



TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK  
A FIDUCIARY FUND OF THE CITY OF NEW YORK

# Annual Comprehensive Financial Report

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

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**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK  
A FIDUCIARY FUND OF THE CITY OF NEW YORK**

**ANNUAL COMPREHENSIVE FINANCIAL REPORT  
FOR FISCAL YEARS ENDED JUNE 30, 2022 AND JUNE 30, 2021**

Prepared by Accounting Units for the

**QUALIFIED PENSION PLAN  
and  
TAX-DEFERRED ANNUITY PROGRAM**

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Chief Accountant  
Teachers' Retirement System

**Mr. MAREK TYSZKIEWICZ**  
Chief Actuary

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**  
55 Water Street, New York, NY 10041

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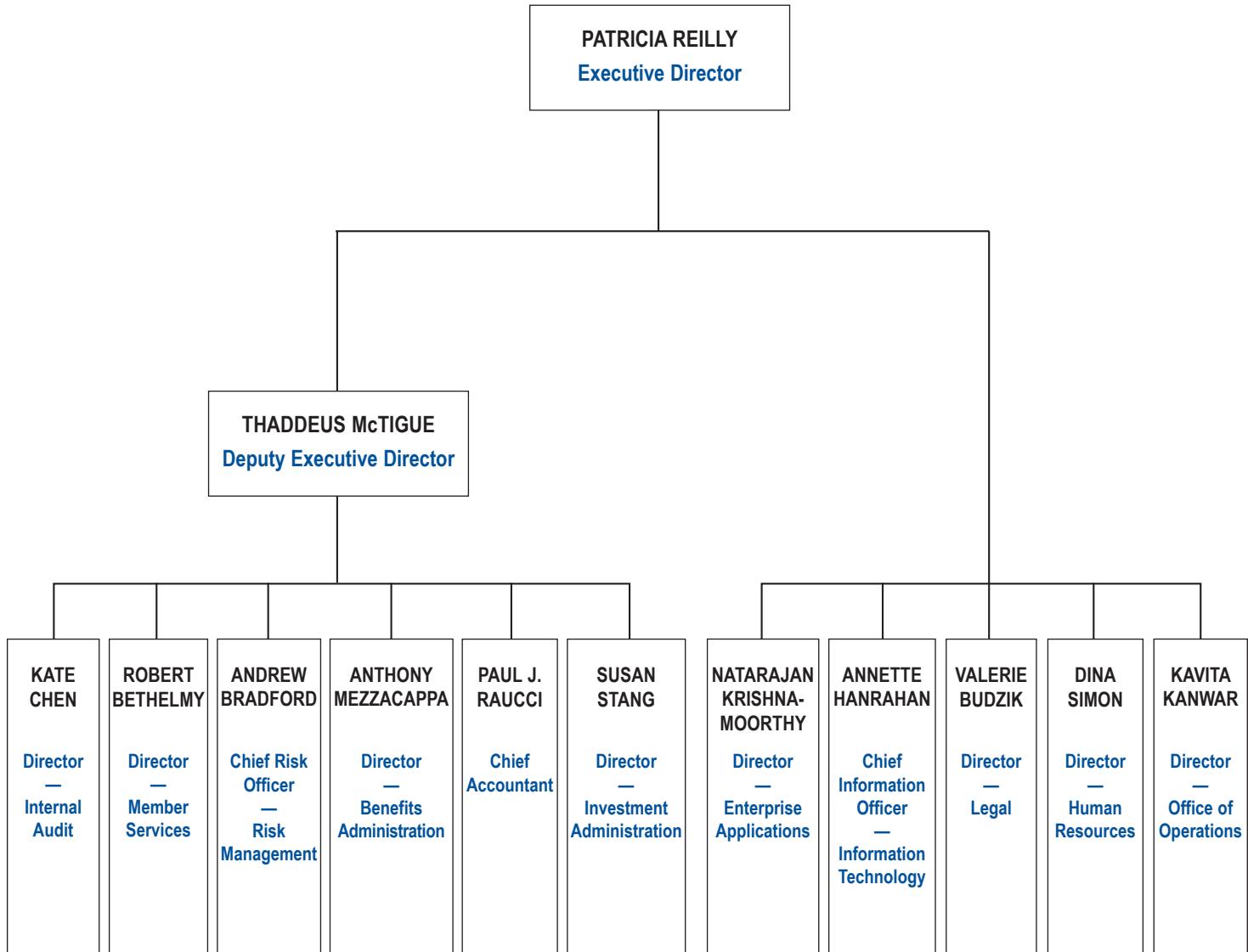


