,331 | 1,658,368 | 1,658,368 | 0 | 24,393 | 0 | 24,393 |
| 2089 | 68 | 55,049,176 | 0 | 1,412,247 | 3,533,021 | 57,169,950 | 55,049,176 | 1,412,247 | 1,412,247 | 0 | 19,505 | 0 | 19,505 |
| 2090 | 69 | 57,169,950 | 0 | 1,189,472 | 3,677,997 | 59,658,475 | 57,169,950 | 1,189,472 | 1,189,472 | 0 | 15,425 | 0 | 15,425 |
| 2091 | 70 | 59,658,475 | 0 | 990,369 | 3,846,121 | 62,514,227 | 59,658,475 | 990,369 | 990,369 | 0 | 12,059 | 0 | 12,059 |
| 2092 | 71 | 62,514,227 | 0 | 814,609 | 4,037,367 | 65,736,985 | 62,514,227 | 814,609 | 814,609 | 0 | 9,314 | 0 | 9,314 |
| 2093 | 72 | 65,736,985 | 0 | 661,402 | 4,251,747 | 69,327,330 | 65,736,985 | 661,402 | 661,402 | 0 | 7,101 | 0 | 7,101 |
| 2094 | 73 | 69,327,330 | 0 | 529,613 | 4,489,335 | 73,287,052 | 69,327,330 | 529,613 | 529,613 | 0 | 5,339 | 0 | 5,339 |
| 2095 | 74 | 73,287,052 | 0 | 417,769 | 4,750,295 | 77,619,578 | 73,287,052 | 417,769 | 417,769 | 0 | 3,954 | 0 | 3,954 |
| 2096 | 75 | 77,619,578 | 0 | 324,465 | 5,034,893 | 82,330,006 | 77,619,578 | 324,465 | 324,465 | 0 | 2,884 | 0 | 2,884 |
| 2097 | 76 | 82,330,006 | 0 | 247,752 | 5,343,525 | 87,425,779 | 82,330,006 | 247,752 | 247,752 | 0 | 2,068 | 0 | 2,068 |
| 2098 | 77 | 87,425,779 | 0 | 185,791 | 5,676,732 | 92,916,720 | 87,425,779 | 185,791 | 185,791 | 0 | 1,456 | 0 | 1,456 |
| 2099 | 78 | 92,916,720 | 0 | 136,679 | 6,035,215 | 98,815,256 | 92,916,720 | 136,679 | 136,679 | 0 | 1,006 | 0 | 1,006 |
| 2100 | 79 | 98,815,256 | 0 | 98,523 | 6,419,840 | 105,136,573 | 98,815,256 | 98,523 | 98,523 | 0 | 681 | 0 | 681 |
| 2101 | 80 | 105,136,573 | 0 | 69,511 | 6,831,654 | 111,898,716 | 105,136,573 | 69,511 | 69,511 | 0 | 451 | 0 | 451 |
| 2102 | 81 | 111,898,716 | 0 | 47,947 | 7,271,883 | 119,122,652 | 111,898,716 | 47,947 | 47,947 | 0 | 292 | 0 | 292 |
| 2103 | 82 | 119,122,652 | 0 | 32,294 | 7,741,939 | 126,832,297 | 119,122,652 | 32,294 | 32,294 | 0 | 185 | 0 | 185 |
| 2104 | 83 | 126,832,297 | 0 | 21,222 | 8,243,420 | 135,054,495 | 126,832,297 | 21,222 | 21,222 | 0 | 114 | 0 | 114 |
| 2105 | 84 | 135,054,495 | 0 | 13,590 | 8,778,107 | 143,819,012 | 135,054,495 | 13,590 | 13,590 | 0 | 69 | 0 | 69 |
| 2106 | 85 | 143,819,012 | 0 | 8,477 | 9,347,965 | 153,158,500 | 143,819,012 | 8,477 | 8,477 | 0 | 40 | 0 | 40 |
| 2107 | 86 | 153,158,500 | 0 | 5,149 | 9,955,138 | 163,108,489 | 153,158,500 | 5,149 | 5,149 | 0 | 23 | 0 | 23 |
| 2108 | 87 | 163,108,489 | 0 | 3,046 | 10,601,954 | 173,707,397 | 163,108,489 | 3,046 | 3,046 | 0 | 13 | 0 | 13 |
| 2109 | 88 | 173,707,397 | 0 | 1,758 | 11,290,925 | 184,996,564 | 173,707,397 | 1,758 | 1,758 | 0 | 7 | 0 | 7 |
| 2110 | 89 | 184,996,564 | 0 | 988 | 12,024,745 | 197,020,321 | 184,996,564 | 988 | 988 | 0 | 4 | 0 | 4 |

# APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

## Economic and Health Economic Assumptions

1. **Expected Return on Plan Assets:** 6.50% per annum consistent with the discount rate effective July 1, 2022.

2. **Discount Rate:** 6.50% per annum effective July 1, 2022

3. **Health Cost Trends:** Health care trend assumptions used were developed using the Society of Actuaries (SOA) Long-Run Medical Cost Trend Model version 2020_b. The following assumptions were applied in this model as below:

| Trend Assumption Inputs | |
|---|---|
| **Variable** | **Rate** |
| Rate of Inflation | 2.60% |
| Rate of Growth in Real Income/GDP per capita 2029+ | 1.70% |
| Extra Trend due to Taste/Technology 2029+ | 1.10% |
| Expected Health Share of GDP 2029 | 20.0% |
| Health Share of GDP Resistance Point | 25.0% |
| Year for Limiting Cost Growth to GDP Growth | 2040 |

The SOA Long-Run Medical Cost Trend Model and its baseline projection are based on an econometric analysis of historical U.S. medical expenditures and the judgments of experts in the field. The long-run baseline projection and input variables have been developed under the guidance of the SOA Project Oversight Group. Sample medical trends are listed in the table below.

On the next page are the year-by-year trends applied for Non-Medicare and Medicare costs, Medicare Part B premiums, and a blended trend. The blended trend reflects the portion of Medicare costs associated with health care claims versus Medicare Part B reimbursement.

## APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

| Fiscal Year Ending June 30, | Non-Medicare Claims and Premium Trends | Medicare Claims and Premium Trends | Medicare Part B Premium Trends | Blended Medicare Claims and Premiums Trends |
|---|---|---|---|---|
| 2022 | 7.40% | 8.45% | 3.50% | 7.41% |
| 2023 | 7.10% | 8.10% | 3.50% | 7.13% |
| 2024 | 6.80% | 7.75% | 3.50% | 6.86% |
| 2025 | 6.58% | 7.37% | 3.50% | 6.56% |
| 2026 | 6.36% | 7.00% | 3.50% | 6.27% |
| 2027 | 6.15% | 6.62% | 3.50% | 5.96% |
| 2028 | 5.93% | 6.24% | 3.50% | 5.66% |
| 2029 | 5.71% | 5.87% | 3.50% | 5.37% |
| 2030 | 5.49% | 5.49% | 3.50% | 5.07% |
| 2031 | 5.49% | 5.49% | 3.50% | 5.07% |
| 2032 | 5.11% | 5.11% | 3.50% | 4.77% |
| 2033 | 4.92% | 4.92% | 3.50% | 4.62% |
| 2034 | 4.80% | 4.80% | 3.50% | 4.53% |
| 2035 | 4.73% | 4.73% | 3.50% | 4.47% |
| 2036 | 4.67% | 4.67% | 3.50% | 4.42% |
| 2037 | 4.63% | 4.63% | 3.50% | 4.39% |
| 2038 | 4.60% | 4.60% | 3.50% | 4.37% |
| 2039 | 4.57% | 4.57% | 3.50% | 4.35% |
| 2040 | 4.46% | 4.46% | 3.50% | 4.26% |
| 2041+ | 4.34% | 4.34% | 3.50% | 4.16% |

## APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

4. **Retiree Premiums:**

No retiree premiums are required to enroll in coverage for those who retired before July 1, 1985. For those eligible retirees who retire on or after July 1, 1985, retirees pay a premium equal to the percentage dictated in the following rate schedule of the medical premium paid by the System for the Empire Plan and 10% of the vision plan premiums, subject to a maximum contribution cap less the value of any amortized banked sick days.

| Effective Period | Contribution Percentage |
|---|---|
| January 1, 2020 to December 31, 2023 | 14% |
| January 1, 2024 and after | 15% |

In addition, if a retiree opts to enroll in a plan other than Empire, 100% of the excess if any, of premium over the Empire Plan premium is paid by the retiree.

After a three-month extended coverage period, surviving spouses: pay 25% of the premium cost if the retiree had 10 or more years of service, otherwise the surviving spouse pays the full premium cost.

The fully insured premiums paid to NYSHIP are blended for actives, non-Medicare retirees, and Medicare retirees. Such premiums include medical benefits, prescription drugs, vision, and Part B Medicare premium reimbursement (page 33 for Medicare Part B amounts).

| Plan | Effective 1/1/2021 | | Effective 1/1/2022 | |
|---|---|---|---|---|
| | Single Coverage | Family Coverage | Single Coverage | Family Coverage |
| Empire Plan | $10,058.64 | $24,862.56 | $11,056.56 | $27,361.80 |
| CDPHP | $9,511.32 | $23,212.80 | $9,808.20 | $23,922.12 |
| MVP | $9,448.56 | $21,736.08 | $9,682.32 | $22,240.08 |

5. **Annual Maximums:** Retiree contributions are subject to an annual maximum that varies based upon salary at retirement. The maximums are effective January 1, 2020. Each subsequent year, the annual maximum will cumulatively increase based on the amounts shown in the table below.

| Salary | Annual Maximum | Annual Maximum Increases |
|---|---|---|
| Up to $40,000 | $2,250 | $300 |
| $40,001 - $60,000 | $2,550 | $400 |
| $60,001 - $90,000 | $2,925 | $550 |
| $90,001 and above | $3,225 | $600 |

## APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

6. **Maximum Retiree Contributions:** The annual retiree contribution maximum based on salary at retirement is assumed to increase $100 per year after 2025.

7. **Banked Sick Pay Credit:** Retirements after April 1, 1991 are eligible to have unused sick leave converted into a credit to offset retiree premiums otherwise owed to enroll in the health plan. Sick Leave Credit = (Daily Pay x Sick Leave)/Life Expectancy. For the valuation, participants are assumed to accrue 4.74 days of unused sick days per year. Upon retirement, all employees are assumed to use 100% of sick pay credit.

   Sick Leave is subject to the following maximums.
   Non-Management Employees:

| Effective Period | Sick Leave Maximum |
|---|---|
| April 1, 1991 to January 7, 2004 | 165 Days |
| January 8, 2004 to December 31, 2020 | 185 Days |
| January 1, 2021 and After | 200 Days |

   Management Employees are subject to a sick leave maximum of 165 days. Effective January 1, 2021, the maximum for Management Employees increased to 200 Days.

8. **Life Expectancy:** Expected future lifetime based on a mortality table calculated in months determined at retirement age. Calculations prior to December 31, 2020 are based on the 1983 Life Expectancy Table. Effective January 1, 2021, the calculation will be based on the 1999 Life Expectancy Table. Effective January 1, 2024, the calculation will be based on the most current life expectancy factors available as of that date. Samples of the Life Expectancy Months calculated are shown in the table below.

| | Life Expectancy Tables | | |
|---|---|---|---|
| Age | 1983 | 1999 | 2015 |
| 45 | 342 | 446 | 480 |
| 50 | 308 | 389 | 424 |
| 55 | 271 | 337 | 371 |
| 60 | 232 | 288 | 321 |
| 65 | 192 | 241 | 273 |
| 70 | 154 | 197 | 226 |
| 75 | 119 | 155 | 181 |
| 80 | 89 | 119 | 140 |

## APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

### Demographic Assumptions

**1. Rates of Retirement:**

| Age | Rate (%) | Previous Rate (%) |
|---|---|---|
| Under 45 | 0.00 | 0.00 |
| 45 to 54 | 0.25 | 0.25 |
| 55 | 20.00 | 20.00 |
| 56 | 14.00 | 20.00 |
| 57 | 15.00 | 15.00 |
| 58 | 16.00 | 15.00 |
| 59 | 17.00 | 15.00 |
| 60 | 20.00 | 20.00 |
| 61 | 25.00 | 10.00 |
| 62 | 30.00 | 25.00 |
| 63 | 40.00 | 25.00 |
| 64 | 25.00 | 20.00 |
| 65 | 20.00 | 20.00 |
| 66 to 69 | 10.00 | 10.00 |
| 70+ | 100.00 | 100.00 |

**2. Rates of Withdrawal:**

| Years of Service | Rate (%) | Previous Rate (%) |
|---|---|---|
| 0 | 15.00 | 14.0 |
| 1 | 12.00 | 13.6 |
| 2 | 9.00 | 9.7 |
| 3 | 8.00 | 7.8 |
| 4 | 7.00 | 6.2 |
| 5 | 6.00 | 4.3 |
| 6 | 5.00 | 4.1 |
| 7 | 4.75 | 4.0 |
| 8 | 4.50 | 3.9 |
| 9 | 4.25 | 3.8 |
| 10 | 3.75 | 1.7 |
| 11 | 3.25 | 1.7 |
| 12 | 2.75 | 1.6 |
| 13 | 2.25 | 1.6 |
| 14 | 1.75 | 1.5 |
| 15+ | 1.00 | 1.0 |

## APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

3. **Rates of Mortality:**

   Pre-Retirement Mortality: The Pub-2010 General Employee Headcount-Weighted Mortality table [PubG.H-2010 Employee] as published by the Society of Actuaries with an 98.75% adjustment for both males and females, and with future improvement from the base year of 2010 on a generational basis using SOA's Scale MP-2020. All pre-retirement deaths are assumed ordinary deaths.

   Healthy Retirees (Healthy Annuitants): The Pub-2010 General Healthy Retiree Headcount-Weighted Mortality table [PubG.H-2010 Healthy Retiree] as published by the Society of Actuaries with a 98.75% adjustment for both males and females, and with future improvement from the base year of 2010 on a generational basis using SOA's Scale MP-2020.

   Beneficiaries (Healthy Annuitants): Pub-2010 General Contingent Survivors Headcount-Weighted Mortality [PubG.H-2010 Contingent Survivors] as published by the Society of Actuaries with a 98.75% adjustment for both males and females, and with future improvement from the base year of 2010 on a generational basis using SOA's Scale MP-2020.

   Disabled Retirees (Disabled Annuitants): The Pub-2010 General Disabled Retiree Headcount-Weighted Mortality table [PubG.H-2010 Disabled Retiree] as published by the Society of Actuaries with a 98.75% adjustment for both males and females, and with future improvement from the base year of 2010 on a generational basis using SOA's Scale MP-2020.

4. **Rate of Disability:** No disability was assumed.

5. **Rate of Payroll Increase:** 3.00% per annum

6. **Salary Increase Rate:**

| Years of Service | Rate (%) | Years of Service | Rate (%) | Years of Service | Rate (%) |
|---|---|---|---|---|---|
| 0 | 8.00 | 7 | 4.10 | 13 | 3.50 |
| 1 | 8.00 | 8 | 4.00 | 14 | 3.40 |
| 2 | 7.00 | 9 | 3.90 | 15 | 3.30 |
| 3 | 6.00 | 10 | 3.80 | 16 | 3.20 |
| 4 | 5.00 | 11 | 3.70 | 17 | 3.10 |
| 5 | 4.50 | 12 | 3.60 | 18+ | 3.00 |
| 6 | 4.20 | | | | |

7. **Participation and Coverage Election:** 100% of future eligible service retirees were assumed to elect coverage. 0% of future inactive vested retirees were assumed to retain eligibility for and elect coverage.

## APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

8. **Dependents:** Demographic data was provided for spouses of current retirees. Of those future retirees who elect to continue their health coverage at retirement, 70% of males and 40% of females were assumed to have an eligible spouse who also opts for health coverage at that time. For future retirees, male retirees are assumed to be two years older than their female spouses. For future retirees, female retirees are assumed to be two years younger than their male spouses.75% of surviving spouses of actives with 10 or more years of service and 0% of surviving spouses with less than 10 years of service were assumed to elect coverage.

9. **Rationale for Demographic and Economic Assumptions:** The actuarial assumptions for the New York State Teachers' Retirement System are the same assumptions that were used for the valuation dated June 30, 2021, which were reviewed and considered reasonable, except for those changes listed below.

10. **Changes Since Last Valuation:** None

11. **Disclosures Regarding Models Used:**

    a. **Valuation Software**

    Cheiron utilizes ProVal, an actuarial valuation software leased from Winklevoss Technologies (WinTech) to calculate the liabilities, normal costs, and projected benefit payments. We have relied on WinTech as the developer of ProVal. We have reviewed ProVal and have a basic understanding of it and have used ProVal in accordance with its original intended purpose. We have not identified any material inconsistencies in assumptions or output of ProVal that would affect this actuarial valuation.

    b. **SOA Long-Run Medical Cost Trend Model**

    The SOA Long-Run Medical Cost Trend Model and its baseline projection are based on an econometric analysis of historical U.S. medical expenditures and the judgments of experts in the field. The long-run baseline projection and input variables have been developed under the guidance of the SOA Project Oversight Group.

    The trends selected from 2020 to 2023 were based on short-term expectations for medical cost increases based on current market conditions.

    We have reviewed the baseline assumptions for the model and found them to be reasonable and consistent with the other economic assumptions used in the valuation, except we are limiting medical costs to the rate of growth in GDP after the year 2040.

    We have relied on the Society of Actuaries as the developer of the Model. We have reviewed the Model and have a basic understanding of the Model and have used the Model in accordance with its original intended purpose. We have not identified any material inconsistencies in assumptions or output of the Model that would affect this report.

**APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS**

## Claim and Expense Assumptions

Medical, prescription drug, Medicare Part B reimbursement and vision costs for the year beginning July 1, 2021 are shown in the table below for retirees and spouses at selected ages. These costs are net of deductibles and other benefit plan cost-sharing provisions. These claims are derived from actual blended premiums and allocated using Cheiron's aging factors to each age and by gender. No aging factors were applied to the Medicare Part B premium reimbursement when developing these rates. The below claim curves were trended forward to 7/1/2022 – 6/30/2023 using the trend factors listed above on page 23.

| Average Claim and Expense Assumptions: | | |
|---|---|---|
| For Fiscal Year 7/1/2021 - 6/30/2022: | | |
| Age | Male | Female |
| 40 | $6,966 | $11,564 |
| 45 | $9,156 | $12,343 |
| 50 | $11,902 | $14,292 |
| 55 | $15,204 | $17,321 |
| 60 | $19,063 | $20,328 |
| 64 | $22,551 | $21,109 |
| 65 | $7,509 | $7,259 |
| 70 | $8,365 | $7,658 |
| 75 | $8,748 | $7,959 |
| 80 | $8,865 | $8,150 |
| 85 | $8,872 | $8,233 |

The following benefit changes are effective 1/1/2022 for the NYSHIP plans, which were determined to be immaterial to the assumed claim costs:

- Empire Plan:
  - Out-of-Pocket Maximum for medical expenses increased from $5,500/$11,100 to $5,650/$11,300.
  - Out-of-Pocket Maximum for Rx expenses increased from $3,000/$6,000 to $3,050/$6,100.

**APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS**

## Methodology

The actuarial valuation is conducted using the one-year look-back with the measurement date being one year prior to the end of the applicable fiscal year. Census and claims data are gathered as of June 30, 2021, which are used in the actuarial valuation performed as of July 1, 2021 with results rolled forward to June 30, 2022. We have determined that the use of such data in this manner does not materially affect the results.

The Entry Age Actuarial Cost Method was used to value the Plan's actuarial liabilities and to set the normal cost. Under this method, the normal cost rate is the percentage of pay contribution which would be sufficient to fund the Plan benefits if it were paid from each member's entry into the Plan until termination or retirement. The unfunded liability is amortized over a closed 30-year period as of July 1, 2016. There are 24 years remaining as of July 1, 2022. The amortization method is a level percentage of pay.

The medical, pharmacy, and vision claims and expenses costs for fiscal year ending 2021 were developed using the average of NYSTRS premium rates for the calendar year 2020 and calendar year 2021. From this data, we developed per person per month (PPPM) costs for actives and retiree non-Medicare Eligible (NME), and for retiree Medicare Eligible (ME). We then adjusted those using Cheiron's age curves. Medical and pharmacy claims and expenses costs include a 19.0% load for anticipated children of pre-Medicare retirees. Medicare-eligible program costs valued include medical, pharmacy and associated administrative costs, plus Medicare Part B premium reimbursements provided under the Plan.

The Plan is assumed to be in compliance with the Patient Protection and Affordability Care Act (PPACA) and the Health Care and Education Reconciliation Act (HCERA) of 2010 as of the valuation date.

## Actuarial Value of Assets

The actuarial value of assets is set equal to the market value of assets.

## Changes Since Last Valuation

None.

**APPENDIX D – SUMMARY OF PLAN PROVISIONS**

## Eligibility

A retiree is eligible for retiree health benefits only if all of the following requirements are met:

1. Must have worked for at least 10 years for the System,
2. Retired directly from System employment, and
3. Commenced receipt of a pension from the New York State and Local Employees' Retirement System (ERS).

In order to maintain benefits coverage, eligible retirees enroll in the Plan and pay monthly premiums owed.

**Spouses Covered:** Surviving spouses of active employees are eligible to continue to enroll in the Plan if the retiree had 10 or more years of service at the time of death. Eligible spouses continue coverage by paying 25% of the cost of coverage in premiums. Also, in the event of death of a retiree, surviving spouses are eligible to continue to enroll in the Plan by paying 25% of the cost of coverage in premiums.

## Benefits Covered

The retiree health plan offered to eligible employees of the New York State Teachers' Retirement System includes medical, prescription drugs, vision, and Medicare Part B reimbursement. Eligible retirees can elect coverage for themselves, their spouses and dependent children.

**Medical and Prescription Drug Benefits:**

Each of the plans offered includes medical coverage (inpatient facility, outpatient facility, physician and surgeon services, and other related care) and prescription drug benefits. We include a side-by-side comparison of key coverage. Upon reaching eligibility for Medicare (generally at age 65), the Plan coordinates with Medicare being primary before the Plan pays benefits.

**Dental Benefits**:

None offered

**Vision Benefits:**

Included

**APPENDIX D – SUMMARY OF PLAN PROVISIONS**

**Medicare Part B Reimbursement:**

Medicare Part B premiums are reimbursed by the State and are included in the blended premiums charged by the State. The standard 2021 Medicare Part B premiums are $148.50 per month per Medicare beneficiary covered. Higher premiums apply for those retirees having a gross income of $88,000 per individual or $176,000 for a married couple. In 2021, individuals with income between $88,000 to $111,000 or married couples with income between $176,000 to $222,000, the Part B monthly premium amount would be the Standard premium + $59.40 = $207.90 per month. The standard 2022 Medicare Part B premiums are $170.10 per month per Medicare beneficiary covered. Higher premiums apply for those retirees having a gross income of $91,000 per individual or $182,000 for a married couple. In 2022, individuals with income between $91,000 to $114,000 or married couples with income between $182,000 to $228,000, the Part B monthly premium amount would be the Standard premium + $68.00 = $238.10 per month.

## Premiums to Enroll in Coverage

No retiree premiums apply for retirees who retired before July 1, 1985 and enrolled in the Plan.

For retirements on or after July 1, 1985:

- Non-Medicare and Medicare retirees pay the same amount.
- Retirees contribute an amount equal to the percentage dictated in the following rate schedule of the medical premium paid by the System, subject to a maximum retiree contribution related to pay at retirement. Retirees pay 10% of the vision plan premium.

| Effective Period | Contribution Percentage |
|---|---|
| January 1, 2020 to December 31, 2023 | 14% |
| January 1, 2024 and After | 15% |

- If a retiree chooses a plan other than the Empire Plan, 100% of the excess if any, of any premium over the Empire Plan premium.
- Sick time conversion* is used to offset premiums otherwise owed by retirees.
- Retirees with a deferred vested benefit pay 50% of the premium cost for single coverage and 65% of the premium cost for family coverage.
- After a three-month extended coverage period, surviving spouses: pay 25% of the premium cost if the employee had 10 or more years of service, otherwise, the surviving spouse pays the full premium cost.

* For retirements on or after April 1, 1991, retirees are eligible to have unused sick leave converted into a credit to offset retiree premiums otherwise owed to enroll in the retiree health plan. Sick Leave Credit is determined as daily pay times the number of sick leave days, divided by life expectancy. Daily Pay is defined as the daily rate of pay at retirement. Sick Leave Days are the number of unused sick leave days at retirement. Life Expectancy is determined in months at retirement using factors established by the Plan.

# APPENDIX D – SUMMARY OF PLAN PROVISIONS

| New York State Teachers' Retirement System | | | | | |
|---|---|---|---|---|---|
| Plan: | Empire Plan PPO | CDPHP HMO | BlueShield of Northeastern NY | EmblemHealth HMO | MVP HMO |
| **In-Network (INN) Benefits** | | | | | |
| Deductible (Ded) (Individual/Family) | $0 / $0 | $0 / $0 | $0 / $0 | $0 / $0 | $0 / $0 |
| Coinsurance maximum (Individual/Family) | $3,750 / $3,750 (combined with OON) | 0% | 0% | 0% | 0% |
| Out-of-Pocket Max (Individual/Family) | $3,000 / $6,000 (Rx) $5,550 / $11,100 (Medical) | $8,550 / $17,100 | $3,000 / $6,000 | $6,850 / $13,700 | $6,350 / $12,700 |
| Preventive Care | No Charge | No Charge | No Charge | No Charge | No Charge |
| Office Visit (OV) - Primary Care (PCP) | $25 Copay | $20 Copay | $10 Copay | $5 Copay/ no charge for dep child visit | $25 Copay/$10 for dep child visit (up to age 26 yrs) |
| OV - Specialist Care Provider (SCP) | $25 Copay | $20 Copay | $18 Copay | $10 Copay/ no charge for dep child visit | $25 Copay |
| Hospital Emergency Room (ER) | $100 copay | $50 Copay | $100 Copay | $75 Copay | $75 Copay |
| Outpatient Surgery | Total fees: $25 Copay/office surgery; $95 Copay/outpatient surgery (for hospital, office, or facility) | Hospital or Outpatient Surgery Facility fees: $75 Copay/visit<br><br>Physician fee: $20 Copay/visit | Hospital or Outpatient Surgery Facility fees: $100 Copay/visit<br><br>Physician fee: $18 Copay/visit | Facility fees: No charge<br><br>Physician fee: $5 Copay/PCP visit and $10 Copay/specialist visit | Hospital or Outpatient Surgery Facility fees: $25 Copay/visit<br><br>Physician fee: $25 Copay/PCP visit and $25 Copay/specialist visit |
| Hospital Inpatient | No charge for facility or for Physician | No charge for facility or for Physician | No charge for facility or for Physician | No charge for facility or for Physician | No charge for facility or for Physician |
| **Out-of-Network (OON) Benefits** | | | | | |
| Deductible (Individual/Family) | $1,250 / $1,250 | Not covered | Not covered | Not covered | Not covered |
| Coinsurance | Inpatient: 10% Outpatient: Greater of 10% or $75 copay | Not covered | Not covered | Not covered | Not covered |
| Coinsurance maximum (Individual/Family) | $3,750 / $3,750 (combined with OON) | Not covered | Not covered | Not covered | Not covered |
| Office Visits (PCP) & (SCP) | 20% Coin | Not covered | Not covered | Not covered | Not covered |
| **Prescription Drugs** | | | | | |
| Deductible (Rx Only) (Individual/Family) | $3,000 / $6,000 (does not apply to Empire Plan Medicare Rx) | | | | |
| Out-of-Pocket Max (INN Rx Only) (Individual/Family) | $2,850 / $5,700 | | | | |
| Retail (1-30 Days) - Generic/Formulary /Non-Form. Copay | $5 / $30 / $60 | $5 / $30 / $50 | $5 / $30 / $60 | $5 / $20 / Not Covered | $0 / $30 / $50 |
| Network Pharmacy (31-90 Days) - Generic/Formulary /Non-Form. Copay | $10 / $60 / $120 | | | | |
| Mail Order (31-90 Days) - Generic/Form. /Non-Form. Copay | $5 / $55 / $110 | $10 / $60 / $100 | $12.50 / $75 / $150 | $7.50 / $30 / Not Covered | $0 / $75 / $125 |
| Specialty - Generic/Formulary /Non-Form. Copay | Variable | Variable | Variable | Variable | Retail covered - $0 / $30 / $50 |
| **Selected INN Detail Benefits** | | | | | |
| Skilled Nursing Care | No charge | No charge | No charge | No charge | No charge |
| Advanced Imaging (CT, MRI, PET) | $25 Copay/office visit | $20 Copay/visit | $18 Copay/visit | No charge | Office - $25 Copay/procedure; Facility - $25 Copay/procedure; |
| Rehabilitation services | $25 Copay/visit | No charge for inpatient | No charge for inpatient (45 day limit) | No charge for inpatient (30 day annual limit combined therapies) | Inpatient: No charge for inpatient (2 month limit per condition) |
| Home Health | No charge | No charge | No charge | No charge | $25 Copay/visit |
| Ambulance | $70 Copay | $50 Copay | $100 Copay | No charge | $50 Copay |
| DME | No charge | 20% Coin | 50% Coin | No charge | 50% Coin |

## APPENDIX E – GLOSSARY OF TERMS

1. **Actuarially Determined Contribution**

   A target or recommended contribution for the reporting period, determined in conformity with Actuarial Standards of Practice based on the most recent measurement available when the contribution for the reporting period was adopted.

2. **Actuarial Valuation Date**

   The date as of which an actuarial valuation is performed. This date may be up to 24 months prior to the measurement date and up to 30 months prior to the employer's reporting date.

3. **Deferred Inflow of Resources**

   An acquisition of net assets by a government employer that is applicable to a future reporting period. In the context of GASB 75, these are experience gains on the total OPEB liability, assumption changes reducing the total OPEB liability, or investment gains that are recognized in future reporting periods.

4. **Deferred Outflow of Resources**

   A consumption of net assets by a government employer that is applicable to a future reporting period. In the context of GASB 75, these are experience losses on the total OPEB liability, assumption changes increasing the total OPEB liability, or investment losses that are recognized in future reporting periods.

5. **Entry Age Actuarial Cost Method**

   The actuarial cost method required for GASB 74 and 75 calculations. Under this method, the actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis over the earnings of the individual between entry age and assumed exit ages. The portion of this actuarial present value allocated to a valuation year is called the Service Cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future service costs is called the total OPEB liability.

6. **Measurement Date**

   The date as of which the total OPEB liability and plan fiduciary net position is measured. The total OPEB liability may be projected from the Actuarial Valuation Date to the Measurement Date. The Measurement Date must be the same as the Reporting Date for the plan.

## APPENDIX E – GLOSSARY OF TERMS

**7. Net OPEB Liability**

The liability of employers and non-employer contributing entities for employees for benefits provided through a defined benefit OPEB plan. It is calculated as the total OPEB liability less the plan fiduciary net position.

**8. Plan Fiduciary Net Position**

The fair or Market Value of Assets.

**9. Reporting Date**

The last day of the plan or employer's fiscal year.

**10. Service Cost**

The portion of the actuarial present value of projected benefit payments that is attributed to the current period of employee service in conformity with the requirements of GASB 74 and 75. The Service Cost is the normal cost calculated under the entry age actuarial cost method.

**11. Total OPEB Liability**

The portion of the actuarial present value of projected benefit payments that is attributed to past periods of employee service in conformity with the requirements of GASB 74 and 75. The total OPEB liability is the actuarial liability calculated under the entry age actuarial cost method.

Schedule B

NEW YORK STATE
TEACHERS' RETIREMENT SYSTEM

MEMORANDUM

TO: T. Lee

FROM: Office of the CFO / Finance Department

DATE: October 27, 2022

SUBJECT: Retirement Board Package - OPEB Trust

Attached are the quarterly OPEB Trust financial statements and related supplemental schedule for the quarters ended September 30, 2022 and 2021.

The following is a list of the documents included:

1. Statements of Fiduciary Net Position (unaudited)
2. Statements of Changes in Fiduciary Net Position (unaudited)
3. Diversification of Investments
4. Fund Performance

**New York State Teachers' Retirement System Retired Employee Health Benefits Trust**
(Administered by New York State Teachers' Retirement System)
**Statements of Fiduciary Net Position (Unaudited)**

**September 30, 2022 and 2021**

| | | 2022 | | 2021 |
|---|---|---|---|---|
| **Assets:** | | | | |
| Investments at fair value: | | | | |
| Cash equivalents | $ | 72,092 | $ | 111,870 |
| Mutual funds | | 54,163,693 | | 65,658,670 |
| Total investments | | 54,235,785 | | 65,770,540 |
| Receivables: | | | | |
| Employer contributions | | 4,795,797 | | 4,500,000 |
| Total assets | | **59,031,582** | | **70,270,540** |
| **Liabilities:** | | | | |
| Accounts payable | | 32,181 | | 56,365 |
| Total liabilities | | 32,181 | | 56,365 |
| **Net position restricted for other postemployment health benefits** | **$** | **58,999,401** | **$** | **70,214,175** |

Office of the CFO/ Finance Department
October 27, 2022

**New York State Teachers' Retirement System Retired Employee Health Benefits Trust**
(Administered by New York State Teachers' Retirement System)
**Statements of Changes in Fiduciary Net Position (Unaudited)**

**For the three months ending September 30, 2022 and 2021**

| | 2022 | 2021 |
|---|---|---|
| **Additions:** | | |
| Investment income: | | |
| Net (decrease) in fair value of investments | $ (3,841,021) | $ (775,476) |
| Dividends | 295,822 | 273,572 |
| Net investment (loss) | (3,545,199) | (501,904) |
| Contributions: | | |
| Employer | 6,394,396 | 6,000,000 |
| Total contributions | 6,394,396 | 6,000,000 |
| Total additions | 2,849,197 | 5,498,096 |
| **Deductions:** | | |
| Other postemployment benefit payments | 1,325,240 | 1,154,558 |
| Professional fees and services | 32,181 | — |
| Total deductions | 1,357,421 | 1,154,558 |
| **Net increase** | 1,491,776 | 4,343,538 |
| **Net position restricted for other postemployment health benefits** | | |
| **Beginning of year** | 57,507,625 | 65,870,637 |
| **End of period** | **$ 58,999,401** | **$ 70,214,175** |

Office of the CFO/ Finance Department
October 27, 2022

**New York State Teachers' Retirement System Retired Employee Health Benefits Trust**
(Administered by New York State Teachers' Retirement System)
**Diversification of Investments**

**September 30, 2022 and 2021**

| Investment Type* | 2022 | Percent | 2021 | Percent | Increase (Decrease) | Target Percent |
|---|---|---|---|---|---|---|
| Short-term: | | | | | | |
| Federal Money Market Fund | $ 72,092 | 0.13 | $ 111,870 | 0.17 | $ (39,778) | 1.00 |
| Domestic fixed income securities: | | | | | | |
| Total Bond Market Index Institutional Fund | 14,121,584 | 26.04 | 16,593,197 | 25.23 | (2,471,613) | 24.00 |
| Domestic equities: | | | | | | |
| Total Stock Market Index Institutional Fund | 26,854,638 | 49.51 | 32,642,928 | 49.63 | (5,788,290) | 50.00 |
| International equities: | | | | | | |
| International Stock Index Institutional Fund | 13,187,471 | 24.32 | 16,422,545 | 24.97 | (3,235,074) | 25.00 |
| **Total investments** | **$ 54,235,785** | **100.00** | **$ 65,770,540** | **100.00** | **$ (11,534,755)** | **100.00** |

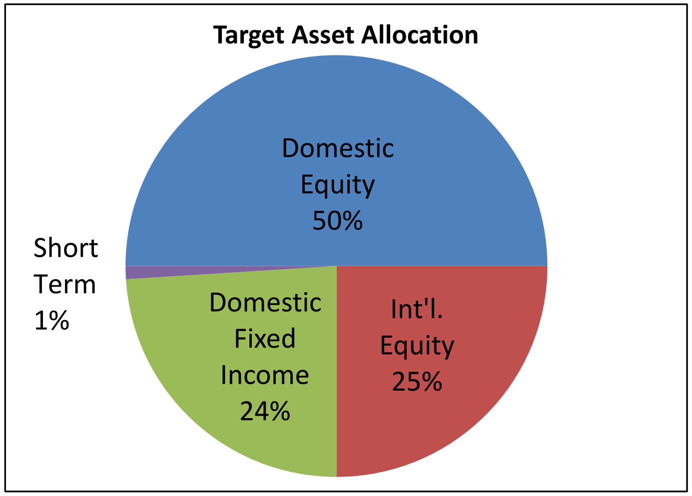
*All investments are held with Vanguard

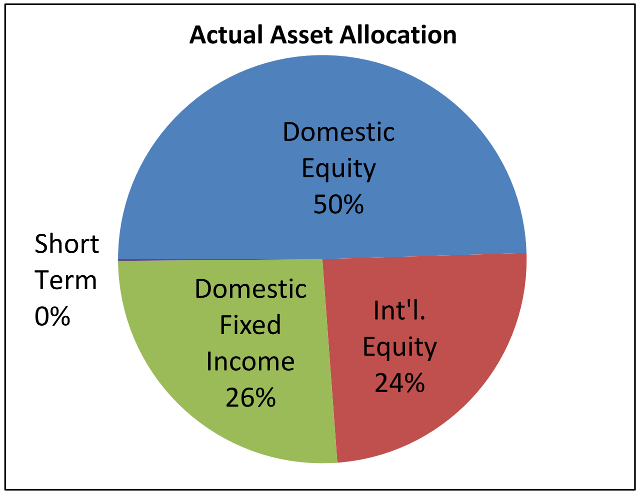
Office of the CFO/ Finance Department
October 27, 2022

## New York State Teachers' Retirement System
## Retired Employee Health Benefits Trust
## as of September 30, 2022

### Fund Performance[1]

| | Market Value | Quarter | FYTD | 1 Year | 3 Years | 5 Years | 10 Years | Inception Return | Inception Date |
|---|---|---|---|---|---|---|---|---|---|
| Domestic Equity[2] | $ 26,854,638 | -4.46% | -4.46% | -18.01% | 6.90% | 8.46% | 11.29% | 8.75% | 04/30/2008 |
| CRSP US Total Market[3] | | -4.44% | -4.44% | -17.98% | 6.92% | 8.49% | 11.32% | 8.76% | |
| International Equity[4] | $ 13,187,471 | -10.52% | -10.52% | -25.21% | -1.15% | -0.68% | 3.34% | 0.82% | 04/30/2008 |
| FTSE Global All Cap ex US[5] | | -9.66% | -9.66% | -25.20% | -1.37% | -0.72% | 3.05% | 0.61% | |
| Domestic Fixed Income | $ 14,121,584 | -4.65% | -4.65% | -14.65% | -3.26% | -0.24% | 0.86% | 2.47% | 04/30/2008 |
| Bloomberg Cap. US Agg. Float Adj. | | -4.68% | -4.68% | -14.61% | -3.22% | -0.23% | 0.91% | 2.53% | |
| Short Term | $ 72,092 | 0.50% | 0.50% | 0.67% | 0.52% | 1.06% | 0.63% | 0.59% | 04/30/2008 |
| iMoney Net Money Fund Avg/Taxable | | 0.44% | 0.44% | 0.55% | 0.41% | 0.88% | 0.49% | 0.43% | |
| Total Portfolio | $ 54,235,785 | -6.03% | -6.03% | -18.71% | 2.62% | 4.18% | 6.48% | 6.23% | 04/30/2008 |




Footnotes:

[1]Returns for periods greater than 1 year are annualized. All returns are time-weighted rates of return and reflect the deduction of fund expense ratios, purchase or redemption fees, and any advisory service fees.

[2]Effective 5/31/21, the Domestic Equity portfolio was transferred from the Institutional Index fund to the Vanguard Total Stock Market Index fund.

[3]S&P 500 Index through 5/31/21, and the CRSP US Total Market Index thereafter.

[4]The Benchmark for the Vanguard Total International Stock Index Fund was the MSCI EAFE + Emerging Markets Index through 12/15/2010; MSCI ACWI ex USA IMI Index through 6/2/2013; and FTSE Global All Cap ex US Index thereafter.

[5]MSCI EAFE Index through 10/31/11, MSCI ACWI Ex-US Index through 5/31/21, and the FTSE Global All Cap ex US Index thereafter.

Office of the CFO/Investment Operations Department
October 27, 2022

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Schedule C

# New York State Teachers' Retirement System Retired Employee Health Benefits Trust

Health Benefits Trust Audit Presentation – Audit Committee

October 27, 2022

# Introductions

Jean Young, CPA

Co-engagement Partner

Michelle Watterworth, CPA

Co-engagement Partner

Manju Patnaik, CPA

Senior Manager

# Agenda

- ✓ Audit timeline and deliverables
- ✓ Audit scope
- ✓ Required communications
- ✓ Questions

# Audit timeline and deliverables

## Audit timeline:

- January/May 2022 – Initiated planning procedures and risk assessment phase
- May/July 2022 – Performed interim procedures
- July/October 2022 – Performed year end audit procedures, including review of financial statements
- October 27, 2022 – Issuance of audit opinion

## Deliverables:

- NYSTRS' Health Benefits Trust Audited Financial Statement Opinion as of and for the year ended June 30, 2022
- Required Communications with the Board

# Audit scope

| | |
|---|---|
| **Scope of work** | • Audit of the financial statements for NYSTRS Health Benefits Trust as of and for the year ended June 30, 2022 |
| **Financial reporting framework** | • U.S. Generally Accepted Accounting Principles (GAAP) |
| **Auditing standards** | • We perform our audit in accordance with:<br>○ Auditing standards generally accepted in the United States of America |
| **Independence** | • We are independent of NYSTRS Health Benefits Trust under all relevant professional and regulatory standards |
| **Audit areas of focus** | • Investment valuations<br>• Census data testing<br>• Actuarial assumptions and actuarial calculations<br>• Accuracy of benefit calculations and related payments<br>• Financial reporting |

# Required communications

| | |
|---|---|
| **Our responsibility under Generally Accepted Auditing Standards** | • Express an opinion on whether the financial statements are fairly presented in conformity with U.S. GAAP<br>• Plan and perform the audit to obtain reasonable, not absolute, assurance that the financial statements are free of material misstatement<br>• Planning our audit includes obtaining an understanding of internal controls over financial reporting<br>• The extent, timing, and nature of our procedures is determined based on risk assessments and our understanding of control and inherent risks to enable us to express an opinion on the financial statements<br>• Communicate significant matters related to the audit that are, in our professional judgment, relevant to your responsibilities in overseeing the financial reporting process<br>• Evaluate Trust's ability to continue as a going concern |
| **Management's responsibilities** | • Financial statements<br>• Selection and use of appropriate accounting policies<br>• Adopting and maintaining sound internal controls<br>• Evaluate Trust's ability to continue as a going concern |
| **Opinion** | • Expect unmodified opinion for the year ended June 30, 2022<br>    ○ Free from material misstatement<br>    ○ Highest level of assurance you can obtain<br>    ○ Includes updates from new Auditing Standards No. 134-140 |

# Required communications

| | |
|---|---|
| **Significant accounting policies** | • Note 2 to the financial statements<br>• No significant or unusual transactions occurred |
| **Significant accounting estimates** | • Assumptions utilized in the GASB 74 actuarial valuation, including long-term expected rate of return, mortality assumptions, and health care cost trend rates<br>• No changes in methodology<br>• We evaluated key factors and assumptions used<br>• Estimates are reasonable |
| **Significant disclosures** | • None |

# Required communications

| | |
|---|---|
| Reportable control deficiencies | • No material weaknesses or significant deficiencies in internal control over financial reporting identified |
| Disagreements or difficulties with management | • None |
| Corrected and uncorrected misstatements | • None |
| Other matters | • No significant issues discussed with management prior to or during the audit<br>• Management to provide management representation letter dated October 27, 2022<br>• No consultations with other accountants |

# Questions?

# Thank you!

*For more information contact:*

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# NEW YORK STATE TEACHERS' RETIREMENT SYSTEM
# RETIRED EMPLOYEE HEALTH BENEFITS TRUST

Basic Financial Statements and Required Supplementary Information

June 30, 2022 and 2021

(With Independent Auditors' Report Thereon)

**NEW YORK STATE TEACHERS' RETIREMENT SYSTEM**
**RETIRED EMPLOYEE HEALTH BENEFITS TRUST**

## Table of Contents

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**Independent Auditor's Report**

To the Board of Trustees
New York State Teachers Retirement System
Retired Employee Health Benefits Trust

***Opinion***

We have audited the financial statements of New York State Teachers Retirement System Retired Employee Health Benefits Trust (the "Trust") as of and for the year ended June 30, 2022 and the related notes to the financial statements, which collectively comprise the Trust's basic financial statements, as listed in the table of contents.

In our opinion, the accompanying financial statements present fairly, in all material respects, the fiduciary net position of the Trust as of June 30, 2022 and the changes in its fiduciary net position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

***Basis for Opinion***

We conducted our audit in accordance with auditing standards generally accepted in the United States of America (GAAS). Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of the Trust and to meet our other ethical responsibilities in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

***Report on Prior Year Financial Statements***

The basic financial statements of the Trust as of and for the year ended June 30, 2021 were audited by other auditors, who expressed an unmodified opinion on October 28, 2021.

***Responsibilities of Management for the Financial Statements***

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

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

***Auditor's Responsibilities for the Audit of the Financial Statements***

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

In performing an audit in accordance with GAAS, we:

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

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

***Required Supplemental Information***

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis and other required supplemental information, as identified in the table of contents, be presented to supplement the basic financial statements. Such information is the responsibility of management and, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, which 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 supplemental 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.

October 27, 2022

The following discussion and analysis of the financial performance of the New York State Teachers' Retirement System Retired Employee Health Benefits Trust (the Trust) provides an overview of its activities for the years ended June 30, 2022, 2021, and 2020. Its purpose is to provide explanations and insights into the information presented in the financial statements, notes to the financial statements, and required supplementary information.

## Financial Highlights

- In 2022, the Trust received a contribution in the amount of \$6.0 million from the New York State Teachers' Retirement System (the System) to invest and accumulate assets in order to provide health insurance benefits to retirees of the System. The contribution represents 112% of the Actuarially Determined Contribution (ADC) for fiscal year 2022. Contributions to the Trust in 2021 and 2020 were \$6.3 million and \$6.0 million, respectively, and represent 108% of the ADC in 2021 and 101% of the ADC in 2020.
- Total Other Postemployment Benefits (OPEB) liability as of June 30, 2022 is \$106.4 million, an increase of \$5.7 million from total OPEB liability of \$100.7 million as of June 30, 2021. Net OPEB liability at June 30, 2022 and 2021 was \$48.8 million and \$34.8 million, respectively.

## Overview of the Financial Statements

The following discussion and analysis is intended to assist the reader in better understanding the purpose and meaning of each of the key components of the Trust's financial statements, which comprise the following:

1. *The Statements of Fiduciary Net Position* present the Trust's assets and liabilities by major categories and may serve over time as a useful indicator of the Trust's financial position. The difference between assets and liabilities represents the net position restricted for other postemployment health benefits. The statement also compares assets and liabilities by class to the previous year, which offers the reader the opportunity to note changes in each class of asset and liability from year to year.

2. *The Statements of Changes in Fiduciary Net Position* provide information on the changes in the Trust's net position during the current fiscal year. The additions are derived from net appreciation in fair value of investments, investment income, and contributions from the System. Deductions include other postemployment health benefit payments and professional fees and services. For comparison purposes, information pertaining to the previous year's Statement of Changes in Fiduciary Net Position is also provided.

3. *The Notes to Basic Financial Statements* are an essential part of the financial statements. They provide important background and detailed information about the Trust, its investments, and the statements themselves.

4. *The Required Supplementary Information (RSI) and accompanying notes* consists of information pertaining to the Trust's actuarial methods and assumptions and provides data on the System's net OPEB liability, the changes in the System's net OPEB liability, the System's contributions, and the Trust's investment returns.

## Financial Analysis

Tables 1 and 2 summarize the Trust's financial position and results for the years 2022, 2021, and 2020. The changes from year to year are due to a combination of the annual employer contribution, changes in fair value of investments, and retired employee health benefit payments.

### Table 1 - Summary of Fiduciary Net Position

| | June 30 | | | Amount (decrease) 2021 to 2022 | Percentage change of total, 2021 to 2022 |
|---|---|---|---|---|---|
| | 2022 | 2021 | 2020 | | |
| Investments at fair value: | | | | | |
| Cash equivalents | $ 129,594 | $ 99,620 | $ 11,510 | $ 29,974 | 0.05 % |
| Mutual funds | 57,378,031 | 65,827,382 | 49,647,219 | (8,449,351) | (12.83)% |
| Total investments | 57,507,625 | 65,927,002 | 49,658,729 | (8,419,377) | (12.78)% |
| Total assets | 57,507,625 | 65,927,002 | 49,658,729 | (8,419,377) | (12.78)% |
| Liabilities: | | | | | |
| Accounts payable | — | 56,365 | 36,450 | (56,365) | (0.09)% |
| Total liabilities | — | 56,365 | 36,450 | (56,365) | (0.09)% |
| Net position restricted for other postemployment health benefits | $ 57,507,625 | $ 65,870,637 | $ 49,622,279 | $ (8,363,012) | (12.70)% |

As shown in Table 2, the Trust's 2022 net position decreased from 2021 by $8.4 million, and 2021 net position increased from 2020 by $16.2 million. The decrease in 2022 is primarily a result of investment loss of $9.6 million and benefit payments of $4.8 million, offset by employer contributions of $6.0 million. The increase in 2021 is the result of employer contributions of $6.3 million and investment income of $14.5 million, offset by benefit payments of $4.6 million.

**Table 2 - Summary of Changes in Fiduciary Net Position**

| | Years ended June 30 | | | Amount increase (decrease), 2021 to 2022 | Percentage change of total, 2021 to 2022 |
|---|---|---|---|---|---|
| | 2022 | 2021 | 2020 | | |
| Net investment (loss) income | (9,584,492) | 14,534,551 | 2,672,787 | (24,119,043) | (36.62)% |
| Total contributions | 6,000,000 | 6,261,000 | 6,004,000 | (261,000) | (0.40) |
| Total (deductions) additions | (3,584,492) | 20,795,551 | 8,676,787 | (24,380,043) | (37.01)% |
| Retired employee health benefit payments | 4,834,885 | 4,527,278 | 4,412,579 | 307,607 | 0.47 |
| Professional fees and services | (56,365) | 19,915 | 65,585 | (76,280) | (0.12) |
| Total deductions | 4,778,520 | 4,547,193 | 4,478,164 | 231,327 | 0.35 |
| Net (decrease) increase | (8,363,012) | 16,248,358 | 4,198,623 | (24,611,370) | (37.36)% |
| Net Position restricted for postemployment health benefits | | | | | |
| Beginning of year | 65,870,637 | 49,622,279 | 45,423,656 | 16,248,358 | 24.67 |
| End of year | $ 57,507,625 | $ 65,870,637 | $ 49,622,279 | $ (8,363,012) | (12.70)% |

### Economic Factors

The economic factors that are of primary significance for the Trust are the annual contributions made by the System and the returns earned in the capital markets. Changes in healthcare premiums, plan provisions, actuarial assumptions, and demographic changes can also have a significant impact on the net OPEB liability and funded status of the Trust. All of these factors play a part in determining the amount the System must contribute to fund current and future retired employee benefits. The Trust's fiduciary net position as a percentage of the total OPEB liability is 54.07% as of June 30, 2022, 65.44% as of June 30, 2021 and 51.26% as of June 30, 2020.

### Requests for Information

This financial report is designed to provide active members, retirees, taxpayers, and anyone else who is interested, with a general overview of the financial activities of the Trust. Questions about this report or requests for additional financial information should be addressed to the Public Information Office, New York State Teachers' Retirement System Retired Employee Health Benefits Trust, 10 Corporate Woods Drive, Albany, NY 12211 or by e-mail at communit@nystrs.org.

**NEW YORK STATE TEACHERS' RETIREMENT SYSTEM**
**RETIRED EMPLOYEE HEALTH BENEFITS TRUST**

Statement of Fiduciary Net Position

June 30, 2022 and 2021

| | 2022 | 2021 |
|---|---|---|
| Assets: | | |
| Investments - at fair value (note 3, 4 and 5): | | |
| Cash equivalents | $ 129,594 | $ 99,620 |
| Mutual funds | 57,378,031 | 65,827,382 |
| Total investments | 57,507,625 | 65,927,002 |
| Total assets | 57,507,625 | 65,927,002 |
| Liabilities: | | |
| Accounts payable | — | 56,365 |
| Total liabilities | — | 56,365 |
| Net position restricted for other postemployment health benefits | $ 57,507,625 | $ 65,870,637 |

See accompanying notes to financial statements.

**NEW YORK STATE TEACHERS' RETIREMENT SYSTEM**
**RETIRED EMPLOYEE HEALTH BENEFITS TRUST**

Statement of Changes in Fiduciary Net Position

Years ended June 30, 2022 and 2021

| | 2022 | 2021 |
|---|---|---|
| Additions: | | |
| Investment income: | | |
| Net (decrease) increase in fair value of investments | $ (10,884,538) | $ 13,407,337 |
| Dividend income | 1,300,046 | 1,127,214 |
| Net investment (loss) income | (9,584,492) | 14,534,551 |
| Contributions: | | |
| Employer | 6,000,000 | 6,261,000 |
| Total contributions | 6,000,000 | 6,261,000 |
| Total (deductions) additions | (3,584,492) | 20,795,551 |
| Deductions: | | |
| Retired employee health benefit payments | 4,834,885 | 4,527,278 |
| Professional fees and services | (56,365) | 19,915 |
| Total deductions | 4,778,520 | 4,547,193 |
| Net (decrease) increase in net position | (8,363,012) | 16,248,358 |
| Net Position restricted for postemployment health benefits | | |
| Beginning of year | 65,870,637 | 49,622,279 |
| End of year | $ 57,507,625 | $ 65,870,637 |

See accompanying notes to financial statements.

## (1) Plan Description

The New York State Teachers' Retirement System Retired Employee Health Benefits Trust (the Trust) was created under the general laws of New York. The Trust was created in 2008 for the sole purpose of receiving irrevocable contributions from the New York State Teachers' Retirement System (the System) to provide postemployment healthcare benefits to eligible System employees who retire from the System, in accordance with the terms of the Trust. Trust assets are legally protected from creditors of the System.

The Trust is a defined-benefit, single-employer, other postemployment benefits (OPEB) plan that accumulates resources to pay current and future health insurance premiums for retired System employees. These healthcare plans are designed and administered by the New York State Health Insurance Program (NYSHIP).

The Trust is administered by a 10-member Board to provide healthcare benefits for retired System employees and their beneficiaries. The members of the Board of the Trust are the same as those of the System. The Trust's Board is composed of:

- Three teacher members elected from the active System membership
- One retired member elected by a mail vote of all retired System members
- Two school administrators appointed by the Commissioner of Education
- Two present or former school board members, experienced in the fields of finance and investment, elected by the Board of Regents. At least one of these individuals must have experience as an executive of an insurance company.
- One present or former bank executive elected by the Board of Regents
- The State Comptroller or his/her designee

As of June 30, the Trust's membership consisted of:

| | 2022 | 2021 |
|---|---|---|
| Retired participants and their survivors currently receiving benefits | 311 | 299 |
| Active participants | 365 | 374 |
| Total | 676 | 673 |

### *(a) Benefits*

Pursuant to contractual agreement and policy, the System provides postemployment healthcare benefits to eligible System employees who retire from the System and reimburses Medicare eligible retirees for their Medicare Part B premiums. The System is a voluntary participating employer in NYSHIP. Article XI of the New York State Civil Service Law assigns the authority to NYSHIP to establish and amend the benefit provisions of the plan and to establish maximum obligations of the plan participants to contribute to the plan. The System's Board is authorized to establish the contribution rates of System retirees below those set by Civil Service Law, and they are set as part of the collective bargaining process.

In order to be eligible for OPEB, employees must have worked for at least 10 years for the System, retire directly from System employment, and commence receipt of their pension from the New York State and Local Employees' Retirement System. Dependents may also be covered.

System retirees are required to contribute toward the cost of their coverage if retired on or after July 1, 1985. Post July 1, 1985 retirees are currently required to contribute an amount equal to 14% of the premium paid by the System up to the premium of the Empire Plan option. Starting January 1, 2024 the contribution requirement increases to 15%. Retiree contributions are subject to an annual maximum that varies based upon salary at retirement. Annual maximum amounts effective January 1, 2022 are:

| Salary | Annual maximum amounts |
|---|---|
| Up to $40,000 | $2,850 |
| $40,001 - $60,000 | $3,350 |
| $60,001 - $90,000 | $4,025 |
| $90,001 and over | $4,425 |

Starting January 1, 2021 and each subsequent January 1 through January 1, 2024, the annual maximum will increase based on the amounts shown in the table below.

| Salary | Annual maximum increases |
|---|---|
| Up to $40,000 | $300 |
| $40,001 - $60,000 | $400 |
| $60,001 - $90,000 | $550 |
| $90,001 and over | $600 |



If more expensive coverage is elected, the retiree pays the current required premium percentage of the Empire Plan option and 100% of the difference between the two.

Employees who retire on or after April 1, 1991 are eligible to have accumulated unused sick leave up to a maximum of 185 days (165 days for management and executive employees) converted into a credit based on life expectancy to offset their contribution requirement. Starting January 1, 2021 the sick leave maximum increased to 200 days (for all employees including management and executives).

Under the plan, benefit coverage continues as survivor benefits for an eligible retiree's dependent(s) upon the death of the retiree. Surviving dependents pay 25% of the premium cost after a 3 month extended coverage period.

### (b) Employer Contribution

The employer contribution, or funding, of the System's OPEB obligation is at the discretion of the System's management and Board. The System's current policy is to prefund benefits by contributing an amount that is, at a minimum, equal to the Actuarially Determined Contribution (ADC).

Contributions in 2022 were $6.0 million, which approximated 18.10% of covered payroll. Contributions in 2021 were $6.3 million, which approximated 19.49% of covered payroll.

## (2) Summary of Significant Accounting Policies

### *(a) Basis of Accounting*

The Trust's financial statements are prepared using the economic resource measurement focus and accrual basis of accounting and follow the provisions of Governmental Accounting Standards Board (GASB) Statement No. 74, *Financial Reporting for Postemployment Benefit Plans Other than Pension Plans* (GASB 74). Contributions from the System are recognized when due pursuant to legal requirement. Benefits and refunds are recognized when due and payable in accordance with the terms of the Trust.

Revenue is recorded when earned, and expenses are recorded when a liability is incurred, regardless of the timing of related cash flows.

### *(b) Cash Equivalents*

The Trust considers all highly liquid investments purchased with original maturities of three months or less to be cash equivalents. The carrying amount reported in the balance sheet for cash equivalents approximates fair value due to the short-term nature of these investments.

### *(c) Method Used to Value Investments*

Trust investments are reported at fair value. Quoted market prices have been used to value investments. Investment purchases and sales are recorded on a trade-date basis.

Given the inherent nature of investments, it is reasonably possible that changes in the value of those investments will occur in the near term and that such changes could materially affect the amounts reported in the statements of fiduciary net position.

### *(d) Retired Employee Health Benefit Payments*

The Trust reimburses the System for the health insurance premiums attributable to retired System employees paid to NYSHIP on a monthly basis.

### *(e) Administrative Support*

Administrative support for the Trust's investment, accounting, and legal operations is provided by the System at no charge to the Trust.

### *(f) Federal Tax Status*

The Trust is exempt from federal income taxes under Section 115 of the Internal Revenue Code.

### *(g) Use of Estimates*

The preparation of financial statements in conformity with accounting principles generally accepted in the Unites States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of additions and deductions during the reporting period. Actual results could differ from those estimates.

## (3) OPEB Plan Investments

### *(a) Investment Policy*

All investment transactions undertaken on behalf of the Trust will be for the sole benefit of eligible retirees and dependents, for the exclusive purpose of providing certain health care benefits and defraying reasonable administrative expenses. The System shall be responsible for managing and directing the investments of the Trust. The Trust's long-term objective is to earn an average rate of return greater than the rate of return of the representative indices for individual asset classes but no less than the actuarial assumption rate (currently 6.50% per annum).

### *(b) Asset Allocation*

The Trust's asset allocation policy as adopted by the Board of Trustees diversifies Trust investments to reduce risk while maximizing the investment return.

The Trust's asset allocation targets at June 30, 2022 and 2021 are as follows:

| Asset class | Allowable range | Target percentage |
|---|---|---|
| Domestic equity | 40% to 60% | 50 % |
| International equity | 20% to 30% | 25 |
| Domestic fixed income | 20% to 30% | 24 |
| Cash equivalents | 0% to 4% | 1 |
| Total | | 100 % |



### *(c) Rate of Return*

The annual money-weighted rate of return on Trust investments, net of OPEB plan investment expense, was 28.8% for the year ended June 30, 2021, but was negative 14.4% for the year ended June 30, 2022. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

## (4) Deposit and Investment Risk Disclosure

The Trust has been authorized by the Board of Trustees to invest in passively managed mutual funds for domestic and international equity and domestic fixed income investments. Additionally, there is a federal money market mutual fund to allow the Trust to have liquid investments available for the payment of retired employee health benefits.

As of June 30, 2022 and 2021, the Trust did not hold investments in any one issuer that would represent 5.0% or more of fiduciary net position.

Investment securities are exposed to custodial credit risk if the securities are uninsured, are not registered in the name of the Trust, and are held by either the counterparty or the counterparty's trust department or agent but not in the Trust's name. Consistent with the Trust's investment policy, the investments are held by the Trust's custodian and registered in the Trust's name. The Trust does not have specific investment policies related to credit or interest rate risk of mutual fund holdings.

The Trust has the following mutual fund holdings at June 30, 2022 and 2021:

| | 2022 | | 2021 | |
|---|---|---|---|---|
| Asset class | Fair value | Percentage of total | Fair value | Percentage of total |
| Domestic equity | $ 27,361,878 | 48 % | $ 33,706,400 | 51 % |
| International equity | 14,337,659 | 25 | 16,337,417 | 25 |
| Domestic fixed income | 15,678,494 | 27 | 15,783,565 | 24 |
| Total | $ 57,378,031 | 100 % | $ 65,827,382 | 100 % |

At June 30, 2022 and 2021, the Trust's domestic fixed income mutual fund had an average duration of 6.7 and 6.8 years, respectively. The domestic fixed income fund is an unrated mutual fund.

The Trust's cash equivalent investments (federal money market mutual fund) at June 30, 2022 and 2021 had an average maturity of 35.0 and 55.7 days, respectively.



### (5) Fair Value Measurement

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

At June 30, 2022 and 2021, the Trust had the following Level 1 investments:

| Mutual funds: | **2022** | **2021** |
|---|---|---|
| Domestic equity | $ 27,361,878 | $ 33,706,400 |
| International equity | 14,337,659 | 16,337,417 |
| Domestic fixed income | 15,678,494 | 15,783,565 |
| | $ 57,378,031 | $ 65,827,382 |

### (6) Net OPEB Liability

The components of the net OPEB liability at June 30, 2022 and 2021 were as follows:

| | **2022** | **2021** |
|---|---|---|
| Total OPEB liability | $ 106,354,619 | $ 100,662,726 |
| OPEB Plan fiduciary net position | 57,507,625 | 65,870,637 |
| Net OPEB liability | $ 48,846,994 | $ 34,792,089 |
| The OPEB plan's fiduciary net position as a percentage of total OPEB liability | 54.07 % | 65.44 % |

### *(a) Actuarial Assumptions*

The total OPEB liability at June 30, 2022 was determined using an actuarial valuation as of July 1, 2021, with update procedures used to roll forward the total OPEB liability to June 30, 2022. The total OPEB liability at June 30, 2021 was determined using an actuarial valuation as of July 1, 2020, with update procedures used to roll forward the total OPEB liability to June 30, 2021.The measurement of total OPEB liability at June 30, 2022 and 2021, respectively, used the following actuarial assumptions:

| | 2022 | 2021 |
|---|---|---|
| Valuation date | July 1, 2021 | July 1, 2020 |
| Investment rate of return | 6.50% | 6.50% |
| Payroll increase rate | 3.00% | 3.00% |
| Salary increase rate | Varies by service from 3.00%-8.00% | Varies by service from 3.00%-8.00% |
| Maximum retiree contribution based on salary at retirement | Increase $100 per year after 2025 | Increase $100 per year after 2025 |
| Healthcare cost and premium trend rates: | | |
| Non-Medicare | 7.40% graded to 4.34% over 19 years | 7.70% graded to 4.34% over 20 years |
| Medicare | 8.45% graded to 4.34% over 19 years | 8.80% graded to 4.34% over 20 years |
| Medicare Part B | 3.50% | 3.50% |
| Blended Medicare | 7.41% graded to 4.16% over 19 years | 7.69% graded to 4.16% over 20 years |

Pre-retirement mortality: The Pub-2010 General Employee Headcount-Weighted Mortality table (PubG.H-2010 Employee) as published by the Society of Actuaries (SOA) with an 98.75% adjustment for both males and females, and with future improvement from the base year of 2010 on a generational basis using SOA's Scale MP-2020. All pre-retirement deaths are assumed ordinary deaths

Post-retirement mortality:

- Healthy Retirees: The Pub-2010 General Healthy Retiree Headcount-Weighted Mortality table [PubG.H-2010 Healthy Retiree] as published by the SOA with a 98.75% adjustment for both males and females, and with future improvement from the base year of 2010 on a generational basis using SOA's Scale MP-2020.

- Beneficiaries: Pub-2010 General Contingent Survivors Headcount-Weighted Mortality [PubG.H-2010 Contingent Survivors] as published by SOA with a 98.75% adjustment for both males and females, and with future improvement from the base year of 2010 on a generational basis using SOA's Scale MP-2020.

- Disabled Retirees: The Pub-2010 General Disabled Retiree Headcount-Weighted Mortality table [PubG.H-2010 Disabled Retiree] as published by the SOA with a 98.75% adjustment for both males and females, and with future improvement from the base year of 2010 on a generational basis using SOA's Scale MP-2020.

Banked sick leave: Participants are assumed to accrue 4.74 days of unused sick leave per year and use 100% of accumulated leave at retirement for the sick leave offset.

The long-term expected rate of return on OPEB plan investments was determined using a building-block method in which best estimate ranges of expected future rates of return (expected returns, net of investment expense and inflation) are developed for each major asset class. These returns 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.

Best estimates of arithmetic real rates of return for each major asset class included in the System's target asset allocation as of June 30, 2022 and June 30, 2021 are summarized in the following table:

**Long-Term Expected Real Rate of Return***

| Asset class | 2022 | 2021 |
|---|---|---|
| Domestic equity | 5.62% | 6.06% |
| International equity | 6.49 | 6.83 |
| Domestic fixed income | (0.25) | 0.12 |
| Cash equivalents | (0.69) | (0.32) |

* Real rates of return are net of the long-term inflation assumption of 2.60% for 2022 and 2021



### (b) *Sensitivity of the Net OPEB Liability to Changes in the Healthcare Cost Trend Rates*

Healthcare cost trend rates measure the anticipated overall rate at which health plan costs are expected to increase in future years. The following presents the net OPEB liability of the System using the healthcare cost trend rates presented previously in the actuarial assumptions, as well as what the System's net OPEB liability would be if it were calculated using healthcare cost trend rates that are 1-percentage-point lower or 1-percentage-point higher than the applied healthcare cost trend rates:

**System's Net OPEB Liability**

| | 1% Decrease | Current Healthcare Cost Trend Rates | 1% Increase |
|---|---|---|---|
| June 30, 2022 | $ 35,496,339 | $ 48,846,994 | $ 65,199,149 |
| June 30, 2021 | $ 22,218,313 | $ 34,792,089 | $ 50,200,104 |

### (c) *Discount Rate*

The discount rate used to measure the total pension liability as of June 30, 2022 and 2021 was 6.50%. The projection of cash flows used to determine the discount rate assumed that contributions would be made at rates equal to the actuarially determined contribution rates. Based on these assumptions, the OPEB Plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan participants. Therefore, the long-term expected rate of return on plan investments was applied to all periods of projected benefit payments to determine the total OPEB liability.

### *(d) Sensitivity of the Net OPEB Liability to Changes in the Discount Rate*

The following presents the net OPEB liability of the System as well as what the System's net OPEB liability would be if it were calculated using a discount rate that is 1-percentage-point lower or 1-percentage-point higher than the applied rate:

**System's Net OPEB Liability**

| | 1% Decrease | Current Discount Rate | 1% Increase |
|---|---|---|---|
| June 30, 2022 | $ 63,459,504 | $ 48,846,994 | $ 36,787,643 |
| June 30, 2021 | $ 48,612,631 | $ 34,792,089 | $ 23,386,807 |

## (7) Risk Management

The Trust is exposed to various risks of loss related to torts; theft of, damage to, and destruction of assets; and errors and omissions, for which the Trust retains the risk of loss. At this time, there are no matters pending against the Trust.

# REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)

**NEW YORK STATE TEACHERS' RETIREMENT SYSTEM**
**RETIRED EMPLOYEE HEALTH BENEFITS TRUST**

Required Supplementary Information

Schedule of Changes in the System's Net OPEB Liability and Related Ratios (Unaudited)

Last 7 Fiscal Years

| | 2022 | 2021 | 2020 | 2019 | 2018 |
|---|---|---|---|---|---|
| Total OPEB liability: | | | | | |
| Service cost | $ 3,069,185 | $ 2,984,622 | $ 2,914,852 | $ 2,907,107 | $ 2,604,313 |
| Interest | 6,587,914 | 6,585,821 | 6,621,826 | 6,168,584 | 5,747,125 |
| Changes of benefit terms | — | — | (9,789,000) | — | 6,211,000 |
| Differences between expected and actual experience | 869,679 | 1,259,391 | 79,202 | 714,079 | (841,844) |
| Changes of assumptions | — | (2,449,602) | 4,038,931 | 1,102,479 | (878,222) |
| Benefit payments | (4,834,885) | (4,527,278) | (4,412,579) | (3,965,315) | (3,756,945) |
| Net change in total OPEB liability | 5,691,893 | 3,852,954 | (546,768) | 6,926,934 | 9,085,427 |
| Total OPEB liability - beginning | 100,662,726 | 96,809,772 | 97,356,540 | 90,429,606 | 81,344,179 |
| Total OPEB liability - ending (a) | $ 106,354,619 | $ 100,662,726 | $ 96,809,772 | $ 97,356,540 | $ 90,429,606 |
| Plan fiduciary net position: | | | | | |
| Contributions - employer | $ 6,000,000 | $ 6,261,000 | $ 6,004,000 | $ 5,500,000 | $ 5,500,000 |
| Net investment income | (9,584,492) | 14,534,551 | 2,672,787 | 3,155,344 | 3,212,503 |
| Benefit payments | (4,834,885) | (4,527,278) | (4,412,579) | (3,965,315) | (3,756,945) |
| Professional fees and services | 56,365 | (19,915) | (65,585) | (18,575) | (53,435) |
| Net change in plan fiduciary net position | (8,363,012) | 16,248,358 | 4,198,623 | 4,671,454 | 4,902,123 |
| Plan fiduciary net position - beginning | 65,870,637 | 49,622,279 | 45,423,656 | 40,752,202 | 35,850,079 |
| Plan fiduciary net position - ending (b) | $ 57,507,625 | $ 65,870,637 | $ 49,622,279 | $ 45,423,656 | $ 40,752,202 |
| System's net OPEB liability - ending (a) - (b) | $ 48,846,994 | $ 34,792,089 | $ 47,187,493 | $ 51,932,884 | $ 49,677,404 |
| Plan fiduciary net position as a percentage of the total OPEB liability | 54.07 % | 65.44 % | 51.26 % | 46.66 % | 45.07 % |
| Covered payroll | $ 35,423,191 | $ 33,142,258 | $ 32,124,845 | $ 31,189,170 | $ 30,682,745 |
| System's net OPEB liability as a percentage of covered payroll | 137.90 % | 104.98 % | 146.89 % | 166.51 % | 161.91 % |

**NEW YORK STATE TEACHERS' RETIREMENT SYSTEM**
**RETIRED EMPLOYEE HEALTH BENEFITS TRUST**

Required Supplementary Information

Schedule of Changes in the System's Net OPEB Liability and Related Ratios (Unaudited) *(continued)*

Last 7 Fiscal Years

| | 2017 | 2016 |
|---|---|---|
| Total OPEB liability: | | |
| Service cost | $ 2,490,519 | $ 2,579,474 |
| Interest | 5,959,407 | 5,589,288 |
| Changes of benefit terms | — | — |
| Differences between expected and actual experience | (2,165,915) | 399,912 |
| Changes of assumptions | (5,848,836) | — |
| Benefit payments | (3,412,013) | (2,979,914) |
| Net change in total OPEB liability | (2,976,838) | 5,588,760 |
| Total OPEB liability - beginning | 84,321,017 | 78,732,257 |
| Total OPEB liability - ending (a) | $ 81,344,179 | $ 84,321,017 |
| Plan fiduciary net position: | | |
| Contributions - employer | $ 5,500,000 | $ 5,500,000 |
| Net investment income | 4,212,256 | 382,144 |
| Benefit payments | (3,412,013) | (2,979,914) |
| Professional fees and services | (15,000) | (12,700) |
| Net change in plan fiduciary net position | 6,285,243 | 2,889,530 |
| Plan fiduciary net position - beginning | 29,564,836 | 26,675,306 |
| Plan fiduciary net position - ending (b) | $ 35,850,079 | $ 29,564,836 |
| System's net OPEB liability - ending (a) - (b) | $ 45,494,100 | $ 54,756,181 |
| Plan fiduciary net position as a percentage of the total OPEB liability | 44.07 % | 35.06 % |
| Covered payroll | $ 29,752,583 | $ 29,087,397 |
| System's net OPEB liability as a percentage of covered payroll | 152.91 % | 188.25 % |

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

See accompanying independent auditors' report.

**NEW YORK STATE TEACHERS' RETIREMENT SYSTEM**
**RETIRED EMPLOYEE HEALTH BENEFITS TRUST**

Required Supplementary Information

Schedule of System and Other Contributing Entity Contributions (Unaudited)

Last 10 Fiscal Years

| | 2022 | 2021 | 2020 | 2019 | 2018 |
|---|---|---|---|---|---|
| Actuarially determined contribution | $ 5,339,856 | $ 5,822,056 | $ 5,957,868 | $ 5,349,375 | $ 5,278,747 |
| Contributions in relation to the actuarially determined contribution: | | | | | |
| System | 6,000,000 | 6,261,000 | 6,004,000 | 5,500,000 | 5,500,000 |
| Other contributing entity | — | — | — | — | — |
| Total contributions | 6,000,000 | 6,261,000 | 6,004,000 | 5,500,000 | 5,500,000 |
| Contribution deficiency (excess) | $ (660,144) | $ (438,944) | $ (46,132) | $ (150,625) | $ (221,253) |
| Covered payroll | $ 35,423,191 | $ 33,142,258 | $ 32,124,845 | $ 31,189,170 | $ 30,682,745 |
| Contributions as a percentage of covered payroll | 16.94 % | 18.89 % | 18.69 % | 17.63 % | 17.93 % |

**NEW YORK STATE TEACHERS' RETIREMENT SYSTEM**
**RETIRED EMPLOYEE HEALTH BENEFITS TRUST**

Required Supplementary Information

Schedule of System and Other Contributing Entity Contributions (Unaudited) *(continued)*

Last 10 Fiscal Years

| | 2017 | 2016 | 2015 | 2014 | 2013 |
|---|---|---|---|---|---|
| Actuarially determined contribution | $ 5,374,220 | $ 4,782,000 | $ 4,542,000 | $ 4,767,000 | $ 5,240,000 |
| Contributions in relation to the actuarially determined contribution: | | | | | |
| System | 5,500,000 | 5,500,000 | 5,500,000 | 5,500,000 | 5,240,000 |
| Other contributing entity | — | — | — | 756 | 95,397 |
| Total contributions | 5,500,000 | 5,500,000 | 5,500,000 | 5,500,756 | 5,335,397 |
| Contribution deficiency (excess) | $ (125,780) | $ (718,000) | $ (958,000) | $ (733,756) | $ (95,397) |
| Covered payroll | $ 29,752,583 | $ 29,087,397 | $ 26,506,965 | $ 25,556,000 | $ 26,500,000 |
| Contributions as a percentage of covered payroll | 18.49 % | 18.91 % | 20.75 % | 21.52 % | 20.13 % |

See accompanying independent auditors' report.

**NEW YORK STATE TEACHERS' RETIREMENT SYSTEM**
**RETIRED EMPLOYEE HEALTH BENEFITS TRUST**

Required Supplementary Information

Schedule of Investment Returns (Unaudited)

Last 7 Fiscal Years

| | 2022 | 2021 | 2020 | 2019 | 2018 | 2017 | 2016 |
|---|---|---|---|---|---|---|---|
| Annual money-weighted rate of return, net of investment expense | (14.4)% | 28.8% | 5.8% | 7.6% | 8.8% | 13.1% | 1.3% |

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

See accompanying independent auditors' report.

**Change of benefit terms**

*Significant changes to net OPEB Liability*

Beginning with the 2018 measurement date, the liability for a plan provision that reimburses retirees for their Medicare Part B Premiums is recognized. This recognition increased the liabilities in 2018 by approximately $6.2 million.

For the 2020 measurement date there was a reduction in the liability of $9.79 million from benefit changes due to:

- $4.66 million from legislative changes, specifically the Excise Tax that was part of the Patient Protection and Affordability Act (PPACA) was repealed.
- $5.13 million from bargaining amendments pursuant to the CBA effective from April 2019 to March 2024. These include the premium contribution rate changes and contribution cap changes, increase in the Sick Leave Maximum to 200 days from 185 days for bargaining groups, and update of the Life Expectancy table from 1983 to 1999 factors.

**Changes of assumptions**

Actuarial assumptions are revised annually to reflect more closely actual, as well as anticipated, future experience. The actuarially determined contributions are calculated as of June 30th of the preceding year.

Significant assumption changes over the last 7 fiscal years are outlined below:

*Investment Rates of Return*

| Valuation Year(s) | Investment Rate of Return |
|---|---|
| 2016 | 8.00% |
| 2017 | 7.00% |
| 2018-2020 | 6.75% |
| 2021 | 6.50% |
| 2022 | 6.50% |

*Significant changes on net OPEB liability*

For the 2017 measurement date, the discount rate was lowered from 8.00% to 7.00%, there was a net decrease in the liability of $5.8 million primarily due to the modification of mortality rates and updating the per-capita health costs and retiree contribution rates.

For the 2018 measurement date, the discount rate was lowered from 7.00% to 6.75%, the per-capita health costs and retiree contribution rates were updated, the assumed health trend rates were modified, and the unused sick days accrual rate was updated. Collectively this decreased the liability $878 million.

For the 2019 measurement date, there was a change to the claim costs assumption during the measurement year and the projected trend rates, which increased the liability by approximately $1.1 million.

For the 2020 measurement date, there was a net increase in the liability of $4.04 million from the following assumption changes:

- $1.56 million decrease for updating the post-retirement mortality table to SOA RP-2014 with White Collar Adjustment using improvement Scale MP-2019.
- $4.56 million increase for higher immediate trends in response to greater unknowns about health care needs by adding 1% to the starting trend, but retaining the same ultimate year, and
- $1.04 million increase for full revision of claim curves and premiums reflecting current information.

For the 2021 measurement date there was a decrease in the liability of $2.45 million from the following assumption changes:

- $6.46 million decrease for updating the pre-retirement and post-retirement mortality tables to SOA PUB-2010 Headcount Weighted for General Employees Mortality Tables with the base year 2010 and Improvement Scale MP-2020, with a 98.75% adjustment to base rates,
- $1.51 million increase for updating retirement and termination rates to align with recent experience,
- $3.07 million increase for lowering the discount rate from 6.75% to 6.50%, and
- $0.57 million decrease for full revision of claim curves and premiums reflecting current information.

For the 2022 measurement date there was no change to the liability due to assumption changes.

**Key Methods and Assumptions Used to Determine OPEB Contribution Rates:**

| | |
|---|---|
| Asset Valuation Method: | Market Value |
| Amortization Method: | 30-Year Closed Amortization, level percentage of payroll |
| Remaining Amortization Period: | 25 years as of July 1, 2021 |
| Discount Rate: | 6.50% per annum |
| Expected Return on Assets: | 6.50% per annum |
| Salary Increases: | Varies by service from 3.00%-8.00% |
| Healthcare cost and premium trend rates: | |
| Non-Medicare | 7.70% graded to 4.34% over 20 years |
| Medicare | 8.80% graded to 4.34% over 20 years |
| Medicare Part B | 3.50% |
| Blended Medicare | 7.69% graded to 4.16% over 20 years |
| Pre-Retirement Mortality: | The Pub-2010 General Employee Headcount-Weighted Mortality table [PubG.H-2010 Employee] as published by the SOA with an 90.0% adjustment for both males and females, and with future improvement from the base year of 2010 on a generational basis using SOA's Scale MP-2020. All pre-retirement deaths are assumed ordinary deaths. |
| Healthy Retirees Mortality: | The Pub-2010 General Healthy Retiree Headcount-Weighted Mortality table [PubG.H-2010 Healthy Retiree] as published by the SOA with a 90.0% adjustment for both males and females, and with future improvement from the base year of 2010 on a generational basis using SOA's Scale MP-2020. |
| Beneficiaries: | Pub-2010 General Contingent Survivors Headcount-Weighted Mortality [PubG.H-2010 Contingent Survivors] as published by the SOA with a 90.0% adjustment for both males and females, and with future improvement from the base year of 2010 on a generational basis using SOA's Scale MP-2020. |
| Disabled Retirees: | The Pub-2010 General Disabled Retiree Headcount-Weighted Mortality table [PubG.H-2010 Disabled Retiree] as published by the SOA with a 90.0% adjustment for both males and females, and with future improvement from the base year of 2010 on a generational basis using SOA's Scale MP-2020. |

**NEW YORK STATE**
**TEACHERS' RETIREMENT SYSTEM**

**BOARD MEETING**
**October 27, 2022**

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NEW YORK STATE TEACHERS' RETIREMENT SYSTEM
10 CORPORATE WOODS DRIVE, ALBANY NEW YORK

A MEETING OF THE NEW YORK STATE TEACHERS' RETIREMENT SYSTEM BOARD was held at the System on October 27, 2022. The meeting was called to order by Board President David Keefe at 9:00 a.m. President Keefe asked Juliet Benaquisto to lead the group in the Pledge of Allegiance.

Present: Juliet Benaquisto, Elizabeth Chetney, Phyllis Harrington, Eric Iberger, David Keefe, Jennifer Longtin, Ruth Mahoney, Christopher Morin, Oliver Robinson, Nicholas Smirensky and Thomas Lee.

Agenda

1. Introduction of Visitors

T. Lee introduced Joe Ebis, WithIntelligence (via WebEx), Caroline Bobick, NYSSBA (via WebEx), Pete Savage from NYS United Teachers (via WebEx); Steve Greenberg, Greenberg Public Relations and Michael Gregoire, recently retired from NYSTRS.

2. Correspondence

None.

3. Approval of August 3, 2022 Board Minutes, August 4-5, 2022 Board Retreat

Upon motion of N. Smirensky, seconded by O. Robinson and unanimously carried, the minutes of the August 3, 2022 Board Meeting and the August 4-5, 2022 Board Retreat were approved.

4. Resolution of Recognition – Michael J. Gregoire (R1)

P. Harrington offered the following resolution, which was unanimously seconded and carried by the Board:

Whereas Michael J. Gregoire served the New York State Teachers' Retirement System for 17 years, beginning in 2005 as an Assistant Manager of Information Services, which later became the Information Technology division;

Whereas he then served as Manager of IT before being promoted to Chief Technology Officer in 2019;

Whereas Mr. Gregoire has overseen the IT Business Solutions and IT Technical Services departments in the Information Technology division, which together provide technology solutions that enable NYSTRS to deliver exceptional customer service;

Whereas he ensured the System's IT division delivered superior technology-related services and tools that enable System employees to perform their job functions in the most efficient manner possible;

Whereas he was committed to providing core technology infrastructure and operational support, cyber security defense and administration, collaborative IT solutions and custom application development to enhance member and employer experiences;

Whereas Mr. Gregoire was committed to meeting current business needs with an eye toward developing strategies and solutions for evolving business needs to ensure the System achieved superior IT capabilities;

Whereas during his tenure he played an important role in assuring that NYSTRS met its strategic objectives regarding customer service and a quality workforce;

Whereas he was committed to NYSTRS' values – particularly integrity, excellence, diligence and resourcefulness – and he was a well-respected and valued leader and role model;

Whereas Mr. Gregoire was steadfastly committed to the System's mission to provide our members with a secure pension and its vision to be the model for pension fund excellence and exceptional customer service; be it

Resolved that the New York State Teachers' Retirement System Board hereby acknowledges Michael J. Gregoire for his distinguished career; be it further

Resolved that the Retirement Board extends Mr. Gregoire and his family its best wishes for a healthy and happy retirement; and be it further

Resolved that a copy of this resolution be presented to Mr. Gregoire and be included in the proceedings of the NYSTRS Board meeting held October 27, 2022.

5. Resolution of Recognition – Kenneth R. Kasper (R2)

O. Robinson offered the following resolution, which was unanimously seconded and carried by the Board:

Whereas Kenneth R. Kasper served the New York State Teachers' Retirement System with distinction for 42 years, beginning in 1980 as an Internal Audit Trainee;

Whereas he worked his way up through the Internal Audit department, serving as Internal Auditor, Senior Internal Auditor and Associate Auditor, before transitioning to the Finance department as an Associate Accountant, and then returning to Internal Audit as the Assistant Manager and later Manager;

Whereas Mr. Kasper has served as Director of Internal Audit since 2013, ensuring the department provides high quality, risk-based assurance, advice and insight that support the System's mission and strategic objectives regarding governance structure, shared accountability, safeguarding System funds and customer service;

Whereas he has demonstrated the highest standard of integrity while providing assurance that the System's business processes operate efficiently and effectively and in compliance with laws, regulations, policies, procedures and contracts, thus ensuring the safeguarding of System assets;

Whereas Mr. Kasper has worked tirelessly to guarantee the reliability and integrity of System financial and operational reports and to ensure that audit functions are fairly and equitably focused on all business areas within the System;

Whereas he was always cognizant of the "Three Lines of Defense" for risk management (including management, risk control and internal audit), and he was instrumental in overseeing risk-mitigation strategies and acted in accordance with the department's dual reporting structure by reporting to both the Board's Audit Committee and to the Executive Director and Chief Investment Officer;

Whereas Mr. Kasper was committed to the highest ethical standards of conduct, always taking his fiduciary responsibilities seriously and remaining committed to operating in an environment of transparency;

Whereas he embodied the System's values – particularly integrity, excellence, respect, diligence and resourcefulness – and he was an esteemed leader and role model to staff; be it

Resolved that the New York State Teachers' Retirement System Board hereby acknowledges Kenneth R. Kasper for his distinguished career; be it further

Resolved that the Retirement Board extends Mr. Kasper and his family its best wishes for a happy and healthy retirement; and be it further

Resolved that a copy of this resolution be presented to Mr. Kasper and be included in the proceedings of the NYSTRS Board meeting held October 27, 2022.

## Committee Reports & Action Items

1. Audit Committee

A. Chairman's Report

O. Robinson Chair, reported that the Committee had met several times and had discussed the annual Plante Moran audits.

B. Resolution on Plante Moran Annual Audit Report (R3)

E. Iberger offered the following resolution, seconded by P. Harrington and unanimously carried by the Board:

RESOLVED, That the report of Plante Moran on the financial statements of the Retirement System as of June 30, 2022 and for the plan year then ended, as presented to the Retirement Board, is accepted.

2. Disability Committee

A. Disability Denial Resolution (R4)

E. Iberger offered the following resolution, seconded by J. Benaquisto and unanimously carried by the Board:

WHEREAS, After reviewing the medical information submitted in connection with the following members, the Medical Board has determined the members are not incapacitated for the performance of gainful employment and has recommended the members' applications be denied, be it

RESOLVED, That the applications for retirement on account of disability submitted by the following members be denied as recommended by the Medical Board:

[redacted]

3. Ethics Committee

C Morin, Chair, reported that the Committee had met on earlier in the day to hear an update on the conflicts of interest policy.

4. Executive Committee

A. Resolution on the 2023 Legislative Program (R5)

O. Robinson offered the following resolution, seconded by R. Mahoney and unanimously carried by the Board:

RESOLVED, That the 2023 Legislative Program (Appendix A, pp. 16-33), as presented to the Retirement Board by System staff, is approved and the Executive Director and Chief Investment Officer, or his designees, is authorized to seek introduction and enactment of the bill contained therein.

B. Resolution Amending System's Bylaws (R6)

N. Smirensky offered the following resolution, seconded by P. Harrington and unanimously carried by the Board:

RESOLVED, That the amendments to the Retirement System's Bylaws as set forth in Appendix B, pp. 34-46, are hereby approved and adopted, effective immediately.

C. Resolution Identifying Financial and Legal Document Signatories (R7)

N. Smirensky offered the following resolution, seconded by B. Chetney and unanimously carried by the Board:

WHEREAS, The Retirement Board has by resolution amended and restated the resolution of January 27, 2022 entitled Delegation Resolution - Financial and Legal Document Execution, providing for the delegation by the Executive Director and Chief Investment Officer of the authority to approve and execute financial and legal documents to other employees of the Retirement System; and

WHEREAS, The Retirement Board has by resolution adopted at its regular meeting on October 26, 1995, amended and restated periodically thereafter, and most recently on August 3, 2022, identifying those employees of the Retirement System that have been delegated such authority; and

WHEREAS, It is necessary to periodically update said resolution by identifying those employees of the Retirement System to whom such authority may be delegated; now therefore be it

RESOLVED, That the employees authorized to approve and execute financial and legal documents of said resolution are identified by department, management level within the organization and by name in the attachment (Appendix C, p. 47) entitled Signatory Authorization Grid-Financial and Legal Documents; and be it

RESOLVED, the attachment entitled Signatory Authorization Grid-Financial and Legal Documents sets forth the approvals and signatures needed to approve and execute financial and legal documents; and be it

RESOLVED, That this authorization shall remain in effect for individuals who are promoted within their department; and be it

RESOLVED, That between regular meetings of the Retirement Board, the Executive Director and Chief Investment Officer shall have the authority to designate in writing any such additional employees as may be required by business necessity to serve on an interim basis until the next regular meeting of the Retirement Board; and be it

RESOLVED, That this delegation shall be reviewed by the Retirement Board no less than annually; and be it further

RESOLVED, That this resolution shall take effect October 27, 2022 and, upon taking effect, shall supersede the identifying resolution previously adopted by the Retirement Board on August 3, 2022

D. Resolution Identifying Warrant Signatories (R8)

R. Mahoney offered the following resolution, seconded by J. Benaquisto and unanimously carried by the Board:

WHEREAS, The Retirement Board has by resolution adopted at its regular meeting on October 26, 1995, amended and restated periodically thereafter, and most recently on August 3, 2022, and as further amended concurrent with this resolution, provided for the delegation by the Executive Director and Chief Investment Officer of the authority to execute warrants to other employees of the Retirement System; and

WHEREAS, It is necessary to implement said resolution by identifying those employees of the Retirement System to whom such authority may be delegated; be it

RESOLVED, That the signatories authorized to execute administrative, real estate investment, and fixed income, equity security and alternative investment warrants as provided in Parts II, III, IV, V and VI respectively of said resolution are identified by signatory group, organizational level within the organization and by name in the attached Signatory Authorization Grid (Appendix D, p. 48) dated October 27, 2022; and be it further

RESOLVED, That this authorization shall remain in effect for individuals that are promoted within or move among the designated signatory groups, and be it further

RESOLVED, That, between regular meetings of the Retirement Board, the Executive Director and Chief Investment Officer shall have the authority to designate in writing any such additional “A”, “B”, “C”, “D”, “E”, “F”, and “G” signatories as may be required by business necessity to serve on an interim basis until the next regular meeting of the Retirement Board; and be it further

RESOLVED, That this delegation shall be reviewed by the Retirement Board no less than annually; and be it further

RESOLVED, That this resolution shall take effect October 27, 2022 and, upon taking effect, shall supersede the identifying resolution previously adopted on August 3, 2022.

5. Compensation Committee

P. Harrington, Chair, reported that the Committee had met yesterday to discuss the Executive Director and Chief Investment Officer’s annual performance review.

A. Resolution on Executive Compensation – EDCIO (R28)

N. Smirensky offered the following resolution, seconded by O. Robinson and passed by the Board, with C. Morin abstaining from the vote:

RESOLVED, that the report of the Compensation Committee regarding a recommended action on Executive Compensation, a copy of which is annexed hereto as Appendix E, p. 49, is authorized and approved.

6. Investment Committee

N. Smirensky, Chair, asked the Board members if any of the consent agenda items should be moved to regular discussion items. Hearing no objections, the Board proceeded to move the Consent Agenda Items #1 A-E (Appendix F, pp. 50-51) together with one motion.

J. Longtin offered the following resolutions, seconded by R. Mahoney

and unanimously carried by the Board:

A. Renew Consultants

- Callan - Real Estate (R9)

RESOLVED, That the Executive Director and Chief Investment Officer is authorized to renew the contract with Callan LLC to serve as the System's real estate consultant and to perform such assignments as may be determined by the Executive Director and Chief Investment Officer or his designees in connection therewith, for the one year period commencing February 1, 2023 at an annual retainer not to exceed $244,430 and at fees for individual fund due diligence not to exceed $37,130 per domestic fund and $47,740 per international fund, plus expenses, and for monitoring the System's external real estate securities managers on a quarterly basis not to exceed $5,200 per manager for each investment strategy, plus expenses, together with other services in accordance with the terms of the existing contract.

- StepStone (R10)

RESOLVED, That the Executive Director and Chief Investment Officer is authorized to renew the System's contract with StepStone Group LP to serve as the System's private equity and private debt consultant and to perform such assignments as may be determined by the Executive Director and Chief Investment Officer or his designees in connection therewith, for a period of one year, commencing February 1, 2023 for all fixed services at an annual retainer not to exceed the current term's fee of $1,200,000 (subject to an inflation price adjustment not to exceed the lesser of 3% and the change in the ECI Index) and for fund reviews exceeding the 12 contained in the fixed services at fees not to exceed $50,000 per fund, and for all optional services at fees (1) for research on market trends or on private equity or private debt partnerships not in our portfolio not to exceed $40,000 per report; (2) for special research assignments to better define goals and objectives or monitor portfolio risk not to exceed $40,000 per report; (3) for negotiating final investment agreements and work with the System's legal counsel and staff in drafting, reviewing and/or revising partnership agreements, subscription agreements and other required documents for an additional fee not to exceed $15,000 per agreement; (4) for providing professional training not to exceed $20,000 per training; (5) for attending annual meetings and providing meeting notes not to exceed $8,000 per meeting; (6) for monitoring and reporting on legacy partnerships not to exceed $4,500 per partnership.

B. Renew Managers

- AQR Capital Management LLC (R11)

RESOLVED, That the Executive Director and Chief Investment Officer is authorized to renew the agreement with AQR Capital Management, LLC to manage a portion of the System's assets as an active MSCI ACWI Ex-US international equity manager for a period of one-year, effective January 6, 2023.

- BlackRock Institutional Trust Company (R12)

RESOLVED, That the Executive Director and Chief Investment Officer is authorized to renew the agreement with BlackRock Institutional Trust Company, N.A. to manage a portion of the System's assets as a passive ACWI ex-US international equity manager for a period of one-year, effective December 12, 2022.

- Dimensional Fund Advisors (R13)

RESOLVED, That the Executive Director and Chief Investment Officer is authorized to renew the agreement with Dimensional Fund Advisors to manage a portion of the System's assets as an active emerging markets manager benchmarked to the MSCI Emerging Markets Index for a period of one year commencing February 19, 2023.

- Goldman Sachs Asset Management (R14)

RESOLVED, That the Executive Director and Chief Investment Officer is authorized to renew the agreement with Goldman Sachs Asset Management, L.P. to manage a portion of the System's assets as an active global bond manager benchmarked to the Bloomberg Global Aggregate Float Adjusted Bond Index in U.S. Dollars hedged to the U.S. dollar for a period of one year, effective November 12, 2022.

- Harding Loevner Management (R15)

RESOLVED, That the Executive Director and Chief Investment Officer is authorized to renew the agreement with Harding Loevner LP to manage a portion of the System's assets as an active global equity manager benchmarked to the MSCI ACWI index for a period of one-year, effective February 27, 2023.

- Loomis Sayles & Co. (R16)

RESOLVED, That the Executive Director and Chief Investment Officer is authorized to renew the agreement with Loomis Sayles & Co. to manage a portion of the System's assets as an active global bond manager benchmarked to the Bloomberg Global Aggregate Float Adjusted ex-CNY Bond Index in USD "Hedged" to USD for a period of one-year, effective November 8, 2022.

- Marathon Asset Management Limited, As Successor in Interest to Marathon Asset Management LLP (R17)

RESOLVED, That the Executive Director and Chief Investment Officer is authorized to renew the agreement with Marathon Asset Management Limited, as successor in interest to Marathon Asset Management, LLP, to manage a portion of the System's assets as an active EAFE international equity manager for a period of one year, effective January 24, 2023.

- Nomura Corporate Research & Asset Management (R18)

RESOLVED, That the Executive Director and Chief Investment Officer is authorized to renew the agreement with Nomura Corporate Research and Asset Management Inc. to manage a portion of the System's assets as an active U.S. high yield manager benchmarked to the ICE BofAML BB-B US High Yield Constrained Index (HUC4) for a period of one-year, effective November 27, 2022.

- State Street Global Advisors (R19)

RESOLVED, That the Executive Director and Chief Investment Officer is authorized to renew the agreement with State Street Global Advisors Trust Company (successor-in-interest by assignment from State Street Bank and Trust Company) to manage a portion of the System's assets as a passive ACWI ex US international equity manager, for a period of one year, effective February 18, 2023.

C. Reappointments to the Investment Advisory Committee

- Steve Huber (R20)

WHEREAS, The term of Steve Huber, as a member of the Investment Advisory Committee expires on December 31, 2022; be it

RESOLVED, That the Retirement Board hereby reappoints Mr. Huber to a three-year term as a member of the Investment Advisory Committee, effective January 1, 2023.

- Johanna Fink (R21)

WHEREAS, The term of Johanna Fink, as a member of the Investment Advisory Committee, expires on December 31, 2022; be it

RESOLVED, That the Retirement Board hereby reappoints Ms. Fink to a three-year term as a member of the Investment Advisory Committee, effective January 1, 2023.

- James O'Keefe (R22)

WHEREAS, The term of James O'Keefe as a member of the Investment Advisory Committee, expires on December 31, 2022; be it

RESOLVED, That the Retirement Board hereby reappoints Mr. O'Keefe to a three-year term as a member of the Investment Advisory Committee, effective January 1, 2023.

D. Reappointments to the Real Estate Advisory Committee

- Eileen Byrne (R23)

WHEREAS, The term of Ms. Eileen Byrne as a member of the Real Estate Advisory Committee expires on December 31, 2022; be it

RESOLVED, That the Retirement Board hereby reappoints Ms. Byrne to a three-year term as a member of the Real Estate Advisory Committee effective January 1, 2023.

- Herman Bulls (R24)

WHEREAS, The term of Mr. Herman Bulls as a member of the Real Estate Advisory Committee expires on December 31, 2022; be it

RESOLVED, That the Retirement Board hereby reappoints Mr. Bulls to a three-year term as a member of the Real Estate Advisory Committee effective January 1, 2023.

E. Resolution on Investment Policy Manual (R25)

RESOLVED, That the Investment Policy Manual, as presented to the Retirement Board reflecting significant changes through October 2022, as summarized in the grid below, is approved and accepted.

| POLICY | SUMMARY OF SIGNIFICANT CHANGES 2022 |
|---|---|
| Statement of Investment Policy | International Equity- change current target of 16% to 15% and target range from 12-20% to 11-19%<br>Private Equity-change current target of 8% to 9% and target range from 3-13% to 4-14%<br>Short Term (cash)-change current range of 1-4% to 0-4%<br>High Yield Bonds – updated policy benchmark name<br>Addition of the MSCI India IMI Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of India |
| High Yield Bonds | Updated to reflect benchmark addition: ICE BofA High Yield Constrained Index |
| International Equity | Change current target of 16% to 15% and target range from 12-20% to 11-19% |
| Private Equity | change current target of 8% to 9% and target range from 3-13% to 4-14% |
| Responsible Stewardship | New policy approved by the Board to be included in the IPM |
| Short Term Investments | change current range of 1-4% to 0-4% |
| Stock Proxy | As of October 2022, this section of IPM will be incorporated into the new Responsible Stewardship policy as an appendix |

F. New Agreement

1. Resolution on PGIM Broad High Yield Strategy (R26)

J. Longtin offered the following resolution, seconded by R. Mahoney

and unanimously carried by the Board:

RESOLVED, That, subject to the satisfactory completion of due diligence, the Executive Director and Chief Investment Officer, or designee, is authorized to contract with PGIM, Inc. to manage a portion of the System's fixed income portfolio in a broad high yield fixed income mandate benchmarked to the Bloomberg US High Yield 1% Issuer Capped Index (the “Benchmark”), and to make an initial allocation of up to $150 million to such manager in one or more tranches; and be it further

RESOLVED, That the Executive Director and Chief Investment Officer, or designee, is authorized to modify the System’s Investment Policy Manual to add the Benchmark to the list of performance benchmarks for high yield bond managers; and be it further

RESOLVED, That the Executive Director and Chief Investment Officer, or designee, is authorized to execute such documents and to take such actions as may be necessary or required to implement the foregoing resolution.

7. Risk Committee

C. Morin, Chair, reported that the Committee had met earlier in the day and heard a presentation an information security update in Executive Session and in open session heard reports on the annual SEC Red Flags risk assessment and the investment risk KRI dashboard.

## Staff Reports

A. Old Business

None.

B. New Business

1. Litigation

D Ampansiri discussed the Litigation report, a copy of which is annexed hereto and made a part hereof as Appendix G, pp. 52-56.

2. Member Relations

All Board members received a Retirement Summary Report prior to the meeting, a copy of which is annexed hereto and made a part hereof as Appendix H, pp. 57-68. E. Rezny reviewed the final agenda and procedures for NYSTRS’ hybrid Delegates’ meeting to be held on November 6-7, 2022 and the results of NYSTRS’ customer satisfaction surveys. Andy Whitney gave a presentation on processing retired death benefits.

3. Board Retreat Follow Up

Emily Ekland updated the Board on items discussed at the Board retreat that had been marked for follow up.

4. Stewardship Update

Han Yik provided an update on our stewardship efforts.

5. New Mail Vote Procedure

Vijay Madala advised that we would be testing our new electronic mail vote procedure with the Board in early November.

6. Employer Contribution Rate Presentation

Richard Young and Melody Prangley gave a presentation to the Board on the employer contribution rate, a copy of which is attached hereto as Appendix I, pp. 69-87. and provided a memo on the Change in the Mortality Improvement Scale (Appendix J, p. 88).

A. Resolution on Rules and Regulations: Change in the Mortality Improvement Scale (Actuarial Assumption) (R27)

N. Smirensky offered the following resolution, seconded by R. Mahoney and unanimously carried by the Board:

WHEREAS, The Actuary recommends a new assumption for the mortality improvement scale, and

WHEREAS, The Retirement Board, after deliberation, has determined the adoption of this new actuarial assumption as recommended by the Actuary and as reflected in section 5018.2 of the Rules and Regulations is necessary for the proper operation of the Retirement System, be it therefore

RESOLVED, That the existing section 5018.2 of the Rules and Regulations of the New York State Teachers' Retirement System be amended, a copy of which is annexed hereto and made a part thereof as Appendix K, pp. 89-107, and be it further

RESOLVED, That such new actuarial assumption shall be used in performing the annual actuarial valuation of the Retirement System beginning with the actuarial valuation as of June 30, 2022, which shall become effective for the fiscal year beginning July 1, 2023.

There being no further business the meeting unanimously adjourned at 11:09 a.m.

Respectfully submitted,

[redacted]

________________________

Thomas K. Lee

**NEW YORK STATE TEACHERS' RETIREMENT SYSTEM**
**Memorandum**

| | |
|---|---|
| TO: | Retirement Board |
| FROM: | D. Ampansiri, Jr./Y. Ruoso/K. Vrbanac |
| RE: | 2023 Legislative Program and Update |
| DATE: | October 18, 2022 |
| CC: | T. Lee |

**2023 Legislative Program**

Accompanying the Retirement Board materials is the 2023 Legislative Program recommended by System staff. The 2023 Program proposes to carry forward 1 bill from the 2022 Legislative Program not acted upon by the Legislature.

Program bill 22-4 (transfer of reserves) will be carried forward as program bill 23-1 respectively.

> **23-1** – Reinstates the transfer of reserves for members transferring between certain public retirement systems with 10 or more years of credited service.

For your review and action, you have been provided with the legislative package: the bill text, memo and fiscal note updated for the 2023 legislative session.

**Update on 2022 Legislation**

As of this writing, Program bill 22-6, the 2-year benefit recalculation bill, which passed both houses (the Senate on May 23, 2022 and the Assembly on June 3, 2022) has not yet been delivered to the Governor. We will continue to keep you posted on any further action.

> **22-6** – Allows retirees of the New York State Teachers' Retirement System who suspend retirement the option of a benefit recalculation after 2 years of service.

The System also continues to monitor the following legislation which passed both houses of the Legislature this past legislative session and are awaiting delivery to the Governor:

**S8532A/A9668A**: amends Retirement and Social Security Law Section 177 to increase the percentage of assets which may be invested under the “basket clause” from 25% to 35%.

**S6619B/A7730A**: amends the Retirement and Social Security Law to change the age at which reductions to the ordinary death benefit commence for active members (NYSTRS and NYSLRS).

Currently, the ordinary death benefit is reduced by four percent per year commencing at age 61. This bill would change the age at which reductions commence to age 62 for members with a date of membership prior to April 1, 2012 and to age 63 for members with a date of membership on or after April 1, 2012.

The post-retirement death benefit for affected members, which is based on the ordinary death benefit, would be increased as well.

# 2023 Legislative Program

*New York State Teachers' Retirement System*

NY STRS

**New York State Teachers' Retirement System**
10 Corporate Woods Drive
Albany, New York 12211-2395
(800) 348-7298 or (518) 447-2900
NYSTRS.org



# 2023 NYSTRS Legislative Program

| 2022 Bill Numbers | Subject | 2023 Program Number | 2023 Cost |
|---|---|---|---|
| S6537 (Not tracked as Same as bills) A10474 | Reinstates the transfer of reserves for members transferring between certain public retirement systems with 10 or more years of credited service. | 23-1 | No Cost |

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10 Corporate Woods Drive
Albany, New York 12211-2395
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NYSTRS.org



NEW YORK STATE TEACHERS' RETIREMENT SYSTEM
BILL NO. 23-1

MEMORANDUM

RE

**"AN ACT TO AMEND THE EDUCATION LAW, THE RETIREMENT AND SOCIAL SECURITY LAW, THE ADMINISTRATIVE CODE OF THE CITY OF NEW YORK AND CHAPTER 666 OF THE LAWS OF 1990, AMENDING THE ADMINISTRATIVE CODE OF THE CITY OF NEW YORK AND THE EDUCATION LAW RELATING TO THE AVAILABILITY OF ADDITIONAL PENSION BENEFITS, IN RELATION TO THE TRANSFER OF RESERVES BETWEEN PUBLIC RETIREMENT SYSTEMS OF THE STATE FOR CERTAIN MEMBERS"**

## Purpose of the Bill

The bill amends Education Law Section 522, Retirement and Social Security Law Sections 43 and 343, Administrative Code of the City of New York Sections 13-143 and 13-144 and Chapter 666 of the laws of 1990, to reinstate the transfer of reserves as a required step in completing the transfer of a membership between public retirement systems within New York state for members transferring with ten or more years of service credit.

## Summary and Justification

Pursuant to Chapter 647 of the laws of 2004, the transfer provisions allow for reciprocal transfers of service credit and salary between New York state public retirement systems without the transfer of employer reserves. In essence, the transfer provisions allow for public employees to move between positions of public employment and transfer their membership of credited service, salary, annuity, if any, and any accumulated member contributions, in order to obtain a single combined pension based upon all their public service within New York state at the time of retirement.

In 2004, one of the reasons for eliminating the transfer of employer reserves requirement was to streamline the process to benefit public employees transferring between retirement systems. With more modern systems in place to calculate the reserve more efficiently, this proposal balances the requirement to fund the future benefits with the administration by capturing only those transfers with significant years of credited service. This proposal requires the calculation for the reserves to be transmitted only for members transferring 10 or more years of credited member service and provides for an exclusion for transfers within and between the New York city employees' retirement system, New York city teachers' retirement system and New York city board of education retirement system.

This bill seeks to continue the "portability" assured to public employees who move to different positions in public employment within New York and place all the public retirement systems in a similar position in terms of pension liabilities by restoring the requirement for each public retirement system from which a public employee is transferring (the "transferring system") to calculate the "reserve" for said public employee transferring with 10 or more years of credited service at the time the transfer is initiated. The public employee's transfer would not be deemed complete unless and until the public retirement system has received a record of the member's credited service and salary from the transferring system and any other documentation necessary to effectuate the transfer of the member's annuity if any, and any accumulated member contributions.

The Retirement System respectfully requests the transfer of reserves for members transferring with 10 or more years of credited service be reinstated. The pension systems have streamlined the ability to capture reserves since 2004 and necessitating the requirement for reserves for long standing public employees will provide equity to the pension systems funding the benefit at retirement.

Effective Date of the Bill

This act shall take effect immediately and shall apply to any covered membership transfer initiated on or after the effective date of this act; provided, however, that no provision of this act shall affect (a) the transfer of reserves required with respect to transfers between any two of the New York state and local police and fire retirement system, the New York city police pension fund and the New York city fire pension fund and with respect to transfers from the New York state and local police and fire retirement system to the metropolitan transportation authority police pension fund; and (b) the transfer of reserves with respect to transfers within and between the New York city employees' retirement system, New York city teachers' retirement system and New York city board of education retirement system.

Other Agencies to Whom the Bill May Be of Interest

Division of the Budget, Department of Financial Services.

Budgetary Implications of the Bill

It is estimated that there will be no additional annual cost to the employers of members of NYSTRS if this bill is enacted.

NOTE: This bill was prepared under the direction of the New York State Teachers' Retirement System Board and was introduced at its request.

NEW YORK STATE TEACHERS' RETIREMENT SYSTEM BILL NO. 23-1

AN ACT to amend the education law, the retirement and social security law, the administrative code of the city of New York, and chapter 666 of the laws of 1990, amending the administrative code of the city of New York and the education law relating to the availability of additional pension benefits, in relation to the transfer of reserves between public employee retirement systems of the state

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

Section 1. Subdivision 5 of section 522 of the education law, as amended by chapter 41 of the laws of 2009, is amended to read as follows:

5. Notwithstanding any other provision of law to the contrary, except for the purposes of providing the benefits, if any, of subdivision four of this section, with respect to transfers pursuant to this section which occur on or after the effective date of the chapter of the laws of two thousand twenty-three that amended this subdivision, no transfer of a pension reserve pursuant to subdivision one or two of this section shall be required when the member is transferring in from a public [~~employee~~] retirement system of [~~this~~] the state [~~to any other public employee retirement system of this state~~] with less than ten years of credited service with the transferring retirement system at the time the transfer is initiated. With respect to transfers pursuant to subdivision one or two of this section which occur on or after the effective date of the chapter of the laws of two thousand twenty-three that amended this subdivision, the transfer of a pension reserve shall be required when the member is transferring ten or more years of credited service from a public retirement system of this state to any other public retirement system of this state, excluding any transfers within and between the New York city employees’ retirement system, New York city teachers’ retirement system and New York city board of education retirement system. For the purpose of giving the transferring member such status and crediting such service in the retirement

system to which the member is transferring as such member was allowed in the retirement system from which the member has transferred, the transfer shall be deemed complete upon receipt by the transferee retirement system of (a) a statement from the transferor retirement system of the transferring member's date of membership in the transferor retirement system, tier status, service credited to the transferred membership, and such other information as the transferee retirement system may require to effectuate the transfer, [~~and~~] (b) such member's accumulated contributions from the transferor retirement system, if same had not been previously withdrawn, or notice from the transferor retirement system that such member had no accumulated contributions, or notice from the transferor retirement system that such member's accumulated contributions had been withdrawn and the amount thereof and, as applicable, receipt from such member of such member's accumulated contributions and interest, and (c) the pension reserve in the case of a member who transfers in ten or more years of credited service, except when transferring within and between the New York city employees' retirement system, New York city teachers' retirement system and New York city board of education retirement system.

§2. Subdivision k of section 43 of the retirement and social security law, as amended by chapter 41 of the laws of 2009, is amended to read as follows:

k. Notwithstanding any other provision of this section, any member of the New York state and local employees' retirement system or the New York city teachers' retirement system who retired from service from either the New York city employees' retirement system or the New York city board of education retirement system as a member of the career pension plan maintained by such system and who, but for the fact that he or she retired, would be eligible for transfer and who has not, in fact, received a pension payment from such system shall be permitted to transfer his or her retirement system membership pursuant to the provisions of this section. In such event, the application for retirement shall be deemed to have been rescinded and the retirement system from which the service shall be transferred shall transfer the appropriate reserves as provided by this section, provided, however, that with respect to transfers pursuant to this subdivision which occur on or after [~~the twenty-sixth day of October, two thousand four~~] the effective date of the chapter of the laws of two thousand twenty-three that amended this subdivision, except for the purposes of providing the benefits, if any, of subdivision four of section five hundred twenty-two of the education law, no determination of a reserve pursuant to subdivision c of this section or transfer thereof pursuant to the first sentence of subdivision d of this section shall be required in the case of any transfer pursuant to this subdivision with less than ten years of credited service with the transferring retirement system at the time the transfer is initiated. With respect to transfers pursuant to this section which occur on or after the effective date of the chapter of the laws of two thousand twenty-three that amended this subdivision, the transfer of a pension reserve shall be required when the member is transferring ten or more years of credited service from a public retirement system of the state to any other public retirement system of the state, excluding any transfers within and between the New York city employees' retirement system, New York city teachers' retirement system and New York city board of education retirement system. Notwithstanding the provision of this subdivision or any other provision of law, an individual who transfers pursuant to this subdivision shall not be required to render any minimum period of service following transfer in order to be eligible to receive the full benefit provided hereunder. Notwithstanding the foregoing, a retiree covered by either the career pension plan or the fifty-five-year-increased-service-fraction plan who has received a pension payment or payments from such system shall be eligible for the provisions of this subdivision upon payment, to the retirement system from which the pension payment or payments were made, of an amount equal to such pension payment or payments. After such payments and the pension reserve, in the case of a member who transfers in ten or more years of credited service, except when transferring within and between the New York city employees' retirement system, New York city teachers' retirement system and New York city board of education retirement system, are received, such person shall be permitted to transfer his or her retirement system membership pursuant to the provisions of this section.

§3. Subdivision l of section 43 of the retirement and social security law, as amended by chapter 41 of the laws of 2009, is amended to read as follows:

l. Notwithstanding any other provision of law to the contrary, with respect to transfers pursuant to this section which occur on or after [~~the twenty-sixth day of October, two thousand four~~] the effective date of the chapter of the laws of two thousand twenty-three that amended this subdivision, except for the purposes of providing the benefits, if any, of subdivision four of section five hundred twenty-two of the education law, no determination of a reserve pursuant to subdivision c of this section or transfer thereof pursuant to the first sentence of subdivision d of this section shall be required in the case of any transfer pursuant to this section with less than ten years of credited service with the transferring retirement system at the time the transfer is initiated. With respect to transfers pursuant to this section which occur on or after the effective date of the chapter of the laws of two thousand twenty-three that amended this subdivision, the transfer of a pension reserve shall be required when the member is transferring ten or more years of credited service from a public retirement system of the state to any other public retirement system of the state, excluding any transfers within and between the New York city employees' retirement system, New York city teachers' retirement system and New York city board of education retirement system. For the purpose of giving the transferring member such status and crediting such service in the second retirement system as such member was allowed in the first retirement system in those cases to which this subdivision shall apply, the transfer shall be deemed complete upon receipt by the second retirement system of:

1. a statement from the first retirement system of the transferring member's date of membership in the first retirement system, tier status, service credited to such membership being transferred, and such other information as the second retirement system may require to effectuate the transfer; [~~and~~]

2. such member's accumulated contributions from the first retirement system, if same had not been previously withdrawn, or notice from the first retirement system that such member had no accumulated contributions, or notice from the first retirement system that such member's accumulated contributions had been withdrawn and the amount thereof and, as applicable, receipt from such member of such member's accumulated contributions and interest; and

3. the pension reserve in the case of a member who transfers in ten or more years of credited service, except when transferring within and between the New York city employees' retirement system, New York city teachers' retirement system and New York city board of education retirement system.

§4. Subdivision h of section 343 of the retirement and social security law, as amended by chapter 533 of the laws of 2015, is amended to read as follows:

h. Notwithstanding any other provision of law to the contrary, with respect to transfers pursuant to this section which occur on or after the effective date of the chapter of the laws of two thousand twenty-three that amended this subdivision, no determination of a reserve pursuant to subdivision c of this section or transfer thereof pursuant to the first sentence of subdivision d of this section shall be required in the case of any transfer pursuant to this section (other than a transfer from the New York state and local police and fire retirement system to either (1) the New York city police department subchapter two pension fund, (2) the New York city fire department subchapter two pension fund or (3) the MTA police retirement program or a transfer from either (i) the New York city police department subchapter two pension fund or (ii) the New York city fire department subchapter two pension fund to either (A) the New York state and local police and fire retirement system or (B) the MTA police retirement program or a transfer from the MTA police retirement program to the New York state and local police and fire retirement system) in the case of a member with less than ten years of credited service with the transferring retirement system at the time the transfer is initiated. With respect to transfers pursuant to such subdivisions which occur on or after the effective date of the chapter of the laws of two thousand twenty-three that amended this subdivision, the transfer of a pension reserve shall be required when the member is transferring ten or more years of credited service from a public retirement system of the state to any other public retirement system of the state, excluding any transfers within and between the New York city employees' retirement system, New York city teachers' retirement system and New York city board of education retirement system. For the purpose of giving the transferring member such status and crediting such service in the second retirement system as such member was allowed in the first retirement system in those cases to which this subdivision shall apply, the transfer shall be deemed complete upon receipt by the second retirement system of:

1. a statement from the first retirement system of the transferring member's date of membership in the first retirement system, tier status, service credited to such membership being transferred, and such other information as the second retirement system may require to effectuate the transfer; [~~and~~]

2. such member's accumulated contributions from the first retirement system, if same had not been previously withdrawn, or notice from the first retirement system that such member had no accumulated contributions, or notice from the first retirement system that such member's accumulated contributions had been withdrawn and the amount thereof and, as applicable, receipt from such member of such member's accumulated contributions and interest; and

3. the pension reserve in the case of a member who transfers in ten or more years of credited

service, except when transferring within and between the New York city employees' retirement system, New York city teachers' retirement system and New York city board of education retirement system.

§5. Paragraph 4 of subdivision a of section 13-143 of the administrative code of the city of New York, as added by chapter 647 of the laws of 2004, is amended to read as follows:

(4) Notwithstanding the provisions of paragraph two of this subdivision, with respect to transfers pursuant to this section which occur on or after the effective date of the chapter of the laws of two thousand twenty-three that amended this paragraph, the actuary of the New York city employees' retirement system shall not be required to determine the reserve on the benefits allowable to the transferring member as the result of employer contributions, including the reserve-for-increased-take-home-pay, and the transfer of such reserve, including the reserve-for-increased-take-home-pay, from the New York city employees' retirement system to said police pension fund [~~shall not be required~~] when a member is transferring with less than ten years of credited service with the transferring retirement system at the time the transfer is initiated. With respect to transfers pursuant to this subdivision which occur on or after the effective date of the chapter of the laws of two thousand twenty-three that amended this paragraph, the transfer of a pension reserve shall be required when the member is transferring ten or more years of credited service from a public retirement system of the state to any other public retirement system of the state, excluding any transfers within and between the New York city employees' retirement system, New York city teachers' retirement system and New York city board of education retirement system. The New York city employees' retirement system, within one year from the date of the request for the transfer of credit, shall comply with all requirements for completing the transfer imposed on it by the provisions of this section, including the pension reserve in the case of a member who transfers ten or more years of credited service, except when transferring within and between the New York

city employees' retirement system, New York city teachers' retirement system and New York city board of education retirement system. Nothing set forth in this paragraph shall be deemed to modify the requirement set forth in paragraph two of this subdivision that the New York city employees' retirement system transfer to said police pension fund the accumulated deductions of such member.

§6. Paragraph 4 of subdivision a of section 13-144 of the administrative code of the city of New York, as added by chapter 647 of the laws of 2004, is amended to read as follows:

(4) Notwithstanding the provisions of paragraph two of this subdivision, with respect to transfers pursuant to this section which occur on or after the effective date of the chapter of the laws of two thousand twenty-three that amended this paragraph, the actuary of the New York city employees' retirement system shall not be required to determine the reserve on the benefits allowable to the transferring member as the result of employer contributions, including [~~the reserve-for-increased-take-home-pay, and~~] the transfer of such reserve[~~, including~~] and the reserve-for-increased-take-home-pay[~~,~~] from the New York city employees' retirement system to said fire department pension fund [~~shall not be required~~], with less than ten years of credited service from the transferring retirement system at the time the transfer is initiated. With respect to transfers pursuant to this section which occur on or after the effective date of the chapter of the laws of two thousand twenty-three that amended this paragraph, the transfer of a pension reserve pursuant to paragraph two of this subdivision shall be required when the member is transferring ten or more years of credited service from a public retirement system of the state to any other public retirement system of the state, excluding any transfers within and between the New York city employees' retirement system, New York city teachers' retirement system and New York city board of education retirement system. The New York city employees' retirement system, within one year from the date of the request for the transfer of credit, shall comply with all requirements for completing the

transfer imposed on it by the provisions of this section, including the pension reserve in the case of a member who transfers ten or more years of member service credit, except when transferring within and between the New York city employees' retirement system, New York city teachers' retirement system and New York city board of education retirement system. Nothing set forth in this paragraph shall be deemed to modify the requirement set forth in paragraph two of this subdivision that the New York city employees' retirement system transfer to said fire department pension fund the accumulated deductions of such member.

§7. Subdivision d of section 3 of chapter 666 of the laws of 1990, amending the administrative code of the city of New York and the education law relating to the availability of additional pension benefits for an extended second public employment to certain retirees, as amended by chapter 647 of the laws of 2004, is amended to read as follows:

d. Notwithstanding the provisions of subdivision b of this section or any other provision of law to the contrary, with respect to transfers pursuant to this section which occur on or after the effective date of the chapter of the laws of two thousand twenty-three that amended this subdivision, no determination or transfer of the reserve on the benefits allowable to the transferring member as the result of employer contributions, including the reserve-for-increased-take-home-pay, shall be required for a member with less than ten years of credited service from the transferring system at the time the transfer is initiated. With respect to transfers pursuant to this section which occur on or after the effective date of the chapter of the laws of two thousand twenty-three that amended this subdivision, the transfer of a pension reserve shall be required when the member is transferring ten or more years of credited service from a public retirement system of this state to any other public retirement system of the state, excluding any transfers within and between the New York city employees' retirement system, New York city teachers' retirement system and New York city board of education retirement system.

§8. This act shall take effect immediately and shall apply to any covered membership transfer initiated on or after the effective date of this act; provided, however, that no provision of this act shall affect (a) the transfer of reserves required with respect to transfers between any two of the New York state and local police and fire retirement system, the New York city police department subchapter two pension fund and the New York city fire department subchapter two pension fund and with respect to transfers from the New York state and local police and fire retirement system to the metropolitan transportation authority police pension fund; and (b) the transfer of reserves with respect to transfers within and between the New York city employees' retirement system, New York city teachers' retirement system and New York city board of education retirement system.

FISCAL NOTE. - - Pursuant to Legislative Law, Section 50:

> This bill would amend Section 522 of the Education Law and various sections of the Retirement and Social Security Law and the Administrative Code of the City of New York to require the transfer of pension reserves between retirement systems in cases in which a member of the New York State Teachers' Retirement System (NYSTRS) or any Retirement System of the State or City of New York transfers a membership with ten or more years of credited service at the time the transfer is initiated. This act shall take effect immediately and shall apply to any membership transfer initiated on or after the effective date of this act. No transfer of reserves will be required for transfers within and between the NYC Retirement Systems. The current transfer of reserves that occurs due to transfers between the police and fire systems shall not be disturbed.
>
> It is estimated that there will be no additional annual cost to the employers of members of the NYSTRS if this bill is enacted. In fact, this bill will greatly

increase equity between the retirement systems of the state by ensuring that a member who transfers with a significant liability will bring with him or her the pension reserve accumulated by the prior retirement system to offset the liability assumed by the new retirement system.

Member data is from the System's most recent actuarial valuation files, consisting of data provided by the employers to the Retirement System. Data distributions and statistics can be found in the System's Annual Report. System assets are as reported in the System's financial statements and can also be found in the System's Annual Report. Actuarial assumptions and methods are provided in the System's Actuarial Valuation Report.

The source of this estimate is Fiscal Note 2023-1 dated October 14, 2022 prepared by the Office of the Actuary of the New York State Teachers' Retirement System and is intended for use only during the 2023 Legislative Session. I, Richard A. Young, am the Chief Actuary for the New York State Teachers' Retirement System. I am a member of the American Academy of Actuaries and I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

**NEW YORK STATE TEACHERS' RETIREMENT SYSTEM**

**Memorandum**

**TO:** Retirement Board

**FROM:** D. Ampansiri, Jr., Y. Ruoso

**SUBJECT:** Amendments to the System's Bylaws

**DATE:** October 18, 2022

**CC:** T. Lee

The System's Bylaws (Article I, paragraph 8) authorizes the Retirement Board to act between meetings of the Board on occasional matters determined by the President to be non-controversial in nature so as not to require a special meeting of the Board. Currently, the Board may take such actions by unanimous vote of its members by mail and/or facsimile.

Additionally, the System's Bylaws (Article III, paragraph 4) authorizes the Investment Committee of the Board to act between meetings by unanimous vote. Currently, this Committee may take such action by mail and/or facsimile or telephone confirmed by mail, facsimile and/or other electronic means approved by the Board.

System Staff recommend an update to the Bylaws to expand the technology with which the Board and Investment Committee of the Board may use to occasionally act in between meetings as authorized and contemplated in the Bylaws. The recommendation is to replace the term "facsimile" with "e-mail and other electronic means approved by the System." The intent of this change is to continue to provide the authority and flexibility to use current modes of electronic communications and information exchange technology.

A mark-up and clean copy of the Bylaws accompany this memo for your consideration.

Bylaws as amended on February 19, 1969; April 25, 1969; November 10, 1969; October 30, 1980; January 29, 1981; October 27, 1983; October 25, 1990; October 24, 1991; April 27, 1995; October 26, 1995; April 28, 2005; October 28, 2010; January 30, 2020; October 27, 2022.

NEW YORK STATE TEACHERS' RETIREMENT SYSTEM

BYLAWS

Article I

Retirement Board Meetings

1. All meetings of the Board shall be held in the office of the Retirement System in Albany, unless, in the case of a special meeting, a different location is specified in the call.

2. The annual meeting of the Board shall be held on a business day in the month of January each year.

3. In addition to the annual meeting, the Board shall have three stated meetings each year, at least once in each quarter, on a business day set by the Board.

4. Special meetings of the Board may be held upon call of the President. Upon written request to the Secretary by four of the members of the Board, the President shall call a special meeting of the Board. The call or request shall state the business to be considered at the special meeting and no other business shall be transacted at such special meeting.

5. Notice of the time and place of all annual, stated and special meetings of the Board shall be mailed by the Secretary to each member at the member's last known post office address at least seven days before each meeting, except when the President determines a special meeting of the Board is necessary to address a matter requiring

immediate action by the Board in order to prevent loss, in which event the Secretary shall give as prompt notice as is reasonably practical.

6. A member of the Board may waive written notice of any annual, stated, or special meeting by presenting such waiver in writing to the Secretary on or before the day of the meeting for which notice is being waived.

7. In addition to any other authorized procedure for the Board or any committee thereof to conduct meetings, the Board or any committee thereof may act by means of a conference telephone or other communications equipment allowing all persons participating in the meeting to hear each other at the same time.

8. The Board may act by a unanimous vote of its members taken by mail and/or [~~facsimile~~] e-mail and other electronic means approved by the System, or by telephone confirmed by mail and/or other electronic means approved by the System, on occasional matters determined by the President to be non-controversial in nature so as not to require a special meeting of the Board but having circumstances which make it impractical to delay action until the next annual or stated meeting of the Board.

Catastrophic Emergency Procedure

9. In the event of a "catastrophic emergency", the business of the Board shall be conducted by as many members of the Board as may be reasonably available to act in the circumstances, but not less than three members, its Secretary and General Counsel or, if the foregoing group cannot be constituted, such group or groups of available Board members and staff as the Board may have determined by resolution. The groups as so determined shall constitute a quorum to conduct the business of the Board and shall fix

the time and place of meeting and carry on the business of the Board at such place during the period of the catastrophic emergency.

For the purposes of this section, a "catastrophic emergency" shall mean a period during which prompt action by the Board is necessary to preserve the assets of the System or otherwise prevent loss to the System or its members and beneficiaries but it is impossible for the Board to conduct its business in accordance with the strict provision of law because of extraordinary loss of life, disease, destruction or damage of property, or disruption of means of transportation and communication.

Article II

Officers and Their Duties

1. The Board shall have as officers a President and a Vice President. The President and Vice President shall be members of the Board and shall be elected by the Board at its annual meeting in January. Upon election they shall assume office upon such election and hold same until the next annual meeting of the Board.

2. The President of the Board shall preside at all meetings of the Board and of the Executive Committee. The President shall appoint the members of all committees of the Board. The President shall have power to act for the Board in all matters which may be referred to the President by the Board.

3. The Vice President, in the absence or inability of the President to act, shall have all the powers of the President.

4. In the event a vacancy occurs in any elected office, the Board may fill such vacancy at any regular or special Board meeting.

5. The Board shall employ a Secretary, who shall be the chief executive officer of the System and shall, for the purposes of conducting System business, be known as the

Executive Director of the System. The Secretary shall cause minutes to be taken of all meetings of the Board and Committees of the Board, shall cause such minutes and all such records as may be required by law or by order of the Board or as may be necessary for the proper operation of the System to be compiled and suitably maintained, shall conduct the affairs of the System, and shall provide for carrying out all provisions of law applicable to the System. To that end, the Secretary shall cause the staff of the System to take the following actions under [~~his~~] the Secretary's direction:

(a) receive applications for System membership and benefits;

(b) secure such information relevant to the determination of such applications or as otherwise may be necessary for the proper operation of the System;

(c) compute the contributions by employers necessary to pay benefits authorized under law and obtain the timely collection thereof, as well as of member contributions required by law;

(d) invest the funds of the System committed to the management of System staff in accordance with the directions, policies and procedures established by the Board and monitor and report on the activities and performance of such third-party investment managers as may be appointed by the Board to invest the funds of the System;

(e) execute all contracts and legal documents as authorized by the Board;

(f) determine, compute and pay all benefits to which System members, retirees and beneficiaries may be entitled under the laws governing the System; and

(g) perform such other duties as may from time to time be assigned by the Board.

6. Subject to such matters as may be determined by the Board, the Secretary shall have the authority to hire and compensate System staff and to delegate any or all of

[~~his/her~~] the Secretary's duties to employees of the System as [~~he/she~~] the Secretary shall determine.

Article III

Executive and Other Committees

1. The Executive Committee of the Board shall consist of the President, Vice President, and at least two other Board members appointed by the President. The Executive Committee shall have power, at intervals between meetings of the Board, to transact such business as the Board may from time to time authorize and direct.

2. In addition to the Executive Committee, there shall be six other standing committees of the Board: Audit, Compensation, Disability Review, Ethics, Investment, and Risk.

3. The responsibilities of each standing committee shall be set forth in a written charter which shall be maintained in the Board Governance Manual.

4. Between meetings of the Board, the Investment Committee is empowered to acquire and sell real estate investments, to make and discharge mortgage investments and to make private equity investments within the asset allocation and such other limitations as may be prescribed by the Board and to authorize such other actions as may be necessary or required to implement the foregoing or as the Board may delegate to the Investment Committee by resolution. The Investment Committee is empowered to take such actions by unanimous vote taken by mail and/or [~~facsimile~~] e-mail and other electronic means approved by the System, or telephone confirmed by mail[~~, facsimile~~] and/or other electronic means approved by the [~~Board by resolution~~] System.

5. The Disability Review Committee shall consist of not less than four members of the Board. The President may designate one or more members of the Board as alternate

members of the Disability Review Committee who may replace any member of the Committee who is absent from the state or is otherwise unable to act. Between meetings of the Board, the Disability Review Committee is empowered to retire for disability those members whose applications have been recommended for approval by the Medical Board and the Secretary. The Disability Review Committee is empowered to take such actions by unanimous vote taken by mail and/or facsimile, or telephone confirmed by mail, facsimile and/or other electronic means approved by the Board by resolution.

6. The President shall have the power to appoint such other committees of the Board as directed by the Board or as the President may deem advisable.

7. A majority of the whole number of members of any committee shall constitute a quorum.

## Article IV

1. These Bylaws may be amended at any meeting of the Board, provided notice of such amendment is mailed to the members of the Board at least seven days prior to the date of the meeting or such amount of time as the Board deems appropriate by resolution. The notice requirement may be waived at any meeting upon unanimous consent of the Board.

Bylaws as amended on February 19, 1969; April 25, 1969; November 10, 1969; October 30, 1980; January 29, 1981; October 27, 1983; October 25, 1990; October 24, 1991; April 27, 1995; October 26, 1995; April 28, 2005; October 28, 2010; January 30, 2020; October 27, 2022.

NEW YORK STATE TEACHERS' RETIREMENT SYSTEM

BYLAWS

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5. Notice of the time and place of all annual, stated and special meetings of the Board shall be mailed by the Secretary to each member at the member's last known post office address at least seven days before each meeting, except when the President determines a special meeting of the Board is necessary to address a matter requiring

immediate action by the Board in order to prevent loss, in which event the Secretary shall give as prompt notice as is reasonably practical.

6. A member of the Board may waive written notice of any annual, stated, or special meeting by presenting such waiver in writing to the Secretary on or before the day of the meeting for which notice is being waived.

7. In addition to any other authorized procedure for the Board or any committee thereof to conduct meetings, the Board or any committee thereof may act by means of a conference telephone or other communications equipment allowing all persons participating in the meeting to hear each other at the same time.

8. The Board may act by a unanimous vote of its members taken by mail and/or e-mail and other electronic means approved by the System, or by telephone confirmed by mail and/or other electronic means approved by the System, on occasional matters determined by the President to be non-controversial in nature so as not to require a special meeting of the Board but having circumstances which make it impractical to delay action until the next annual or stated meeting of the Board.

Catastrophic Emergency Procedure

9. In the event of a "catastrophic emergency", the business of the Board shall be conducted by as many members of the Board as may be reasonably available to act in the circumstances, but not less than three members, its Secretary and General Counsel or, if the foregoing group cannot be constituted, such group or groups of available Board members and staff as the Board may have determined by resolution. The groups as so determined shall constitute a quorum to conduct the business of the Board and shall fix

the time and place of meeting and carry on the business of the Board at such place during the period of the catastrophic emergency.

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2. The President of the Board shall preside at all meetings of the Board and of the Executive Committee. The President shall appoint the members of all committees of the Board. The President shall have power to act for the Board in all matters which may be referred to the President by the Board.

3. The Vice President, in the absence or inability of the President to act, shall have all the powers of the President.

4. In the event a vacancy occurs in any elected office, the Board may fill such vacancy at any regular or special Board meeting.

5. The Board shall employ a Secretary, who shall be the chief executive officer of the System and shall, for the purposes of conducting System business, be known as the

Executive Director of the System. The Secretary shall cause minutes to be taken of all meetings of the Board and Committees of the Board, shall cause such minutes and all such records as may be required by law or by order of the Board or as may be necessary for the proper operation of the System to be compiled and suitably maintained, shall conduct the affairs of the System, and shall provide for carrying out all provisions of law applicable to the System. To that end, the Secretary shall cause the staff of the System to take the following actions under the Secretary's direction:

(a) receive applications for System membership and benefits;

(b) secure such information relevant to the determination of such applications or as otherwise may be necessary for the proper operation of the System;

(c) compute the contributions by employers necessary to pay benefits authorized under law and obtain the timely collection thereof, as well as of member contributions required by law;

(d) invest the funds of the System committed to the management of System staff in accordance with the directions, policies and procedures established by the Board and monitor and report on the activities and performance of such third-party investment managers as may be appointed by the Board to invest the funds of the System;

(e) execute all contracts and legal documents as authorized by the Board;

(f) determine, compute and pay all benefits to which System members, retirees and beneficiaries may be entitled under the laws governing the System; and

(g) perform such other duties as may from time to time be assigned by the Board.

6. Subject to such matters as may be determined by the Board, the Secretary shall have the authority to hire and compensate System staff and to delegate any or all of the Secretary's duties to employees of the System as the Secretary shall determine.

Article III

Executive and Other Committees

1. The Executive Committee of the Board shall consist of the President, Vice President, and at least two other Board members appointed by the President. The Executive Committee shall have power, at intervals between meetings of the Board, to transact such business as the Board may from time to time authorize and direct.

2. In addition to the Executive Committee, there shall be six other standing committees of the Board: Audit, Compensation, Disability Review, Ethics, Investment, and Risk.

3. The responsibilities of each standing committee shall be set forth in a written charter which shall be maintained in the Board Governance Manual.

4. Between meetings of the Board, the Investment Committee is empowered to acquire and sell real estate investments, to make and discharge mortgage investments and to make private equity investments within the asset allocation and such other limitations as may be prescribed by the Board and to authorize such other actions as may be necessary or required to implement the foregoing or as the Board may delegate to the Investment Committee by resolution. The Investment Committee is empowered to take such actions by unanimous vote taken by mail and/or e-mail and other electronic means approved by the System, or telephone confirmed by mail and/or other electronic means approved by the System.

5. The Disability Review Committee shall consist of not less than four members of the Board. The President may designate one or more members of the Board as alternate members of the Disability Review Committee who may replace any member of the Committee who is absent from the state or is otherwise unable to act. Between meetings

of the Board, the Disability Review Committee is empowered to retire for disability those members whose applications have been recommended for approval by the Medical Board and the Secretary. The Disability Review Committee is empowered to take such actions by unanimous vote taken by mail and/or facsimile, or telephone confirmed by mail, facsimile and/or other electronic means approved by the Board by resolution.

6. The President shall have the power to appoint such other committees of the Board as directed by the Board or as the President may deem advisable.

7. A majority of the whole number of members of any committee shall constitute a quorum.

**Article IV**

1. These Bylaws may be amended at any meeting of the Board, provided notice of such amendment is mailed to the members of the Board at least seven days prior to the date of the meeting or such amount of time as the Board deems appropriate by resolution. The notice requirement may be waived at any meeting upon unanimous consent of the Board.

New York State Teachers' Retirement System

**Signatory Authorization Grid - Financial and Legal Documents**

Effective as of October 27, 2022

| | | Designees | |
|---|---|---|---|
| **Department** | **Executive** | **Deputy / Managers / Counsel** | **Assistant Managers / Counsel** |
| Administration | Miriam Dixon | Rebecca Kannan<br>Jason Freeman | N/A |
| Fixed Income | Michael Federici | Aaron Vanderwiel | Joseph Wood (1) |
| Information Technology | Vijay Madala | Mark Gallagher<br>Sarah Garrand | N/A |
| Internal Audit | Kathy Ebert | N/A | Bruce Woolley<br>Lei Zhang |
| Member Relations | Edward Rezny | Michael Contento<br>Beth Dellea<br>Erica Mortimore<br>Shannon Bonesteel<br>Heidi Brennan<br>Heidi Travis | Colleen Laven<br>Andy Whitney<br>Cori Bichteman<br>Timothy Mack |
| Office of the Actuary | Richard Young | Melody Prangley | N/A |
| Office of the Chief Financial Officer | Margaret Andriola | Christopher O'Grady | Christopher Brown<br>David Robertson<br>Tedd Johnson |
| Office of the General Counsel | N/A | Don Ampansiri<br>Ben Lee<br>Yiselle Ruoso | Janet Graham<br>Adam Kinney<br>Morgan Anderson |
| Private Equity | Gerald Yahoudy | Brad Woolworth<br>Nicholas Chladek | N/A |
| Public Equities | Paul Cummins | David Tessitore<br>Nathan Lee | Jennifer Wilcox |
| Real Estate | David Gillan | Kevin Maloney<br>Michael Morrell<br>Jason Kearney<br>Adrean Kreig | Andrew Bartell<br>David Maye (1) |
| Risk Management | N/A | Matthew Albano | Matthew Tice |

(1) New/promoted manager. Becomes eligible upon completion of new manager review period.

**Changes from Prior Grid**

| Department | Name | Comments |
|---|---|---|
| **Additions:** | | |
| Real Estate | David Maye | Promoted to Assistant Manager of CRE Debt Investments |
| Internal Audit | Kathy Ebert | Hired as Managing Director of Internal Audit |
| **Deletions:** | | |
| Adminstration | Shana Gainey | Separated from employment |
| Information Technology | Michael Gregoire | Separated from employment |
| Internal Audit | Kenneth Kasper | Separated from employment |
| **Other:** | | |
| Information Technology | Vijay Madala | Promoted to Chief Technology Officer |

New York State Teachers' Retirement System

**Signatory Authorization Grid - Disbursement Warrants**

Effective as of October 27, 2022

| Signatory Group | | Executive | Deputy / Managers / Counsel | Assistant Managers / Counsel | Other Professionals |
|---|---|---|---|---|---|
| A | All Types | Richard Young | Don Ampansiri<br>Ben Lee<br>Yiselle Ruoso<br>Melody Prangley<br>Matthew Albano | Janet Graham<br>Adam Kinney<br>Matthew Tice<br>Morgan Anderson | N/A |
| **Signatory Group** | | **Executive** | **Deputy / Managers** | **Assistant Managers** | **Other Professionals** |
| B | Real Estate | David Gillan | Kevin Maloney<br>Michael Morrell<br>Jason Kearney<br>Adrean Kreig | Andrew Bartell<br>David Maye (1) | N/A |
| C | Fixed Income | Michael Federici | Aaron VanDerwiel | Joseph Wood (1) | Dawn Sherman<br>Mark Wood<br>Michael Wollner<br>Christina Vasto<br>Danielle Bondi (2) |
| D | Public Equities | Paul Cummins | David Tessitore<br>Nathan Lee | Jennifer Wilcox | N/A |
| E | Private Equity | Gerald Yahoudy | Brad Woolworth<br>Nicholas Chladek | N/A | N/A |
| F | Finance | Margaret Andriola | Christopher O'Grady | Tedd Johnson<br>David Robertson<br>Christopher Brown | N/A |
| G | Employee Payroll | Miriam Dixon | Rebecca Kannan | N/A | N/A |

(1) New/promoted manager. Becomes eligible upon completion of new manager review period.

(2) New/promoted staff. Becomes eligible upon completion of probationary review period.

**Changes from Prior Grid**

| Group | Name | Comments |
|---|---|---|
| **Additions:** | | |
| B | David Maye | Promoted to Assistant Manager of CRE Debt Investments |
| A | Morgan Anderson | Completed new manager review period |
| **Deletions:** | | |
| G | Shana Gainey | Separated from employment |
| **Other:** | | |
| NONE | | |

**Signatory Group Authority**

| | | Approver | Authorizer | |
|---|---|---|---|---|
| **Type of Disbursement** | **Warrant Type** | **Any Amount** | **Any Amount** | **Under Threshold*** |
| Real Estate | B | B Group | A Group | B Group (Exec) |
| Fixed Income | C | C Group | A Group | C Group (Exec) |
| Public Equities | D | D Group | A Group | D Group (Exec) |
| Private Equity | E | E Group | A Group | E Group (Exec) |
| Finance | F | F Group | A Group | F Group |
| Employee Payroll | G | G Group | A Group | G Group (Exec) |

***The threshold for authorizing warrants is $250,000**

**Signatories cannot sign as approver and authorizer on the same warrant**

October 27, 2022

Recommendation of Compensation Committee

| Title | Effective Date | Current Salary | Proposed Salary |
|---|---|---|---|
| Executive Director/Chief Investment Officer | October 27, 2022 | $607,011 | $736,550 |

X [signature]

David Keefe
Board President

X [signature]

Phyllis Harrington
Compensation Committee, Chair

Appendix F

Board Meeting Agenda pp. 218-219 October 27, 2022

Call to Order by President

A. Introduction of Visitors
B. Correspondence - none
C. Approval of Minutes of Board Meeting August 3, 2022, August 4-5, 2022 Board Retreat pp. 220-231
D. Resolution of Recognition – Michael Gregoire (R1, p. 232)
E. Resolution of Recognition – Kenneth Kasper (R2, p. 233)

**Committee Reports & Action Items**

A **Audit Committee -** O. Robinson, Chair
   1. Chairman's Report
   2. Resolution on Plante Moran Annual Audit Report (R3, p. 234)
B. **Disability Review Committee** - E. Chetney, Chair
   1. Chairman's Report
   2. Disability Denial Resolution (R4, p. 235)
C. **Ethics Committee** - C. Morin, Chair
   1. Chairman's Report
D. **Executive Committee** - D. Keefe, Chair
   1. Resolution on 2023 Legislative Program (R5, p. 236)
   2. Resolution Amending System's Bylaws (R6, p. 237)
   3. Resolution Identifying Financial and Legal Document Signatories (R7, p. 238)
   4. Resolution Identifying Warrant Signatories (R8, p. 239)
E. **Compensation Committee** - P. Harrington, Chair
   1. Chairman's Report
F. **Investment Committee** - N. Smirensky, Chair
   1. **Consent Agenda items 1 A-E pages**: 240-256
      A. Renew Consultant
         - Callan – Real Estate (R9, p. 240)
         - StepStone p(R10, p. 241)
      B. Renew Managers
         - AQR Capital Management LLC (R11, p. 242)
         - BlackRock Institutional Trust Company (R12, p. 243)
         - Dimensional Fund Advisors (R13, p. 244)
         - Goldman Sachs Asset Management (R14, p. 245)
         - Harding Loevner Management (R15, p. 246)
         - Loomis Sayles & Co. (R16, p. 247)
         - Marathon Asset Management Ltd (R17, p. 248)
         - Nomura Corporate Research & Asset Management (R18, p. 249)
         - State Street Global Advisors (R19, p. 250)
      C. Reappointments to Investment Advisory Committee
         - Steve Huber (R20, p. 251)
         - Johanna Fink (R21, p. 252)
         - James O'Keefe (R22, p. 253)

D. Reappointments to Real Estate Advisory Committee
   - Eileen Byrne (R23, p. 254)
   - Herman Bulls (R24, p. 255)

E. Resolution on Investment Policy Manual (R25, p. 256)

F. New Agreements
   - Resolution on PGIM Broad High Yield Strategy (R26, p. 257)

G. **Risk Committee** (C. Morin, Chair)
   1. Chairman's Report

**Staff Reports**

A. Old Business

B. New Business
   1. Litigation – D. Ampansiri pp. 258-262
   2. Member Relations Update – E. Rezny pp. 263-271
      a. Death Benefits – A. Whitney pp. 272-274
   3. Board Retreat Follow Up – E. Ekland pp. 275-277
   4. Stewardship Update – H. Yik
   5. New Mail Vote Procedure – V. Madala p. 278
   6. Employer Contribution Rate Presentation – R. Young pp. 279-297
      a. Memo – Change in the Mortality Improvement Scale (Actuarial Assumption) p. 298
      b. Resolution on Rules and Regulations: Change in the Mortality Improvement Scale (Actuarial Assumption) (R27, pp. 299-318)

**NEW YORK STATE TEACHERS' RETIREMENT SYSTEM**

**Memorandum**

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**TO:** Retirement Board

**FROM:** Don Ampansiri, Jr., Janet A. Graham

**RE:** Status of System Litigation as of October 17, 2022

**DATE:** October 17, 2022

**CC:** T. Lee, Y. Ruoso

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## UPDATE ON PENDING LAWSUITS SINCE THE LAST REPORT

**Jean M. Andre v. New York State Teachers' Retirement System & Greece Central School District**
Action commenced: 8/6/21
**Favorable Article 78 decision: 7/27/22**

**CURRENT STATUS: July 27, 2022, the Court found in favor of the System and concluded that no reason exists to disturb the System's final determination noting the System's clear duty to correct errors. The time to appeal has expired so the case is closed.**

*Summary of the case/background information:*

Petitioner, a Tier 4 member, challenged the System's determination reducing her service credit by 2 months due to an employer reporting error by Greece Central School District. Petitioner was employed on a part-time basis for the school year 2005-06 but the district incorrectly reported her for a full year of service credit. System staff discovered the error when finalizing the calculation for Petitioner's pension benefits. The correction to her service credit brings her below the 30-year threshold for an unreduced benefit. As Petitioner is 59 years old, she is subject to as much as 15% reduction (pro-rated by month) to her pension benefits.

Subsequent to the above determination, staff further discovered a second reporting error; this time from East Irondequoit School District. The district incorrectly reported Petitioner for full years of service credit for 1997-98 and 1998-99 when she was in fact a part-time employee. This error resulted in a loss of an additional 4 months of service credit, thus leaving Petitioner with a total service credit of 29 years, 3 months. The System issued an amended Final Determination letter addressing this new finding and allowed the Petitioner to seek to amend her petition to include this further/additional reduction and/or seek to add the District as a party to the action.

Petitioner, however, does not dispute that she worked part-time during the at-issue years but rather argues that the System should be enjoined from correcting the error after her date of retirement. Statute (Education Law Section 525) and caselaw are both well settled on this matter and not only supports, but also mandates, that upon discovery of error in records (irrespective of timing) the System "shall correct such error". Nonetheless, Petitioner is seeking an order to grant her the additional/at-issue months and bring her above the 30-year threshold.

**Bernice Curry-Malcolm v. New York State Teachers' Retirement System**
Action commenced: 10/28/19
**Favorable Article 78 decision: 12/2/20**

**CURRENT STATUS: On February 4, 2022, the Appellate Division in the Fourth Department unanimously affirmed the decision of the Supreme Court to dismiss the petition against NYSTRS. On March 30, 2022, Petitioner filed an appeal directly to the Court of Appeals.**

**On April 7, 2022, the Attorney General responded on behalf of NYSTRS, stating that the appeal should be dismissed because there is no basis for an appeal as of right. The Fourth Department's decision did not include a two-justice dissent nor does the appeal raise a substantial constitutional question directly involved in these orders. We are awaiting the Court's decision.**

**On June 15, 2022, the Court of Appeals dismissed the appeal. Petitioner has until September 12, 2022, to ask the Court for permission to appeal.**

**On September 7, 2022, Petitioner filed a petition in the U.S. Supreme Court asking that the court hear her case. The Attorney General responded on behalf of NYSTRS. The Supreme Court set the petition for its October 28, 2022, conference.**

*Summary of the case/background information:*

Petitioner, a Tier 4 member, challenged the System's determination that excluded for pension purposes all salary and service credit under a settlement agreement with Honeoye Falls-Lima School District as not pensionable (monies paid for time not worked), as well as excluding paid administrative leave from Rochester Central School District (leave tied to resignation).

*The decision:*

The Court noted the System relied on employer reports regarding Petitioner's earnings, her leave of absence and termination. The Court further noted the System relied on the terms of the settlement agreement entered into between Petitioner and the District. The Court found that "as the determinations made by NYSTRS were rational and not arbitrary or capricious, this Court finds no reason to disturb them."

***These 2 cases relate to the same legal issue, and the parties are represented by the same attorney:***

**1. Frank DeVenuto v. New York State Teachers' Retirement System & New York State Teachers' Retirement System Board**

Action commenced: 4/12/22
**Favorable Article 78 decision: 9/12/22**

**CURRENT STATUS: September 12, 2022, the Court found in favor of the System and concluded that no reason exists to disturb the System's final determination. The time to appeal has expired so the case is closed.**

*Summary of the case/background information:*

Petitioner, a Tier 4 retiree, challenged the System's determination on whether the position of Driver Education Coordinator is a reportable position to the System and, accordingly, whether earnings for this position are includable in the calculation of the member's final average salary. The System determined Driver & Traffic Safety Education, as a program implemented in New York State schools in partnership between the New York State Education Department and the Department of Motor Vehicles, was partially pensionable due to the instructional component required for those directly involved in teaching the program. The position of Driver Education Coordinator does not have an instructional component in the services rendered. Based on our findings, the Coordinator position is predominantly intended to schedule classes, maintain records, manage communications and any other administrative duties to accomplish program objectives. As such, the System determined the position of Driver Education Coordinator does not meet the basic guidelines for reportability.

Petitioner contends the duties of the Coordinator with the Driver Education instruction program should be includable in the pension calculation.

**2. Peter Macedo v. New York State Teachers' Retirement System & New York State Teachers' Retirement System Board**

Action commenced: 4/12/22

**Favorable Article 78 decision: 9/12/22**

**CURRENT STATUS: September 12, 2022, the Court found in favor of the System and concluded that no reason exists to disturb the System's final determination. The time to appeal has expired so the case is closed.**

*Summary of the case/background information:*

Petitioner, a Tier 4 retiree, challenged the System's determination on whether the position of Driver Education Coordinator is a reportable position to the System and, accordingly, whether earnings for this position are includable in the calculation of the member's final average salary. The System determined Driver & Traffic Safety Education, as a program implemented in New York State schools in partnership between the New York State Education Department and the Department of Motor Vehicles, was partially pensionable due to the instructional component required for those directly involved in teaching the program. The position of Driver Education Coordinator does not have an instructional component in the services rendered. Based on our findings, the Coordinator position is predominantly intended to schedule classes, maintain records, manage communications and any other administrative duties to accomplish program objectives. As such, the System determined the position of Driver Education Coordinator does not meet the basic guidelines for reportability.

Petitioner contends the duties of the Coordinator with the Driver Education instruction program should be includable in the pension calculation.

**Andrea Loscalzo v. New York State Teachers' Retirement System**

Action commenced: 7/18/22

**CURRENT STATUS: The Attorney General's office responded on behalf of NYSTRS. The case is scheduled for oral argument on November 16, 2022.**

*Summary of the case/background information:*

Petitioner, a Tier 4 member, is challenging the System's determination excluding for pension purposes all salary and service credit under a settlement agreement with Greenburgh-Graham Union Free School District (District). Notwithstanding that Petitioner rendered no further service to the District following entry into the settlement, the papers contend such payments should be considered regular compensation and as such should be includable in the pension calculation.

## LAWSUITS COMMENCED SINCE THE LAST REPORT

### Michael Bellarosa v. New York State Teachers' Retirement System

Action commenced: 9/8/22

*Summary of the case/background information:*

Petitioner, a Tier 4 member, is challenging the System's determination excluding for pension purposes payments made to Petitioner for a Technology/Wellness/Transportation Allowance, Vacation buyback, and payments in excess of the Annual Contract Salary from the Valley Central School District. The District converted the Technology/Wellness/Transportation Allowance and 10 vacation days into salary. The Technology/Wellness/Transportation Allowance is a considered a fringe benefit which is not includable in the pension calculation. Payments for unused vacation leave are not pensionable for Tier 4 members. Additionally, there was a small payment in excess of the contract salary for which the District is unable to provide an explanation, therefore it cannot be included in the pension calculation. The conversion of these benefits into salary on the eve of retirement has the effect of artificially inflating the pension benefit. As such, these payments are not considered regular salary and NYSTRS excluded these payments from the pension calculation. The Attorney General is representing NYSTRS and working with staff to respond to the petition.

## LAWSUITS WITH NO UPDATES SINCE THE LAST REPORT

**NONE**

NEW YORK STATE TEACHERS' RETIREMENT SYSTEM

TO: Retirement Board

FROM: E. Rezny

CC: T. Lee

SUBJECT: Retirement Summary Report

DATE: October 6, 2022

The following is a summary of actions of the Benefits Department since the last report to the Retirement Board.

Members for whom retirement processing was finalized, by category:

| | |
|---|---|
| Service | 1,587 |
| Deferred | 30 |
| Disability | 23 |
| Total | 1,640 |

Retirement benefits finalized with an Alternative Option: 68

Retirees paid a lump sum in lieu of a retirement benefit pursuant to Education Law §537 certified by the Actuary to be of actuarial equivalent value to their benefit: 28

Revision of retirement benefits and retroactive adjustments to date of retirement: 138

A list of each group of members and retirees is available upon request to members of the Retirement Board.

New York State Teachers' Retirement System

# 2022 Annual Delegates Meeting Agenda

Saratoga Springs City Center

## Sunday, November 6

| | | |
|---|---|---|
| 8:00 a.m.-3:00 p.m. | **Delegate Check-in**<br>*Registration for this year's meeting was required in advance. When you arrive, stop by our check-in desk to pick up your nametag. Only delegates properly reported by their employer may vote in Monday's election. All voting will occur electronically through Cvent—the hybrid platform. Attendees should have the Cvent Events app installed on their mobile device or accessible through their computer's web browser.*<br>**Note:** *Staff from NYSTRS' Tax and Legal Departments are available for questions.* | Meeting Room 1 |
| | **Internet Café**<br>*If you attend in person, computers with Internet access are available for your use. Take time today to search the Unclaimed Funds page at NYSTRS.org for people you know.* | Meeting Room 1 |
| | **Information Center**<br>*Meet 1-on-1 with System staff to discuss general membership and benefit information.* | Room A |
| 8:45-9:15 a.m. | **Feedback Forum: Mobile App**<br>*NYSTRS' mobile app (available through Apple's App Store or the Google Play Store) provides valuable features for you as a member and a delegate. We look forward to hearing your suggestions, though, on how we can make the app even better. Delegates will have a chance to enroll in this focus group in advance.* | Rooms B/C |
| 9:30-10:10 a.m. | **Key Retirement Decisions You Must Make**<br>*Selecting your retirement date and your benefit payment option are two of the biggest decisions you will make. We will guide you through the important considerations and the process for filing for retirement.* | Main Hall |
| | **Social Security Information**<br>*We will review key Social Security benefit information, including collecting your Social Security early vs. waiting until full retirement age; the calculation of cost-of-living adjustments; and post-retirement earnings limits.* | Rooms B/C |
| 10:30-11:10 a.m. | **How You Can Receive All the Service Credit for Which You Are Eligible**<br>*Your work as a teacher is just one of the ways to earn service credit toward your benefit calculation. Learn how to apply for other credit (e.g., prior service; military service; transfer; reinstatement).* | Main Hall |
| | **Earnings After Retirement**<br>*Hear how state laws and executive orders have changed the rules governing earnings after retirement and what members need to know if they plan to work after retirement. We'll cover the Section 212 earnings limit, Section 211 waivers, and suspending your retirement benefit under Section 503.11.* | Rooms B/C |
| 11:30 a.m.-12:10 p.m. | **Using NYSTRS Resources Throughout Your Membership**<br>*There are so many tools NYSTRS offers to help you as a member (e.g., our website, MyNYSTRS account, annual Benefit Profile, benefits consultations, online PREP materials, publications, videos, mobile app, Pension Education Toolkit). Discover how to best use these resources to guide you throughout your membership.* | Main Hall |
| | **Social Security Information (Repeat)** | Rooms B/C |

12:15-1:15 p.m. ➥ *BREAK* ➦

| | | |
|---|---|---|
| 1:30-2:10 p.m. | **Why Pensions Matter More Than Ever**<br>*The retirement outlook for many Americans is getting more and more challenging. As a NYSTRS member who participates in a defined benefit plan and is also eligible for Social Security coverage, you are much more likely to enjoy a well-deserved retirement. Hear the latest news and research in this retirement industry update.* | Main Hall |
| 2:20-3:00 p.m. | **NYSTRS' Year in Review and the Long-Term Stability of the System**<br>*It's been another busy year at NYSTRS. Catch up on everything that's new and improved. We'll also review the financial strength and stability of the System and explain our approach to long-term success.* | Main Hall |
| 3:20-4:30 p.m. | **Delegate-Board/Staff Discussion** | Main Hall |

**NYSUT Reception Follows Adjournment**

New York State Teachers' Retirement System

# 2022 Annual Delegates Meeting Agenda

Saratoga Springs City Center

## Monday, November 7

| | | |
|---|---|---|
| 8:00-10:10 a.m. | **Delegate Check-in** ***(continued)*** | Meeting Room 1 |
| | **Internet Café** | Meeting Room 1 |
| | **Information Center** | Room A |
| 8:30-9:10 a.m. | **How You Can Receive All the Service Credit for Which You Are Eligible** ***(REPEAT)*** | Main Hall |
| | **Earnings After Retirement** ***(REPEAT)*** | Rooms B/C |
| 9:30-10:10 a.m. | **Using NYSTRS Resources Throughout Your Membership** ***(REPEAT)*** | Main Hall |
| | **Key Retirement Decisions You Must Make** ***(REPEAT)*** | Rooms B/C |
| 10:30 a.m. | **Election of Teacher Board Member**<br>◆ Adoption of Rules of Procedure<br>◆ Election of Chairperson & Secretary<br>◆ Election of Teacher Board Member | Main Hall |

# 2022 Cobalt Survey - ACSI Scores American Customer Satisfaction Index



## Comparison of Satisfaction Scores

55 - State Government

59 - County Government

63- Federal Government

64 - Social Security

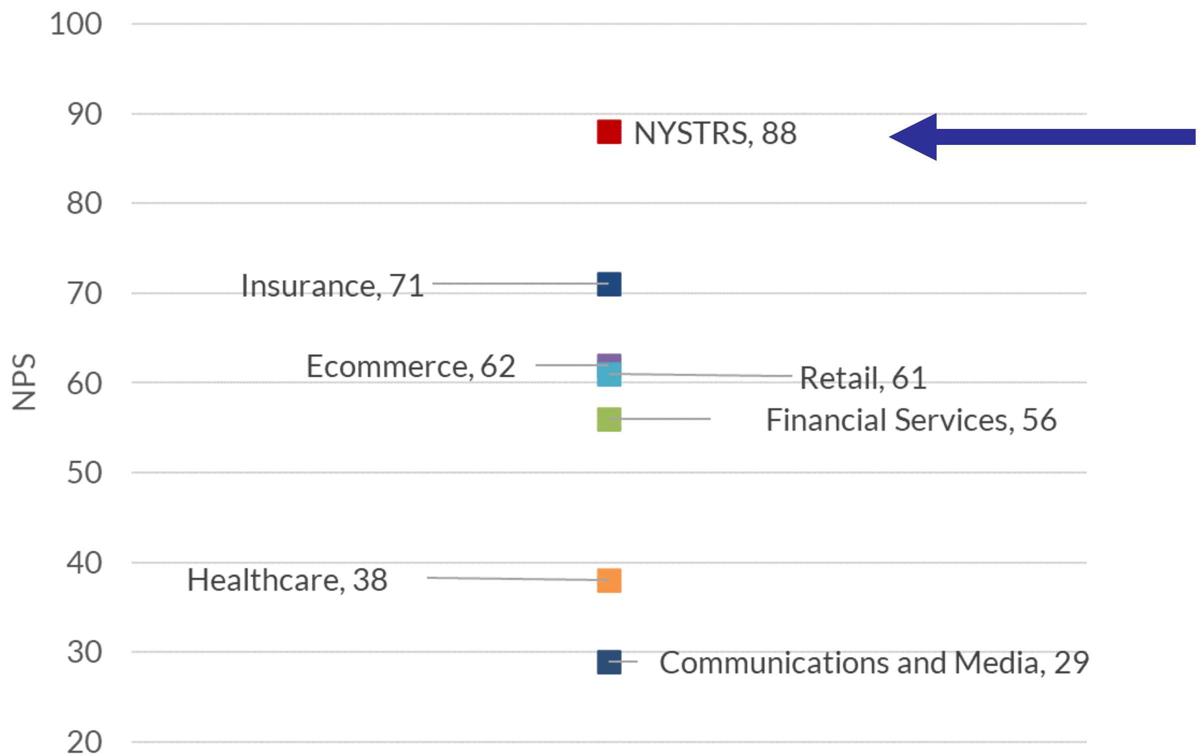
73 - U.S. Overall

78 - Financial Advisors

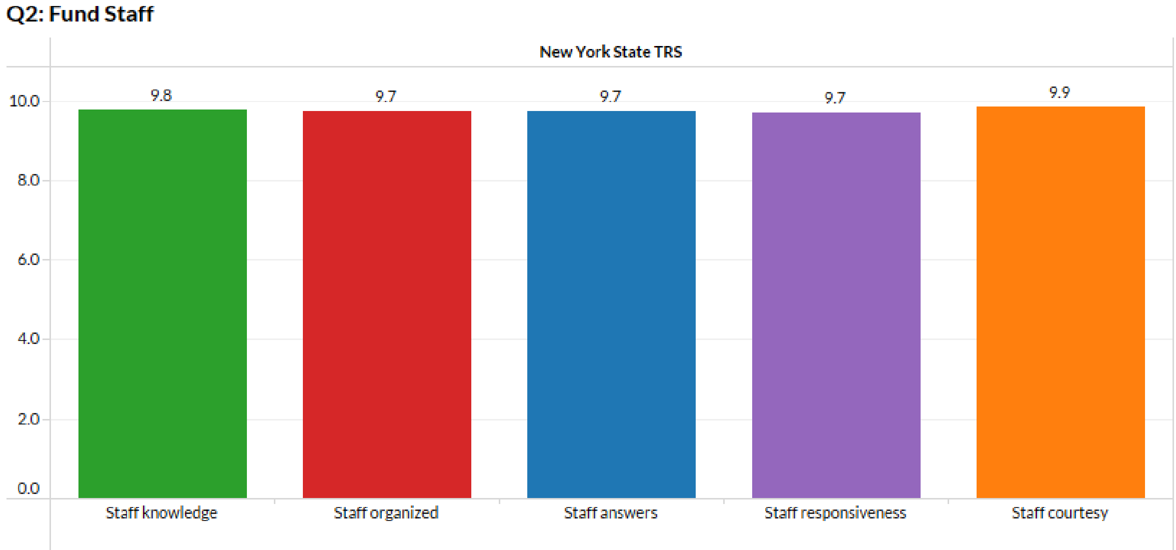
**93 - NYSTRS**

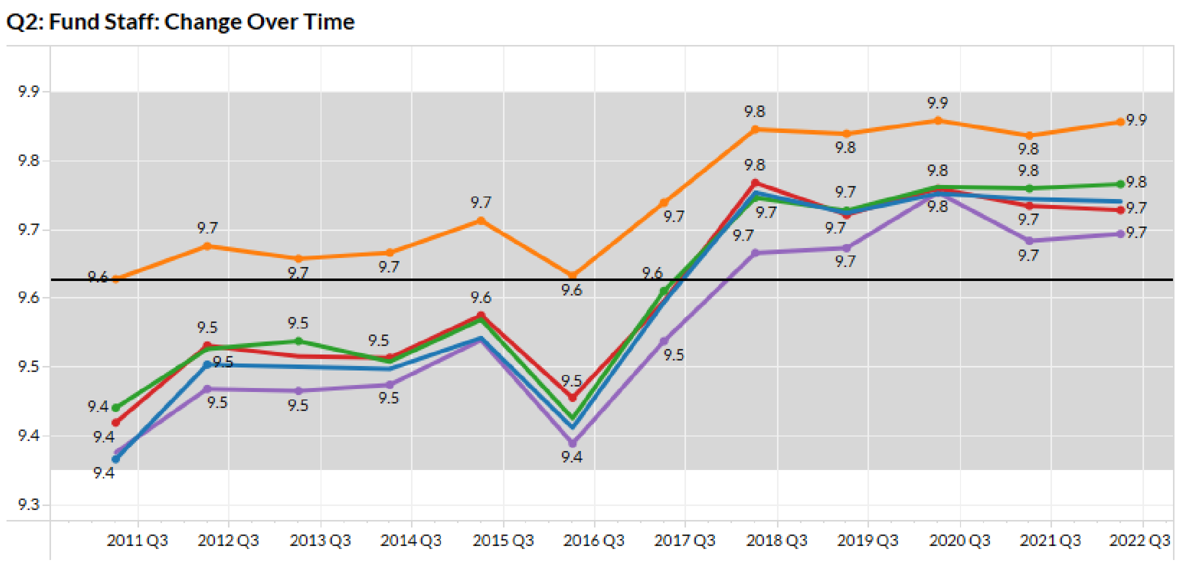
# 2022 Cobalt Survey - Net Promoter Score

How likely are you to speak favorably about NYSTRS as an organization?

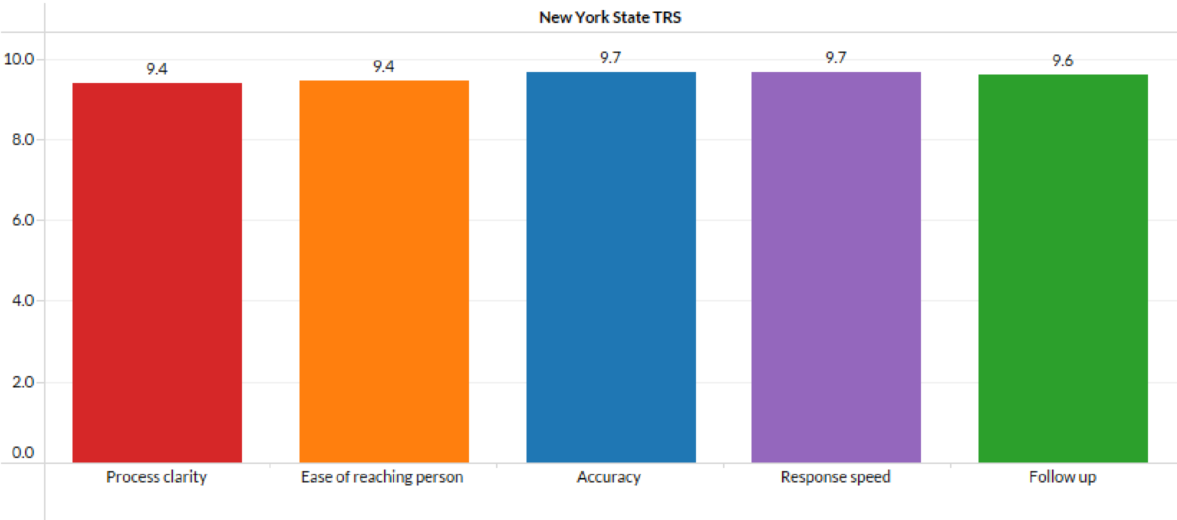
# 2022 Cobalt Survey – Staff Scores



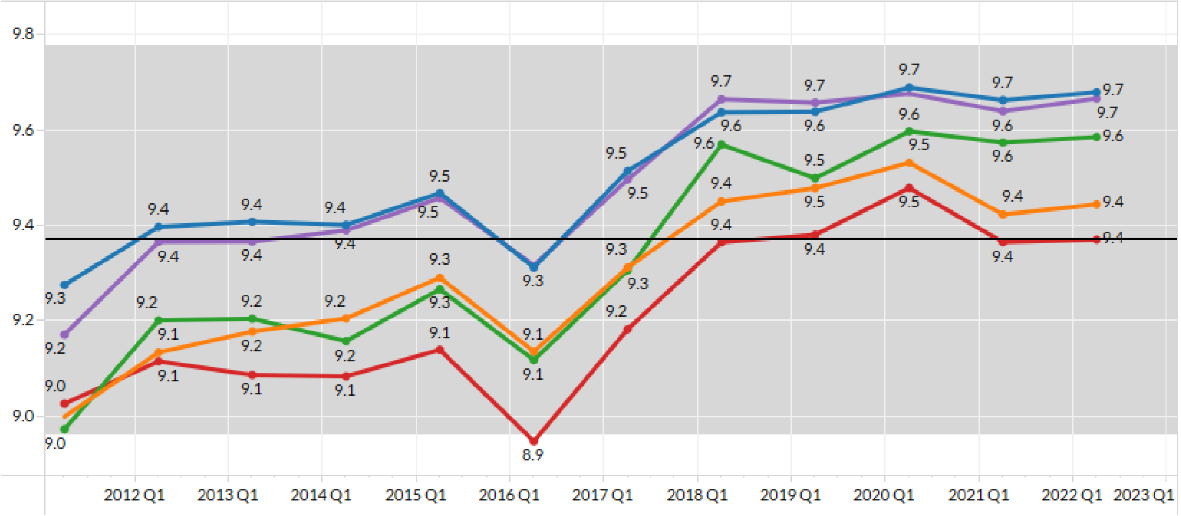



# 2022 Cobalt Survey – Retirement Process Scores

**Q3: Fund Retirement Process**

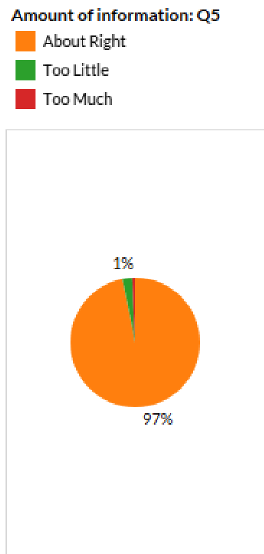


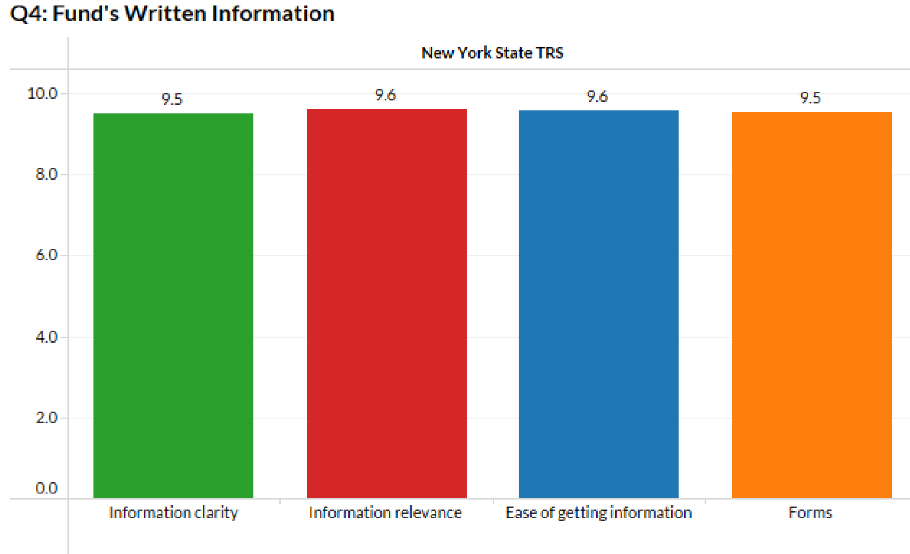

**Q3: Fund Retirement Process: Change Over Time**

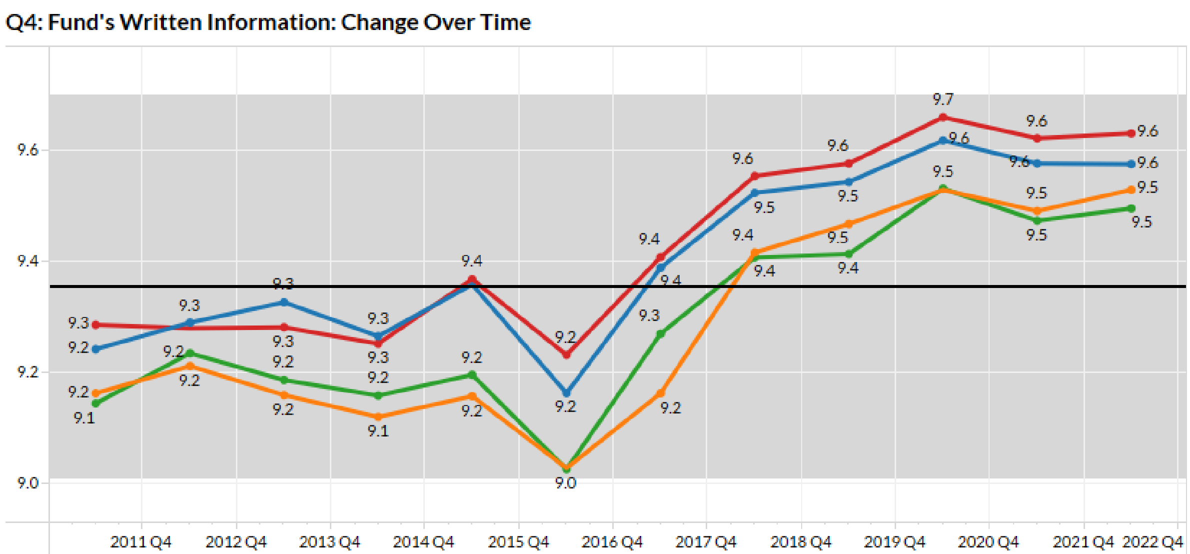


# 2022 Cobalt Survey – Written Information Scores



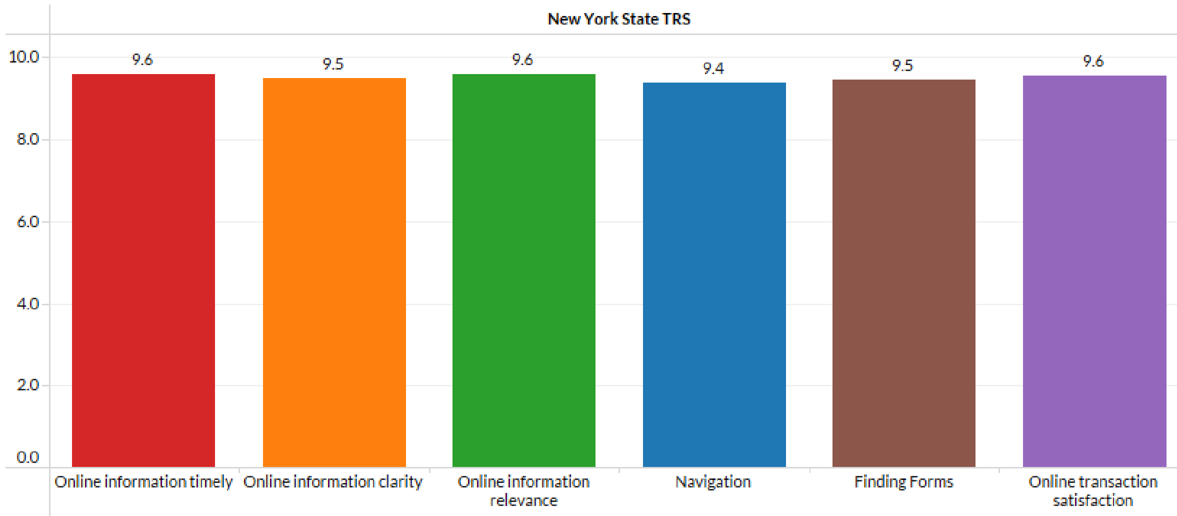


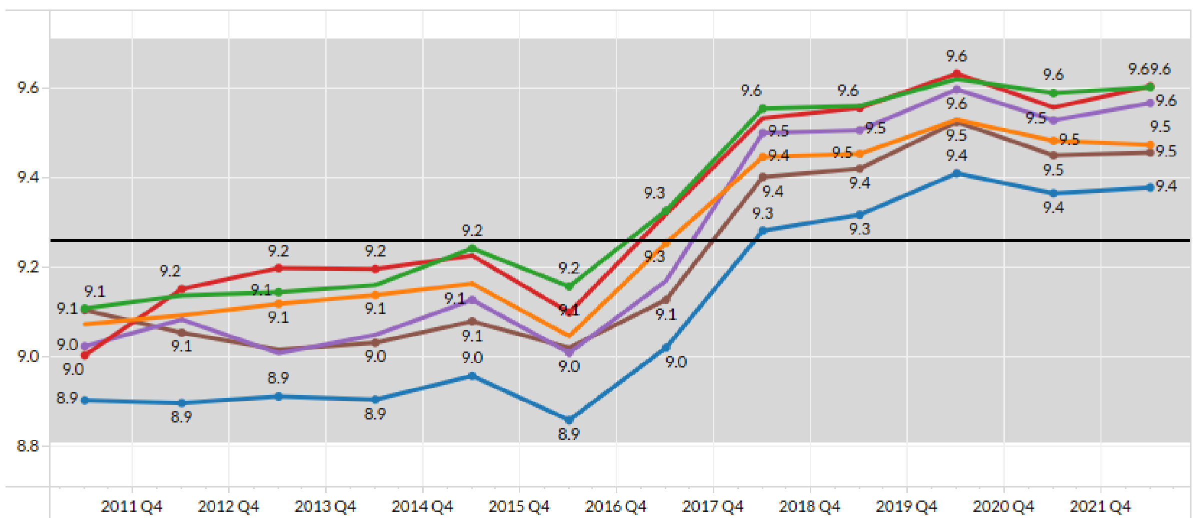



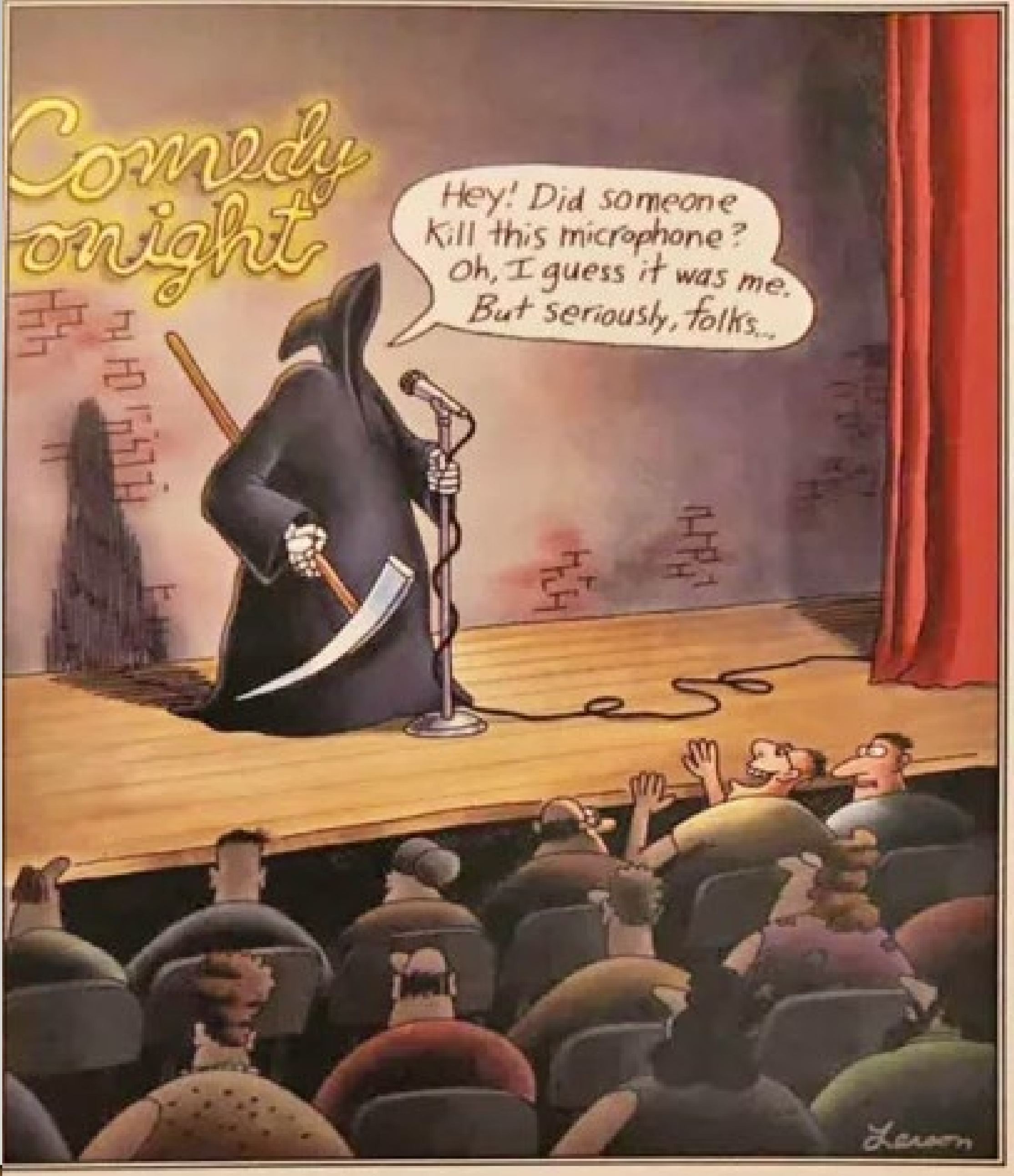
# 2022 Cobalt Survey – Online Scores

**Q6: Fund Online Information**




**Q6: Fund Online Information: Change Over Time**



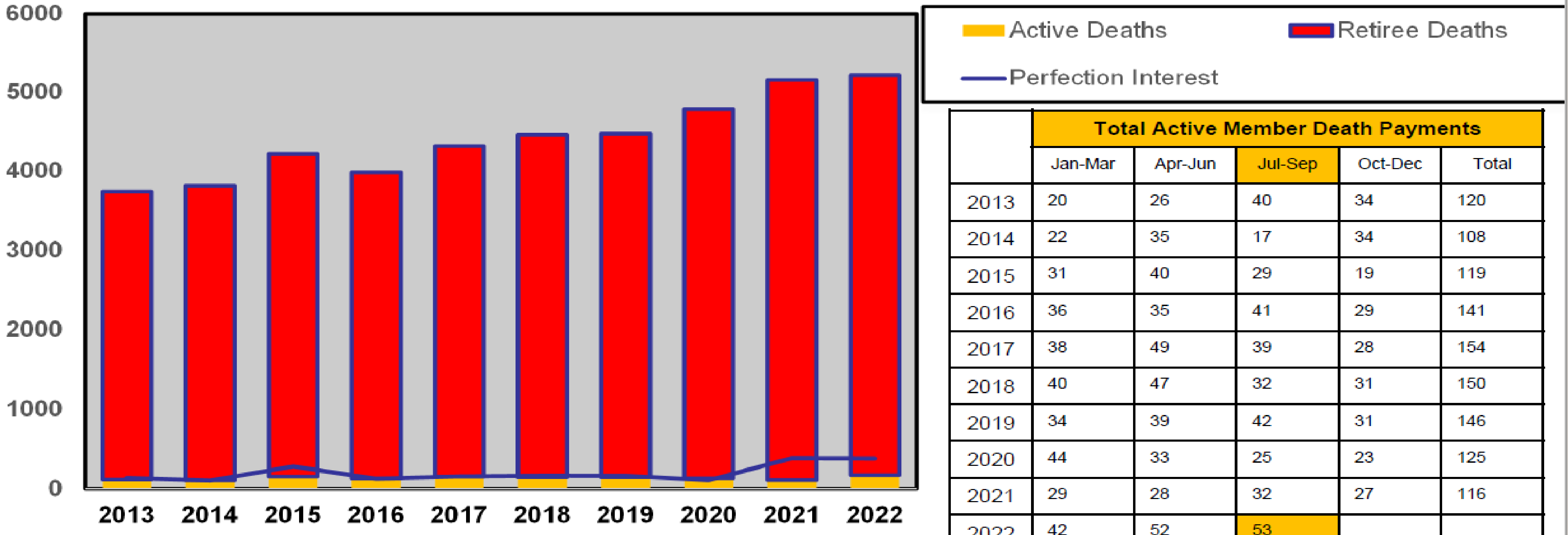



Only Bernard, in the front row, had the nerve to laugh at Death.

# RETIRED DEATH BENEFITS

ANDREW WHITNEY
ASSISTANT MANAGER,
MEMBER BENEFITS

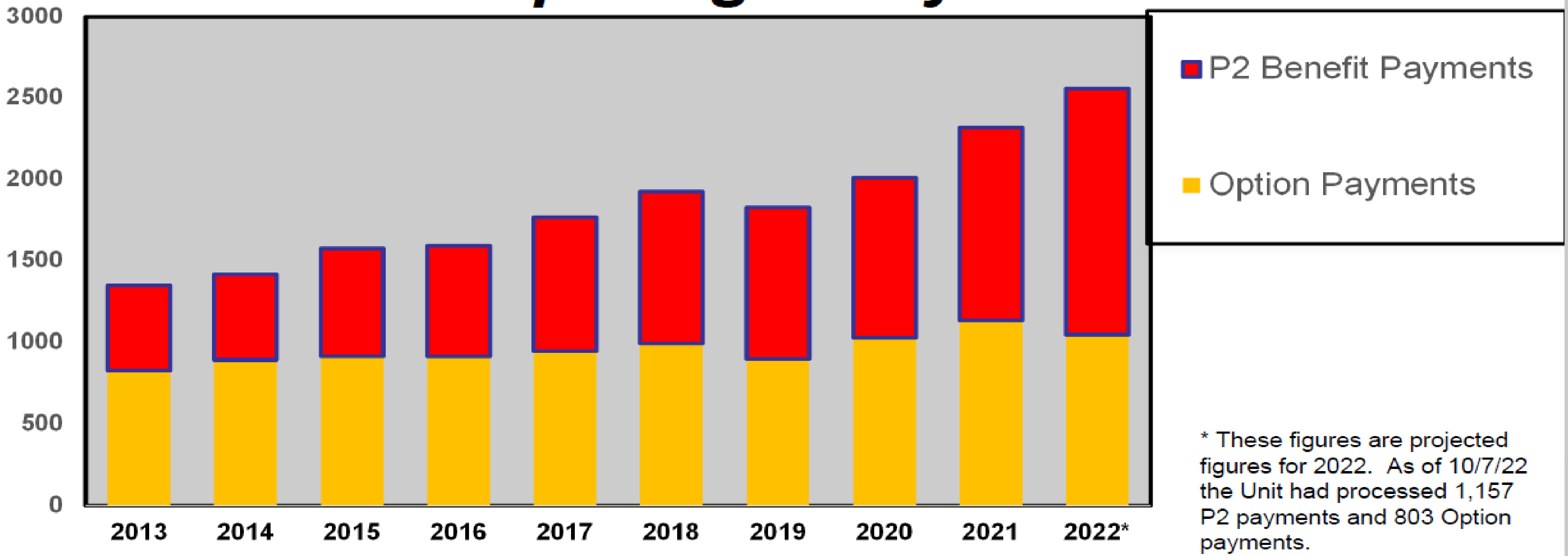
# Member Benefits — September 2022
# Active/Retiree Deaths Processed




| | Total Active Member Death Payments | | | | |
|---|---|---|---|---|---|
| | Jan-Mar | Apr-Jun | Jul-Sep | Oct-Dec | Total |
| 2013 | 20 | 26 | 40 | 34 | 120 |
| 2014 | 22 | 35 | 17 | 34 | 108 |
| 2015 | 31 | 40 | 29 | 19 | 119 |
| 2016 | 36 | 35 | 41 | 29 | 141 |
| 2017 | 38 | 49 | 39 | 28 | 154 |
| 2018 | 40 | 47 | 32 | 31 | 150 |
| 2019 | 34 | 39 | 42 | 31 | 146 |
| 2020 | 44 | 33 | 25 | 23 | 125 |
| 2021 | 29 | 28 | 32 | 27 | 116 |
| 2022 | 42 | 52 | 53 | | |

| | TOTAL NUMBER OF RETIREE DEATHS PROCESSED | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
| Jan-Mar | 1,016 | 1,040 | 1,163 | 1,081 | 1,160 | 1,194 | 1,138 | 1,198 | 1,440 | 1,301 |
| Apr-June | 865 | 896 | 1,021 | 980 | 996 | 1,084 | 1,057 | 1,332 | 1,103 | 1,274 |
| July-Sept | 879 | 891 | 930 | 900 | 1,047 | 1,041 | 1,087 | 1,052 | 1,156 | 1,206 |
| Oct-Dec | 883 | 951 | 896 | 963 | 997 | 1,047 | 1,072 | 1,351 | 1,271 | |
| TOTAL | 3,643 | 3,778 | 4,010 | 3,924 | 4,200 | 4,366 | 4,354 | 4,933 | 4,970 | |

# Retiree Deaths Processed Requiring a Payment




* These figures are projected figures for 2022. As of 10/7/22 the Unit had processed 1,157 P2 payments and 803 Option payments.

| | TOTAL NUMBER OF RETIREE DEATHS PROCESSED REQUIRING A PAYMENT | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022* |
| P2 | 521 | 523 | 661 | 678 | 820 | 928 | 931 | 979 | 1,181 | 1,508 |
| OPTION | 827 | 892 | 913 | 912 | 945 | 993 | 895 | 1,029 | 1,134 | 1,046 |
| TOTAL | 1,348 | 1,415 | 1,574 | 1,590 | 1,765 | 1,921 | 1,826 | 2,008 | 2,315 | 2,554 |

*Presentation to the Retirement Board*

# Estimated Range of the Next Employer Contribution Rate

Appendix I

**Richard A. Young,** Chief Actuary
**Melody Prangley,** Deputy Chief Actuary

**October 27, 2022**

# Current ECR
# June 30, 2021 Actuarial Valuation

**Employer Contribution Rate (ECR) = 10.29%**

- Applicable to 7/1/2022 – 6/30/2023 member salaries
- Payable in the Fall of 2023

# ECR – Where are we going?

## The *Estimated Range* of the next Employer Contribution Rate:

### June 30, 2022 Actuarial Valuation

# 9.50% to 10.00%

# Application Dates

- Will be multiplied by 2023 – 2024 fiscal year salaries
- Will be collected in 2024 – 2025 fiscal year (Sept/Oct/Nov 2024)

**2024**

| September | October | November |
|---|---|---|

# Employer Dollars Contributed

| Collection Date | Employer Contributions | ECR |
|---|---|---|
| Fall 2019 | $1.8 billion | 10.62% |
| Fall 2020 | $1.5 billion | 8.86% |
| Fall 2021 | $1.6 billion | 9.53% |
| Fall 2022 | $1.7 billion | 9.80% |
| Fall 2023 | $1.9 billion* | 10.29% |
| Fall 2024 | $1.75 - $1.85 billion* | 9.50 – 10.00% |

# One Assumption Change – Mortality Improvement Scale Update

- NYSTRS is currently using Scale MP-2020 to estimate future mortality improvement.
- The Society of Actuaries has released Scale MP-2021 in the last year.
- Scale MP-2021 is based on the same underlying methodology that was used to develop Scale MP-2020 but includes one additional year of historical US population mortality experience (for 2019).
- Scale MP-2021 mortality improvement rates are slightly higher than Scale MP-2020 rates by approximately 0.2% to 0.4%.
- The impact of the new mortality scale is an increase to the **ECR of 0.06%** and is reflected in the estimated ECR range.

# New Legislation: 5-Year Vesting for Tier 5 and 6 Members

Reduced the number of years of credited service required for vesting to 5 years for Tier 5 and 6 members for purposes of eligibility for a service retirement benefit or a deferred-vested retirement benefit.

Prior to this change, Tier 5 and 6 members needed to have 10 years of credited service to be vested.

As of 6/30/2022 there are approximately 28,500 active members with 5 – 9 years of service who are now vested.

The cost impact of the plan improvement was an increase to the **ECR of 0.04%.**

# New Legislation: Temporary Employee Contribution Rate Change for Tier 6 Members

The employee contribution rate for Tier 6 members (members with a date of membership on or after April 1, 2012) will be determined using only a member's annual base wages for contributions to be made during the **two fiscal years ending June 30, 2023 and June 30, 2024.**

Compensation earned for extracurricular programs, or any other pensionable earnings paid in addition to the annual base wages, will not be included in the employee contribution rate determination.

There are approximately 5,400 impacted members.

The cost impact of the legislation is a one-time cost of approximately $9.5 million, over the two-year time period, due to the reduction in employee contributions.

| | Commencing September 2022 | Commencing September 2021 |
|---|---|---|
| CPI Percentage Change for Year ended March 31 | 8.54% | 2.62% |
| Applicable COLA Percentage | 3.0% | 1.4% |
| Maximum Monthly COLA Increase based on Annual Benefit Amount of $18,000 | $45.00 | $21.00 |
| Cumulative Maximum Monthly COLA (back to Sept. 2001) | $444.00 | $399.00 |

# Monthly COLA Increase

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ’73 – ’74 | 18.80% | ’86 – ’87 | 18.80% | ’99 – ’00 | 1.43% | ’12 – ’13 | 11.84% |
| ’74 – ’75 | 18.80% | ’87 – ’88 | 16.83% | ’00 – ’01 | 0.43% | ’13 – ’14 | 16.25% |
| ’75 – ’76 | 19.40% | ’88 – ’89 | 14.79% | ’01 – ’02 | 0.36% | ’14 – ’15 | 17.53% |
| ’76 – ’77 | 19.40% | ’89 – ’90 | 6.87% | ’02 – ’03 | 0.36% | ’15 – ’16 | 13.26% |
| ’77 – ’78 | 20.40% | ’90 – ’91 | 6.84% | ’03 – ’04 | 2.52% | ’16 – ’17 | 11.72% |
| ’78 – ’79 | 21.40% | ’91 – ’92 | 6.64% | ’04 – ’05 | 5.63% | ’17 – ’18 | 9.80% |
| ’79 – ’80 | 22.49% | ’92 – ’93 | 8.00% | ’05 – ’06 | 7.97% | ’18 – ’19 | 10.62% |
| ’80 – ’81 | 23.49% | ’93 – ’94 | 8.41% | ’06 – ’07 | 8.60% | ’19 – ’20 | 8.86% |
| ’81 – ’82 | 23.49% | ’94 – ’95 | 7.24% | ’07 – ’08 | 8.73% | ’20 – ’21 | 9.53% |
| ’82 – ’83 | 23.49% | ’95 – ’96 | 6.37% | ’08 – ’09 | 7.63% | ’21 – ’22 | 9.80% |
| ’83 – ’84 | 22.90% | ’96 – ’97 | 3.57% | ’09 – ’10 | 6.19% | ’22 – ’23 | 10.29% |
| ’84 – ’85 | 22.80% | ’97 – ’98 | 1.25% | ’10 – ’11 | 8.62% | | |
| ’85 – ’86 | 21.40% | ’98 – ’99 | 1.42% | ’11 – ’12 | 11.11% | | |

# Historic 50 Years of ECR

# NYSTRS Funded Ratio History

Funded Ratio is the ratio of plan assets to accrued liabilities

| FYE | Funded Ratio Based on MVA | Funded Ratio Based on AVA |
|---|---|---|
| 6/30/2017 | 99.8% | 97.7% |
| 6/30/2018 | 100.9% | 99.2% |
| 6/30/2019 | 101.2% | 99.6% |
| 6/30/2020 | 97.3% | 98.9% |
| 6/30/2021 | 113.0% | 99.3% |
| 6/30/2022* | 97% | 99% |

*estimated

# Rates of Return

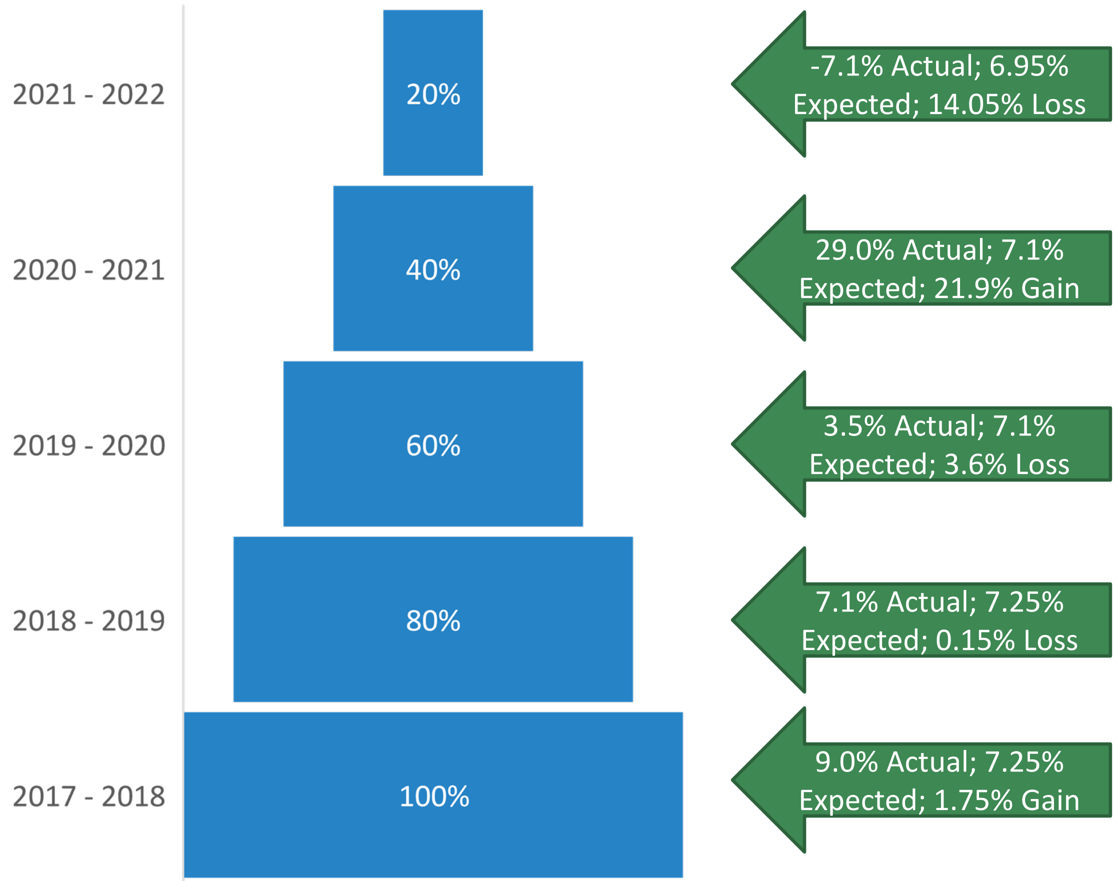
| Fiscal Year | Market Value Rate of Return (net of fees) |
|---|---|
| 2017 – 2018 | 9.0% |
| 2018 – 2019 | 7.1% |
| 2019 – 2020 | 3.5% |
| 2020 – 2021 | 29.0% |
| **2021 – 2022** | **-7.1%** |
| **5-year average:** | **7.7%** |

# Actuarial Value of Assets (AVA)

AVA smoothes the effects of short-term market volatility

NYSTRS' AVA method:

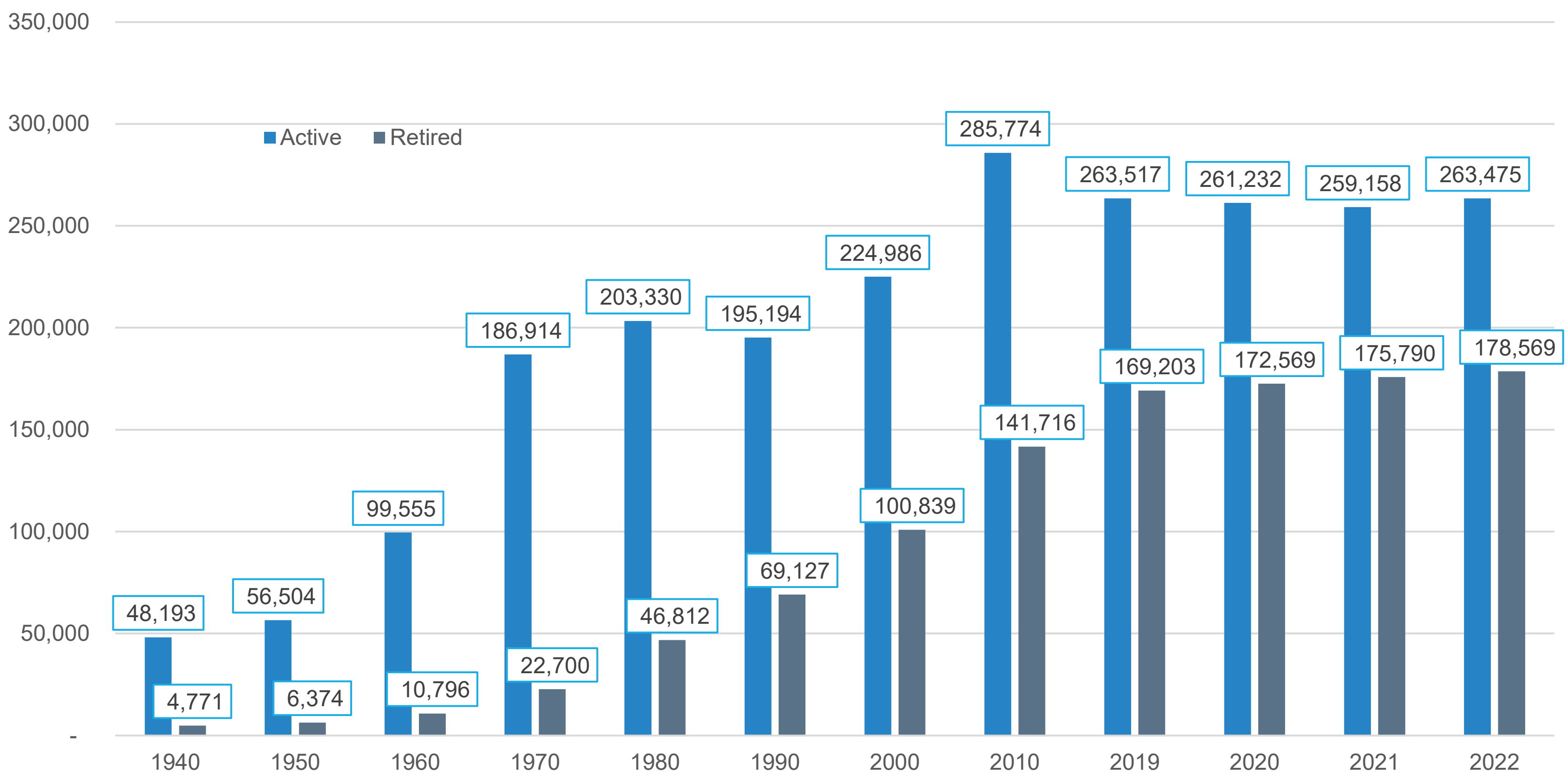
- 5-year smoothing
- The difference between expected and actual return is recognized 20% per year

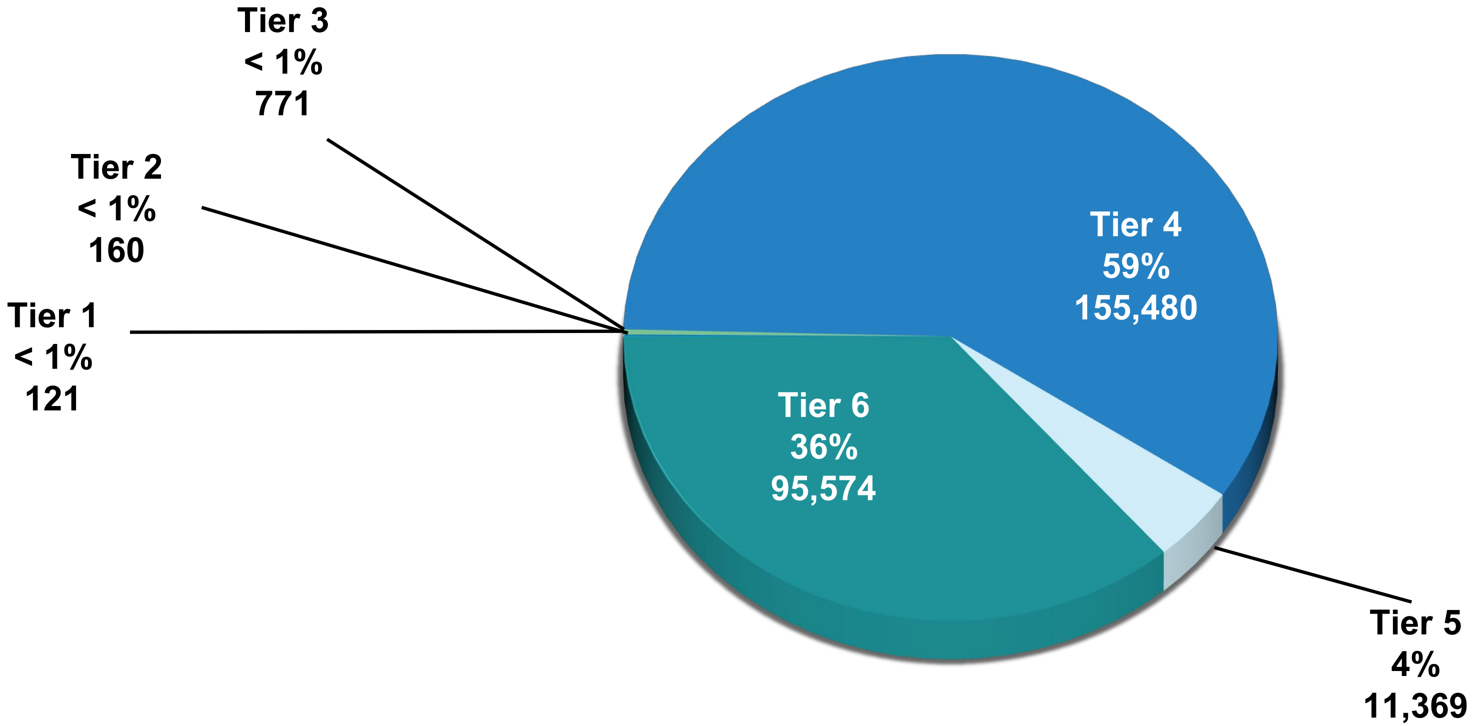


# Long-Term Annualized Rates of Return as of June 30, 2022

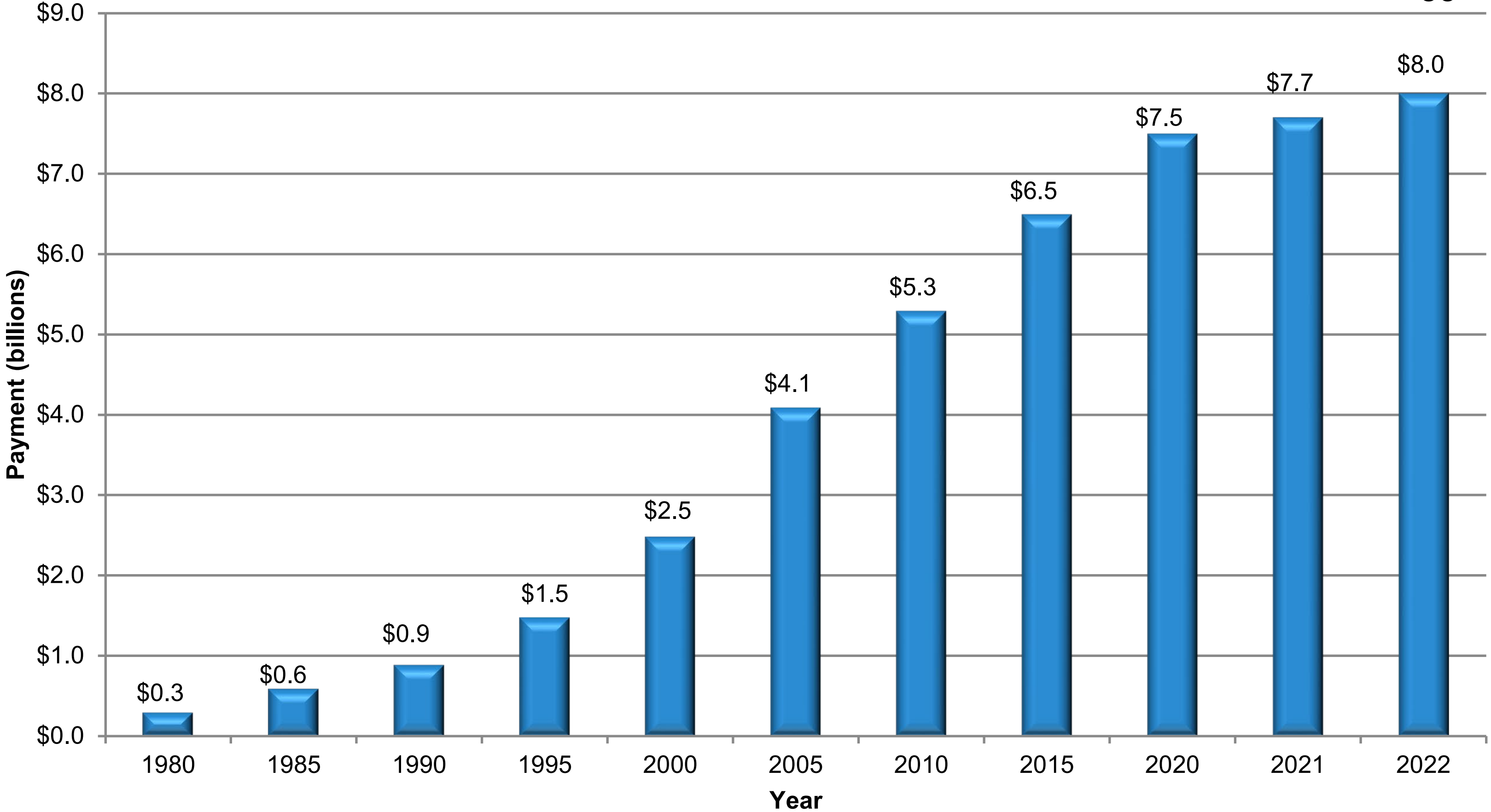
| Period | Rate of Return (net of fees) |
| --- | --- |
| 1-Year | -7.1% |
| 5-Year | 7.7% |
| 10-Year | 8.9% |
| 15-Year | 6.3% |
| 20-Year | 7.7% |
| 25-Year | 7.3% |
| 30-Year | 8.5% |

# Active and Retired Member Counts





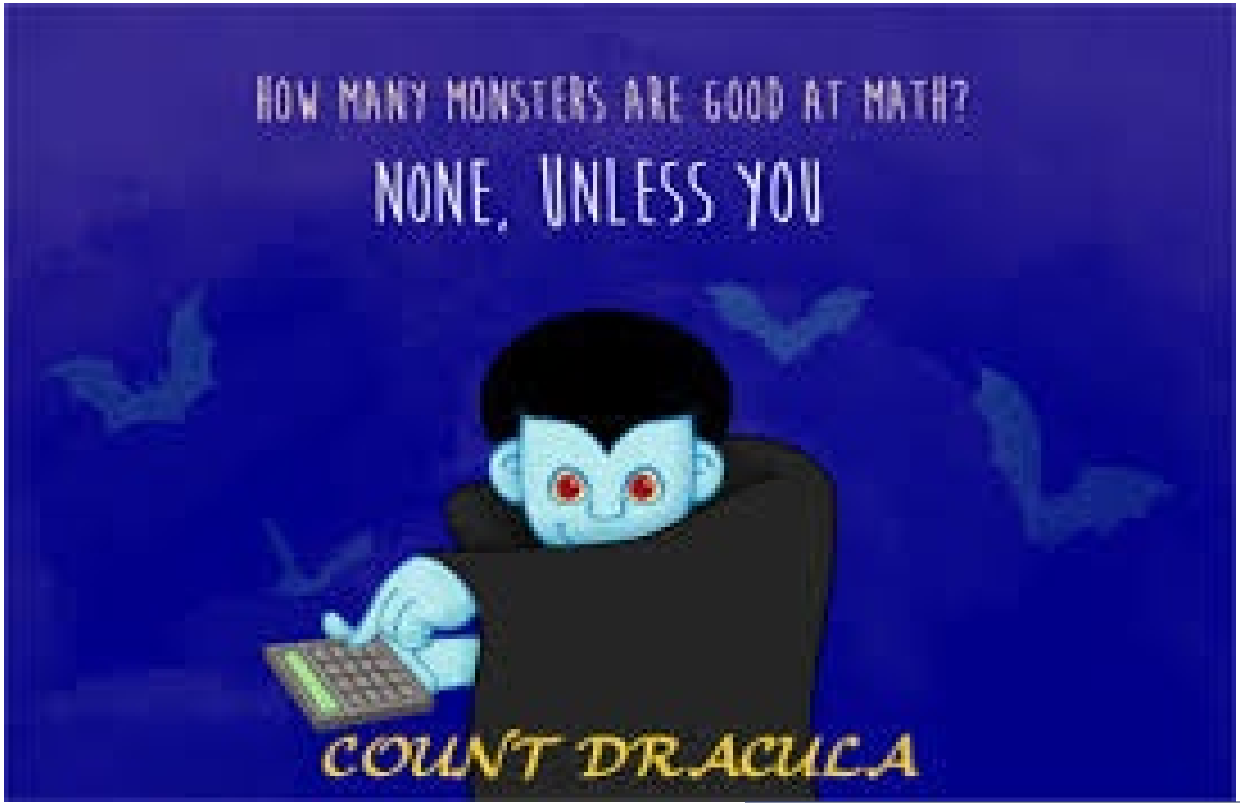

# Distribution of Active Members by Tier as of June 30, 2022




# Annual Benefit Payments

| Retired in Fiscal Year Ended | Number of Retired Members | Average Age at Retirement (yrs.-mos.) | Average Service at Retirement (yrs.-mos.) | Average Final Average Salary | Average Maximum Annual Benefit |
|---|---|---|---|---|---|
| 2013 | 6,330 | 60-10 | 25-6 | $81,987 | $44,768 |
| 2014 | 6,547 | 61-0 | 25-4 | 84,545 | 44,978 |
| 2015 | 6,161 | 60-11 | 25-4 | 84,362 | 44,487 |
| 2016 | 6,245 | 61-2 | 25-0 | 84,308 | 44,215 |
| 2017 | 6,396 | 61-3 | 25-0 | 85,242 | 45,049 |
| 2018 | 6,416 | 61-1 | 25-1 | 86,910 | 45,725 |
| 2019 | 6,890 | 61-0 | 25-1 | 87,085 | 45,713 |
| 2020 | 7,642 | 61-4 | 25-8 | 90,228 | 48,273 |
| 2021 | 7,617 | 61-5 | 26-3 | 91,713 | 49,145 |
| 2022 | 7,135 | 61-3 | 25-7 | 92,434 | 48,724 |
| *Averages are for service and vested retirees. | | | | | |

# Retired Members' Characteristics By Year of Retirement


HOW MANY MONSTERS ARE GOOD AT MATH?
NONE, UNLESS YOU
COUNT DRACULA

# Questions

**NEW YORK STATE**

**TEACHERS' RETIREMENT SYSTEM**

**MEMORANDUM**

| | | |
|---|---|---|
| To: | Retirement Board | Date: October 27, 2022 |
| From: | R. Young | |
| Subject: | Updating of the Mortality Improvement Scale for the Actuarial Valuation as of June 30, 2022 | |
| Cc: | T. Lee, D. Ampansiri, M. Prangley | |

We recommend a change in the mortality improvement scale from MP-2020 to MP-2021 effective with the actuarial valuation as of June 30, 2022. The mortality assumption consists of two parts; a base table, which is constructed based upon the experience of the System's membership, and a mortality improvement scale. The purpose of the mortality improvement scale is to estimate the impact of incremental improvements in mortality that are expected to take place over future decades. This scale is developed by the Society of Actuaries. No change is recommended to the mortality base table.

The Society of Actuaries generally updates the mortality improvement scale each year and NYSTRS has updated to use the most recent scale in each of the last several years. Scale MP-2021 is based on the same underlying methodology that was used to develop Scale MP-2020 but includes one additional year of historical US population mortality experience (from 2019). Scale MP-2021 mortality improvement rates are slightly higher than Scale MP-2020 rates by approximately 0.2% to 0.4%. Thus, the effect of this change is to slightly increase plan liabilities.

This is the only change to the actuarial assumptions recommended for the June 30, 2022 actuarial valuation.

§ 5018.2 MORTALITY AND SERVICE TABLES FOR VALUATION PURPOSES.

For the purposes of performing the annual actuarial valuation of the Retirement System, the assumptions to be used for the incidence of death, disability, withdrawal, and retirement among active members and for the incidence of death among members who are retired for service, and for the incidence of death among beneficiaries of active and retired members, and for the incidence of death among members who are retired for disability, shall be as follows:

Active Member Mortality Rates

| Males | | Females | |
|---|---|---|---|
| Age | Rate | Age | Rate |
| 20 | 0.000326 | 20 | 0.000132 |
| 21 | 0.000292 | 21 | 0.000124 |
| 22 | 0.000249 | 22 | 0.000105 |
| 23 | 0.000215 | 23 | 0.000096 |
| 24 | 0.000189 | 24 | 0.000099 |
| 25 | 0.000173 | 25 | 0.000101 |
| 26 | 0.000189 | 26 | 0.000114 |
| 27 | 0.000206 | 27 | 0.000116 |
| 28 | 0.000223 | 28 | 0.000131 |
| 29 | 0.000252 | 29 | 0.000145 |
| 30 | 0.000269 | 30 | 0.000171 |
| 31 | 0.000298 | 31 | 0.000185 |
| 32 | 0.000314 | 32 | 0.000197 |
| 33 | 0.000340 | 33 | 0.000209 |
| 34 | 0.000353 | 34 | 0.000232 |
| 35 | 0.000376 | 35 | 0.000240 |
| 36 | 0.000396 | 36 | 0.000259 |
| 37 | 0.000412 | 37 | 0.000277 |
| 38 | 0.000438 | 38 | 0.000291 |
| 39 | 0.000448 | 39 | 0.000316 |
| 40 | 0.000467 | 40 | 0.000326 |
| 41 | 0.000494 | 41 | 0.000347 |
| 42 | 0.000518 | 42 | 0.000366 |
| 43 | 0.000550 | 43 | 0.000395 |
| 44 | 0.000582 | 44 | 0.000413 |
| 45 | 0.000633 | 45 | 0.000442 |
| 46 | 0.000683 | 46 | 0.000482 |
| 47 | 0.000743 | 47 | 0.000523 |
| 48 | 0.000816 | 48 | 0.000568 |
| 49 | 0.000891 | 49 | 0.000616 |
| 50 | 0.000988 | 50 | 0.000668 |
| 51 | 0.001090 | 51 | 0.000733 |
| 52 | 0.001197 | 52 | 0.000811 |
| 53 | 0.001327 | 53 | 0.000884 |
| 54 | 0.001463 | 54 | 0.000968 |

Society of Actuaries Mortality Improvement Scale MP-[2020]2021 will be applied on a generational basis to base table rates.

Active Member Mortality Rates
(cont'd.)

| Males Age | Males Rate | Females Age | Females Rate |
|---|---|---|---|
| 55 | 0.001605 | 55 | 0.001063 |
| 56 | 0.001769 | 56 | 0.001156 |
| 57 | 0.001948 | 57 | 0.001255 |
| 58 | 0.002146 | 58 | 0.001369 |
| 59 | 0.002363 | 59 | 0.001485 |
| 60 | 0.002605 | 60 | 0.001611 |
| 61 | 0.002875 | 61 | 0.001748 |
| 62 | 0.003162 | 62 | 0.001902 |
| 63 | 0.003461 | 63 | 0.002066 |
| 64 | 0.003789 | 64 | 0.002259 |
| 65 | 0.004146 | 65 | 0.002472 |
| 66 | 0.004515 | 66 | 0.002719 |
| 67 | 0.004918 | 67 | 0.003002 |
| 68 | 0.005349 | 68 | 0.003342 |
| 69 | 0.005822 | 69 | 0.003748 |
| 70 | 0.006313 | 70 | 0.004225 |
| 71 | 0.006838 | 71 | 0.004789 |
| 72 | 0.007406 | 72 | 0.005454 |
| 73 | 0.008017 | 73 | 0.006216 |
| 74 | 0.008674 | 74 | 0.007116 |
| 75 | 0.009408 | 75 | 0.008144 |
| 76 | 0.010787 | 76 | 0.009388 |
| 77 | 0.012380 | 77 | 0.010829 |
| 78 | 0.014221 | 78 | 0.012490 |
| 79 | 0.016338 | 79 | 0.014393 |

Society of Actuaries Mortality Improvement Scale MP-[2020]2021 will be applied on a generational basis to base table rates.

## Disabled Annuitant Mortality Rates

| Males | | Females | |
|---|---|---|---|
| Age | Rate | Age | Rate |
| 30 | 0.004652 | 30 | 0.003422 |
| 31 | 0.004963 | 31 | 0.003769 |
| 32 | 0.005272 | 32 | 0.004129 |
| 33 | 0.005569 | 33 | 0.004505 |
| 34 | 0.005877 | 34 | 0.004881 |
| 35 | 0.006163 | 35 | 0.005259 |
| 36 | 0.006456 | 36 | 0.005634 |
| 37 | 0.006751 | 37 | 0.006015 |
| 38 | 0.007059 | 38 | 0.006401 |
| 39 | 0.007371 | 39 | 0.006802 |
| 40 | 0.007705 | 40 | 0.007219 |
| 41 | 0.008073 | 41 | 0.007660 |
| 42 | 0.008491 | 42 | 0.008131 |
| 43 | 0.008966 | 43 | 0.008652 |
| 44 | 0.009542 | 44 | 0.009236 |
| 45 | 0.010203 | 45 | 0.009899 |
| 46 | 0.010984 | 46 | 0.010640 |
| 47 | 0.011887 | 47 | 0.011491 |
| 48 | 0.012917 | 48 | 0.012463 |
| 49 | 0.014064 | 49 | 0.013571 |
| 50 | 0.015343 | 50 | 0.014803 |
| 51 | 0.016424 | 51 | 0.015537 |
| 52 | 0.017566 | 52 | 0.016336 |
| 53 | 0.018749 | 53 | 0.017181 |
| 54 | 0.019960 | 54 | 0.018046 |
| 55 | 0.021172 | 55 | 0.018866 |
| 56 | 0.022361 | 56 | 0.019608 |
| 57 | 0.023488 | 57 | 0.020231 |
| 58 | 0.024557 | 58 | 0.020721 |
| 59 | 0.025566 | 59 | 0.021082 |

Society of Actuaries Mortality Improvement Scale MP-[2020]2021 will be applied on a generational basis to base table rates.

Disabled Annuitant Mortality Rates
(cont'd.)

| Males | | Females | |
|---|---|---|---|
| Age | Rate | Age | Rate |
| 60 | 0.026516 | 60 | 0.021350 |
| 61 | 0.027415 | 61 | 0.021532 |
| 62 | 0.028313 | 62 | 0.021709 |
| 63 | 0.029236 | 63 | 0.021906 |
| 64 | 0.030182 | 64 | 0.022166 |
| 65 | 0.031154 | 65 | 0.022529 |
| 66 | 0.032187 | 66 | 0.023039 |
| 67 | 0.033281 | 67 | 0.023732 |
| 68 | 0.034485 | 68 | 0.024639 |
| 69 | 0.035810 | 69 | 0.025784 |
| 70 | 0.037301 | 70 | 0.027188 |
| 71 | 0.039017 | 71 | 0.028858 |
| 72 | 0.040985 | 72 | 0.030823 |
| 73 | 0.043225 | 73 | 0.033071 |
| 74 | 0.045778 | 74 | 0.035661 |
| 75 | 0.048700 | 75 | 0.038596 |
| 76 | 0.051973 | 76 | 0.041899 |
| 77 | 0.055667 | 77 | 0.045616 |
| 78 | 0.059793 | 78 | 0.049768 |
| 79 | 0.064417 | 79 | 0.054392 |
| 80 | 0.069552 | 80 | 0.059522 |
| 81 | 0.075256 | 81 | 0.065190 |
| 82 | 0.081539 | 82 | 0.071412 |
| 83 | 0.088386 | 83 | 0.078249 |
| 84 | 0.095845 | 84 | 0.085710 |
| 85 | 0.103866 | 85 | 0.093862 |
| 86 | 0.112482 | 86 | 0.102354 |
| 87 | 0.121693 | 87 | 0.111003 |
| 88 | 0.131659 | 88 | 0.119794 |
| 89 | 0.144125 | 89 | 0.128685 |

Society of Actuaries Mortality Improvement Scale MP-[2020]2021 will be applied on a generational basis to base table rates.

Disabled Annuitant Mortality Rates
(cont'd.)

| Males | | Females | |
|---|---|---|---|
| Age | Rate | Age | Rate |
| 90 | 0.157863 | 90 | 0.137873 |
| 91 | 0.171906 | 91 | 0.147449 |
| 92 | 0.186069 | 92 | 0.157607 |
| 93 | 0.200252 | 93 | 0.168645 |
| 94 | 0.214573 | 94 | 0.180687 |
| 95 | 0.229208 | 95 | 0.195482 |
| 96 | 0.256135 | 96 | 0.216617 |
| 97 | 0.278405 | 97 | 0.238632 |
| 98 | 0.300930 | 98 | 0.261262 |
| 99 | 0.323597 | 99 | 0.284370 |
| 100 | 0.346058 | 100 | 0.307717 |
| 101 | 0.368382 | 101 | 0.331284 |
| 102 | 0.390636 | 102 | 0.355062 |
| 103 | 0.412527 | 103 | 0.378941 |
| 104 | 0.433960 | 104 | 0.402553 |
| 105 | 0.454672 | 105 | 0.425814 |
| 106 | 0.474623 | 106 | 0.448404 |
| 107 | 0.493810 | 107 | 0.470342 |
| 108 | 0.511957 | 108 | 0.491432 |
| 109 | 0.529320 | 109 | 0.511431 |
| 110 | 0.530405 | 110 | 0.530405 |
| 111 | 0.548187 | 111 | 0.548187 |
| 112 | 0.557992 | 112 | 0.557992 |
| 113 | 0.558942 | 113 | 0.558942 |
| 114 | 0.559950 | 114 | 0.559950 |
| 115 | 0.560902 | 115 | 0.560902 |
| 116 | 0.560959 | 116 | 0.560959 |
| 117 | 0.561015 | 117 | 0.561015 |
| 118 | 0.561015 | 118 | 0.561015 |
| 119 | 0.561015 | 119 | 0.561015 |
| 120 | 1.000000 | 120 | 1.000000 |

Society of Actuaries Mortality Improvement Scale MP-[2020]2021 will be applied on a generational basis to base table rates.

Healthy Annuitant Mortality Rates

| Males | | Females | |
|---|---|---|---|
| Age | Rate | Age | Rate |
| 55 | 0.002062 | 55 | 0.001763 |
| 56 | 0.002298 | 56 | 0.001932 |
| 57 | 0.002558 | 57 | 0.002104 |
| 58 | 0.002850 | 58 | 0.002284 |
| 59 | 0.003160 | 59 | 0.002461 |
| 60 | 0.003492 | 60 | 0.002642 |
| 61 | 0.003850 | 61 | 0.002833 |
| 62 | 0.004238 | 62 | 0.003026 |
| 63 | 0.004643 | 63 | 0.003239 |
| 64 | 0.005097 | 64 | 0.003476 |
| 65 | 0.005594 | 65 | 0.003756 |
| 66 | 0.006160 | 66 | 0.004075 |
| 67 | 0.006809 | 67 | 0.004460 |
| 68 | 0.007562 | 68 | 0.004926 |
| 69 | 0.008430 | 69 | 0.005489 |
| 70 | 0.009446 | 70 | 0.006169 |
| 71 | 0.010632 | 71 | 0.006976 |
| 72 | 0.012012 | 72 | 0.007929 |
| 73 | 0.013614 | 73 | 0.009050 |
| 74 | 0.015459 | 74 | 0.010362 |
| 75 | 0.020078 | 75 | 0.013227 |
| 76 | 0.022872 | 76 | 0.015184 |
| 77 | 0.026050 | 77 | 0.017425 |
| 78 | 0.029647 | 78 | 0.019982 |
| 79 | 0.033736 | 79 | 0.022903 |
| 80 | 0.038367 | 80 | 0.026219 |
| 81 | 0.043643 | 81 | 0.029999 |
| 82 | 0.049675 | 82 | 0.034278 |
| 83 | 0.056541 | 83 | 0.039141 |
| 84 | 0.064371 | 84 | 0.044654 |

Society of Actuaries Mortality Improvement Scale MP-[2020]2021 will be applied on a generational basis to base table rates.

Healthy Annuitant Mortality Rates
(cont'd.)

| Males Age | Males Rate | Females Age | Females Rate |
|---|---|---|---|
| 85 | 0.073241 | 85 | 0.050874 |
| 86 | 0.083220 | 86 | 0.057876 |
| 87 | 0.094351 | 87 | 0.065733 |
| 88 | 0.106789 | 88 | 0.074568 |
| 89 | 0.120557 | 89 | 0.084462 |
| 90 | 0.135736 | 90 | 0.109847 |
| 91 | 0.152258 | 91 | 0.124150 |
| 92 | 0.169997 | 92 | 0.139945 |
| 93 | 0.188712 | 93 | 0.157256 |
| 94 | 0.208207 | 94 | 0.175838 |
| 95 | 0.228238 | 95 | 0.195482 |
| 96 | 0.256135 | 96 | 0.216617 |
| 97 | 0.278405 | 97 | 0.238632 |
| 98 | 0.300930 | 98 | 0.261262 |
| 99 | 0.323597 | 99 | 0.284370 |
| 100 | 0.346058 | 100 | 0.307717 |
| 101 | 0.368382 | 101 | 0.331284 |
| 102 | 0.390636 | 102 | 0.355062 |
| 103 | 0.412527 | 103 | 0.378941 |
| 104 | 0.433960 | 104 | 0.402553 |
| 105 | 0.454672 | 105 | 0.425814 |
| 106 | 0.474623 | 106 | 0.448404 |
| 107 | 0.493810 | 107 | 0.470342 |
| 108 | 0.511957 | 108 | 0.491432 |
| 109 | 0.529320 | 109 | 0.511431 |
| 110 | 0.530405 | 110 | 0.530405 |
| 111 | 0.548187 | 111 | 0.548187 |
| 112 | 0.557992 | 112 | 0.557992 |
| 113 | 0.558942 | 113 | 0.558942 |
| 114 | 0.559950 | 114 | 0.559950 |

Society of Actuaries Mortality Improvement Scale MP-[2020]2021 will be applied on a generational basis to base table rates.

Healthy Annuitant Mortality Rates
(cont'd.)

| Males | | Females | |
|---|---|---|---|
| Age | Rate | Age | Rate |
| 115 | 0.560902 | 115 | 0.560902 |
| 116 | 0.560959 | 116 | 0.560959 |
| 117 | 0.561015 | 117 | 0.561015 |
| 118 | 0.561015 | 118 | 0.561015 |
| 119 | 0.561015 | 119 | 0.561015 |
| 120 | 1.000000 | 120 | 1.000000 |

Society of Actuaries Mortality Improvement Scale MP-[2020]2021 will be applied on a generational basis to base table rates.

Survivor and Beneficiary Mortality Rates

| Males | | Females | |
|---|---|---|---|
| Age | Rate | Age | Rate |
| 1 | 0.000403 | 1 | 0.000145 |
| 2 | 0.000403 | 2 | 0.000145 |
| 3 | 0.000403 | 3 | 0.000145 |
| 4 | 0.000403 | 4 | 0.000145 |
| 5 | 0.000403 | 5 | 0.000145 |
| 6 | 0.000403 | 6 | 0.000145 |
| 7 | 0.000403 | 7 | 0.000145 |
| 8 | 0.000403 | 8 | 0.000145 |
| 9 | 0.000403 | 9 | 0.000145 |
| 10 | 0.000403 | 10 | 0.000145 |
| 11 | 0.000403 | 11 | 0.000145 |
| 12 | 0.000403 | 12 | 0.000145 |
| 13 | 0.000403 | 13 | 0.000145 |
| 14 | 0.000403 | 14 | 0.000145 |
| 15 | 0.000403 | 15 | 0.000145 |
| 16 | 0.000403 | 16 | 0.000145 |
| 17 | 0.000403 | 17 | 0.000145 |
| 18 | 0.000403 | 18 | 0.000145 |
| 19 | 0.000403 | 19 | 0.000145 |
| 20 | 0.000403 | 20 | 0.000134 |
| 21 | 0.000387 | 21 | 0.000125 |
| 22 | 0.000360 | 22 | 0.000116 |
| 23 | 0.000333 | 23 | 0.000106 |
| 24 | 0.000306 | 24 | 0.000097 |
| 25 | 0.000302 | 25 | 0.000099 |
| 26 | 0.000338 | 26 | 0.000114 |
| 27 | 0.000360 | 27 | 0.000128 |
| 28 | 0.000383 | 28 | 0.000144 |
| 29 | 0.000420 | 29 | 0.000160 |
| 30 | 0.000442 | 30 | 0.000175 |

Society of Actuaries Mortality Improvement Scale MP-[2020]2021 will be applied on a generational basis to base table rates.

Survivor and Beneficiary Mortality Rates
(cont'd.)

| Males Age | Males Rate | Females Age | Females Rate |
|---|---|---|---|
| 31 | 0.000479 | 31 | 0.000204 |
| 32 | 0.000498 | 32 | 0.000218 |
| 33 | 0.000530 | 33 | 0.000244 |
| 34 | 0.000559 | 34 | 0.000255 |
| 35 | 0.000599 | 35 | 0.000279 |
| 36 | 0.000621 | 36 | 0.000300 |
| 37 | 0.000651 | 37 | 0.000317 |
| 38 | 0.000677 | 38 | 0.000346 |
| 39 | 0.000712 | 39 | 0.000360 |
| 40 | 0.000740 | 40 | 0.000383 |
| 41 | 0.000764 | 41 | 0.000405 |
| 42 | 0.000798 | 42 | 0.000425 |
| 43 | 0.000841 | 43 | 0.000456 |
| 44 | 0.000883 | 44 | 0.000487 |
| 45 | 0.000935 | 45 | 0.000518 |
| 46 | 0.001001 | 46 | 0.000552 |
| 47 | 0.001068 | 47 | 0.000597 |
| 48 | 0.001151 | 48 | 0.000647 |
| 49 | 0.001237 | 49 | 0.000699 |
| 50 | 0.001339 | 50 | 0.000767 |
| 51 | 0.001459 | 51 | 0.000839 |
| 52 | 0.001585 | 52 | 0.000916 |
| 53 | 0.001729 | 53 | 0.001017 |
| 54 | 0.001890 | 54 | 0.001111 |
| 55 | 0.004211 | 55 | 0.003011 |
| 56 | 0.004591 | 56 | 0.003214 |
| 57 | 0.004992 | 57 | 0.003415 |
| 58 | 0.005427 | 58 | 0.003623 |
| 59 | 0.005881 | 59 | 0.003842 |
| 60 | 0.006353 | 60 | 0.004095 |

Society of Actuaries Mortality Improvement Scale MP-[2020]2021 will be applied on a generational basis to base table rates.

Survivor and Beneficiary Mortality Rates
(cont'd.)

| Males Age | Males Rate | Females Age | Females Rate |
|---|---|---|---|
| 61 | 0.006847 | 61 | 0.004376 |
| 62 | 0.007355 | 62 | 0.004709 |
| 63 | 0.007893 | 63 | 0.005081 |
| 64 | 0.008469 | 64 | 0.005515 |
| 65 | 0.009119 | 65 | 0.006007 |
| 66 | 0.009879 | 66 | 0.006574 |
| 67 | 0.010764 | 67 | 0.007228 |
| 68 | 0.011791 | 68 | 0.007991 |
| 69 | 0.012977 | 69 | 0.008882 |
| 70 | 0.014348 | 70 | 0.009913 |
| 71 | 0.015914 | 71 | 0.011099 |
| 72 | 0.017714 | 72 | 0.012469 |
| 73 | 0.019770 | 73 | 0.014025 |
| 74 | 0.022137 | 74 | 0.015798 |
| 75 | 0.024837 | 75 | 0.017811 |
| 76 | 0.027914 | 76 | 0.020084 |
| 77 | 0.031432 | 77 | 0.022658 |
| 78 | 0.035426 | 78 | 0.025572 |
| 79 | 0.039971 | 79 | 0.028889 |
| 80 | 0.045158 | 80 | 0.032661 |
| 81 | 0.051057 | 81 | 0.036972 |
| 82 | 0.057759 | 82 | 0.041889 |
| 83 | 0.065291 | 83 | 0.047505 |
| 84 | 0.073728 | 84 | 0.053910 |
| 85 | 0.083113 | 85 | 0.061218 |
| 86 | 0.093445 | 86 | 0.069540 |
| 87 | 0.104717 | 87 | 0.078933 |
| 88 | 0.117043 | 88 | 0.089461 |
| 89 | 0.130367 | 89 | 0.101045 |
| 90 | 0.144705 | 90 | 0.113634 |

Society of Actuaries Mortality Improvement Scale MP-[2020]2021 will be applied on a generational basis to base table rates.

Survivor and Beneficiary Mortality Rates
(cont'd.)

| Males Age | Males Rate | Females Age | Females Rate |
|---|---|---|---|
| 91 | 0.160306 | 91 | 0.127095 |
| 92 | 0.177295 | 92 | 0.141336 |
| 93 | 0.195554 | 93 | 0.157256 |
| 94 | 0.214933 | 94 | 0.175838 |
| 95 | 0.235173 | 95 | 0.195482 |
| 96 | 0.256846 | 96 | 0.216617 |
| 97 | 0.279223 | 97 | 0.238632 |
| 98 | 0.301941 | 98 | 0.261262 |
| 99 | 0.324803 | 99 | 0.284370 |
| 100 | 0.347403 | 100 | 0.307717 |
| 101 | 0.369814 | 101 | 0.331284 |
| 102 | 0.392154 | 102 | 0.355062 |
| 103 | 0.414131 | 103 | 0.378941 |
| 104 | 0.435647 | 104 | 0.402553 |
| 105 | 0.456440 | 105 | 0.425814 |
| 106 | 0.476468 | 106 | 0.448404 |
| 107 | 0.495730 | 107 | 0.470342 |
| 108 | 0.513947 | 108 | 0.491432 |
| 109 | 0.531378 | 109 | 0.511431 |
| 110 | 0.545110 | 110 | 0.530405 |
| 111 | 0.548187 | 111 | 0.548187 |
| 112 | 0.557992 | 112 | 0.557992 |
| 113 | 0.558942 | 113 | 0.558942 |
| 114 | 0.559950 | 114 | 0.559950 |
| 115 | 0.560902 | 115 | 0.560902 |
| 116 | 0.560959 | 116 | 0.560959 |
| 117 | 0.561015 | 117 | 0.561015 |
| 118 | 0.561015 | 118 | 0.561015 |
| 119 | 0.561015 | 119 | 0.561015 |
| 120 | 1.000000 | 120 | 1.000000 |

Society of Actuaries Mortality Improvement Scale MP-[2020]2021 will be applied on a generational basis to base table rates.

Disability Retirement Rates

| Males Age | Males Rate | Females Age | Females Rate |
|---|---|---|---|
| 30 | 0.000007 | 30 | 0.000004 |
| 31 | 0.000031 | 31 | 0.000018 |
| 32 | 0.000060 | 32 | 0.000048 |
| 33 | 0.000100 | 33 | 0.000140 |
| 34 | 0.000131 | 34 | 0.000225 |
| 35 | 0.000156 | 35 | 0.000242 |
| 36 | 0.000183 | 36 | 0.000212 |
| 37 | 0.000220 | 37 | 0.000191 |
| 38 | 0.000261 | 38 | 0.000202 |
| 39 | 0.000297 | 39 | 0.000252 |
| 40 | 0.000324 | 40 | 0.000330 |
| 41 | 0.000353 | 41 | 0.000415 |
| 42 | 0.000378 | 42 | 0.000468 |
| 43 | 0.000439 | 43 | 0.000566 |
| 44 | 0.000519 | 44 | 0.000684 |
| 45 | 0.000610 | 45 | 0.000758 |
| 46 | 0.000680 | 46 | 0.000788 |
| 47 | 0.000724 | 47 | 0.000841 |
| 48 | 0.000772 | 48 | 0.000961 |
| 49 | 0.000878 | 49 | 0.001145 |
| 50 | 0.001035 | 50 | 0.001325 |
| 51 | 0.001225 | 51 | 0.001528 |
| 52 | 0.001395 | 52 | 0.001608 |
| 53 | 0.001480 | 53 | 0.001611 |
| 54 | 0.001435 | 54 | 0.001527 |
| 55 | 0.001287 | 55 | 0.001454 |
| 56 | 0.001060 | 56 | 0.001270 |
| 57 | 0.000845 | 57 | 0.001121 |
| 58 | 0.000721 | 58 | 0.001012 |
| 59 | 0.000655 | 59 | 0.000956 |
| 60 | 0.000642 | 60 | 0.000848 |
| 61 | 0.000617 | 61 | 0.000749 |
| 62 | 0.000581 | 62 | 0.000684 |
| 63 | 0.000536 | 63 | 0.000591 |
| 64 | 0.000485 | 64 | 0.000551 |

Disability Retirement Rates
(cont'd.)

| Males Age | Males Rate | Females Age | Females Rate |
|---|---|---|---|
| 65 | 0.000430 | 65 | 0.000476 |
| 66 | 0.000373 | 66 | 0.000258 |
| 67 | 0.000317 | 67 | 0.000178 |
| 68 | 0.000264 | 68 | 0.000169 |
| 69 | 0.000215 | 69 | 0.000152 |
| 70 | 0.000172 | 70 | 0.000131 |
| 71 | 0.000135 | 71 | 0.000107 |
| 72 | 0.000104 | 72 | 0.000083 |
| 73 | 0.000078 | 73 | 0.000060 |
| 74 | 0.000058 | 74 | 0.000042 |
| 75 | 0.000042 | 75 | 0.000028 |
| 76 | 0.000030 | 76 | 0.000018 |
| 77 | 0.000021 | 77 | 0.000011 |
| 78 | 0.000014 | 78 | 0.000006 |
| 79 | 0.000009 | 79 | 0.000004 |

Service Retirement Rates

With at Least 5 Years of Service and Less Than 20 Years of Service

| Males Age | Males Rate | Females Age | Females Rate |
|---|---|---|---|
| 55 | 0.016895 | 55 | 0.022034 |
| 56 | 0.018138 | 56 | 0.020920 |
| 57 | 0.018949 | 57 | 0.021583 |
| 58 | 0.020392 | 58 | 0.024243 |
| 59 | 0.023948 | 59 | 0.028714 |
| 60 | 0.032544 | 60 | 0.036747 |
| 61 | 0.053559 | 61 | 0.049865 |
| 62 | 0.076575 | 62 | 0.098737 |
| 63 | 0.086291 | 63 | 0.099499 |
| 64 | 0.101429 | 64 | 0.108244 |
| 65 | 0.135241 | 65 | 0.134619 |
| 66 | 0.165359 | 66 | 0.157206 |
| 67 | 0.171258 | 67 | 0.157651 |
| 68 | 0.162524 | 68 | 0.149321 |
| 69 | 0.168459 | 69 | 0.157048 |
| 70 | 0.178411 | 70 | 0.169309 |
| 71 | 0.168561 | 71 | 0.166236 |
| 72 | 0.175182 | 72 | 0.149874 |
| 73 | 0.204473 | 73 | 0.130584 |
| 74 | 0.205761 | 74 | 0.131818 |
| 75 | 0.201031 | 75 | 0.170940 |
| 76 | 0.223684 | 76 | 0.208633 |
| 77 | 0.250000 | 77 | 0.178744 |
| 78 | 0.259259 | 78 | 0.105960 |
| 79 | 0.243243 | 79 | 0.115385 |
| 80+ | 1.000000 | 80+ | 1.000000 |

Service Retirement Rates

With at Least 20 Years of Service and Less Than 30 Years of Service

| Males Age | Males Rate | Females Age | Females Rate |
|---|---|---|---|
| 55 | 0.036912 | 55 | 0.048946 |
| 56 | 0.038733 | 56 | 0.048932 |
| 57 | 0.042465 | 57 | 0.050278 |
| 58 | 0.045650 | 58 | 0.055984 |
| 59 | 0.053792 | 59 | 0.066847 |
| 60 | 0.074850 | 60 | 0.085816 |
| 61 | 0.137343 | 61 | 0.124821 |
| 62 | 0.317298 | 62 | 0.344649 |
| 63 | 0.291193 | 63 | 0.320354 |
| 64 | 0.264522 | 64 | 0.270180 |
| 65 | 0.284814 | 65 | 0.306632 |
| 66 | 0.326565 | 66 | 0.343562 |
| 67 | 0.323741 | 67 | 0.335230 |
| 68 | 0.287004 | 68 | 0.312155 |
| 69 | 0.316940 | 69 | 0.294658 |
| 70 | 0.345833 | 70 | 0.276159 |
| 71 | 0.274390 | 71 | 0.258438 |
| 72 | 0.244094 | 72 | 0.248951 |
| 73 | 0.316327 | 73 | 0.231388 |
| 74 | 0.314286 | 74 | 0.202817 |
| 75 | 0.222222 | 75 | 0.232824 |
| 76 | 0.200000 | 76 | 0.283422 |
| 77 | 0.206897 | 77 | 0.291667 |
| 78 | 0.214286 | 78 | 0.243590 |
| 79 | 0.148148 | 79 | 0.170732 |
| 80+ | 1.000000 | 80+ | 1.000000 |

Service Retirement Rates

With at Least 30 Years of Service

| Males Age | Males Rate | Females Age | Females Rate |
|---|---|---|---|
| 55 | 0.357369 | 55 | 0.360457 |
| 56 | 0.308100 | 56 | 0.328854 |
| 57 | 0.270702 | 57 | 0.285005 |
| 58 | 0.275266 | 58 | 0.281178 |
| 59 | 0.296323 | 59 | 0.303384 |
| 60 | 0.311082 | 60 | 0.329377 |
| 61 | 0.310642 | 61 | 0.358157 |
| 62 | 0.319459 | 62 | 0.383599 |
| 63 | 0.319013 | 63 | 0.361017 |
| 64 | 0.297225 | 64 | 0.336647 |
| 65 | 0.311052 | 65 | 0.345155 |
| 66 | 0.340284 | 66 | 0.361702 |
| 67 | 0.325405 | 67 | 0.339678 |
| 68 | 0.291372 | 68 | 0.289690 |
| 69 | 0.274286 | 69 | 0.270671 |
| 70 | 0.259067 | 70 | 0.268173 |
| 71 | 0.238434 | 71 | 0.269377 |
| 72 | 0.223404 | 72 | 0.255354 |
| 73 | 0.224806 | 73 | 0.220085 |
| 74 | 0.262136 | 74 | 0.204420 |
| 75 | 0.294872 | 75 | 0.182796 |
| 76 | 0.254902 | 76 | 0.157205 |
| 77 | 0.200000 | 77 | 0.175258 |
| 78 | 0.178571 | 78 | 0.222973 |
| 79 | 0.184615 | 79 | 0.253012 |
| 80+ | 1.000000 | 80+ | 1.000000 |

Withdrawal Rates

| Males Duration | Males Rate | Females Duration | Females Rate |
|---|---|---|---|
| 0 | 0.281672 | 0 | 0.276603 |
| 1 | 0.139639 | 1 | 0.125667 |
| 2 | 0.103566 | 2 | 0.091900 |
| 3 | 0.082839 | 3 | 0.070395 |
| 4 | 0.061281 | 4 | 0.054609 |
| 5 | 0.046733 | 5 | 0.048608 |
| 6 | 0.040304 | 6 | 0.044007 |
| 7 | 0.033875 | 7 | 0.039406 |
| 8 | 0.027446 | 8 | 0.034805 |
| 9 | 0.021017 | 9 | 0.030204 |
| 10 | 0.017586 | 10 | 0.025604 |
| 11 | 0.015753 | 11 | 0.022445 |
| 12 | 0.012379 | 12 | 0.018454 |
| 13 | 0.009004 | 13 | 0.014464 |
| 14 | 0.008712 | 14 | 0.010474 |
| 15 | 0.008419 | 15 | 0.009808 |
| 16 | 0.007735 | 16 | 0.008100 |
| 17 | 0.007052 | 17 | 0.006392 |
| 18 | 0.006368 | 18 | 0.004683 |
| 19 | 0.005078 | 19 | 0.004300 |
| 20 | 0.005000 | 20 | 0.004251 |
| 21 | 0.004633 | 21 | 0.003896 |
| 22 | 0.004265 | 22 | 0.003883 |
| 23 | 0.003897 | 23 | 0.003869 |
| 24 | 0.003530 | 24 | 0.003856 |
| 25 | 0.003162 | 25 | 0.002475 |
| 26 | 0.003058 | 26 | 0.002156 |
| 27 | 0.002953 | 27 | 0.001836 |
| 28 | 0.002848 | 28 | 0.001516 |
| 29 | 0.002744 | 29 | 0.001230 |
| 30 | 0.002639 | 30 | 0.001223 |
| 31 | 0.002534 | 31 | 0.001217 |
| 32+ | 0.002430 | 32+ | 0.001210 |