# Introductory Section

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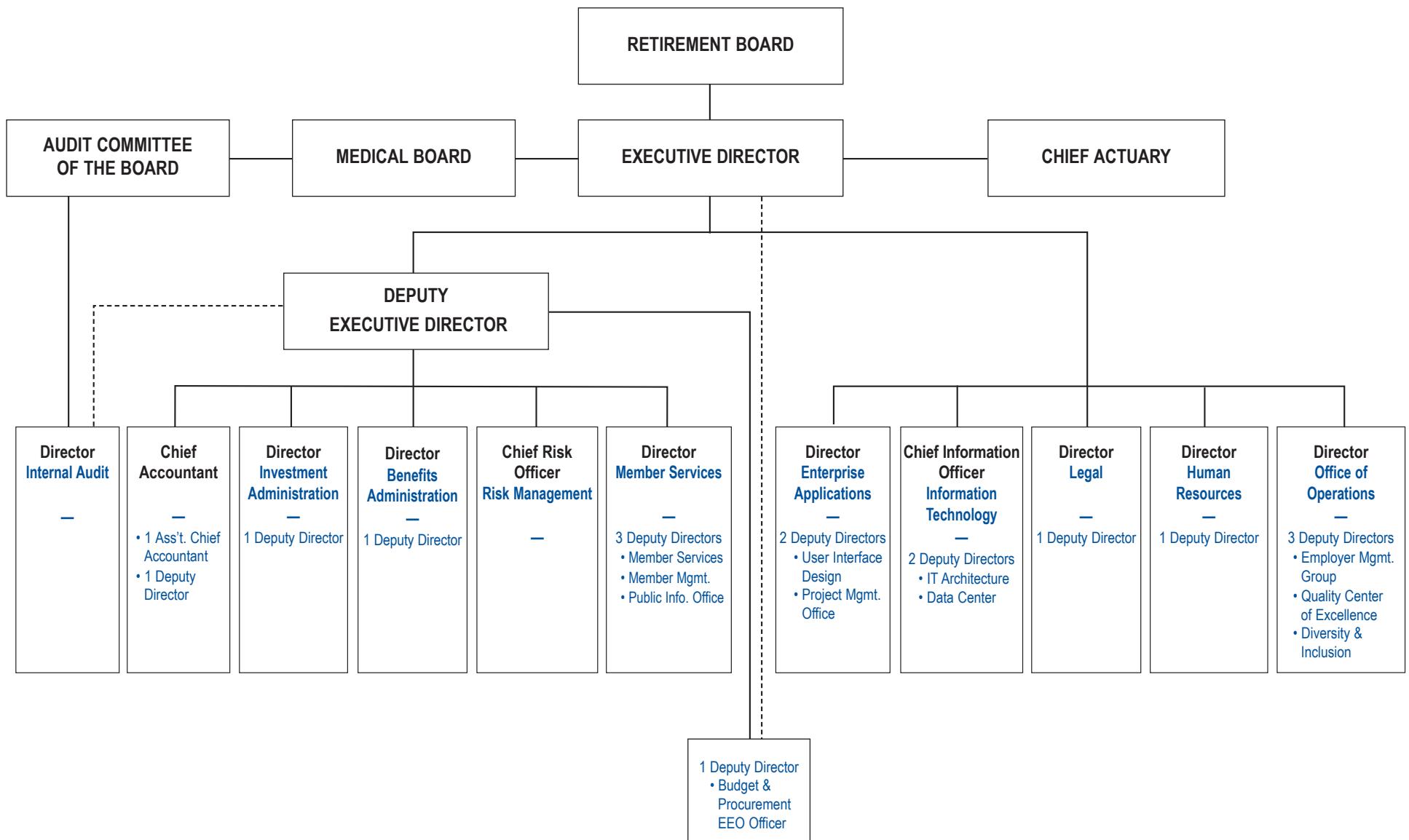
# PRINCIPAL OFFICIALS

as of June 30, 2022



## ORGANIZATION CHART

as of June 30, 2022





Government Finance Officers Association

Certificate of  
Achievement  
for Excellence  
in Financial  
Reporting

Presented to

**Teachers' Retirement System of the City of New York  
New York**

For its Annual Comprehensive  
Financial Report  
For the Fiscal Year Ended

June 30, 2021

*Christopher P. Morill*

Executive Director/CEO



**December 20, 2022**

Dear Members of the Board of Trustees:

We are pleased to present the *Annual Comprehensive Financial Report* of the Teachers' Retirement System of the City of New York (TRS) for the fiscal year ended June 30, 2022.

TRS was established on August 1, 1917 under Chapter 303 of the Laws of 1917 and is governed by the Administrative Code of the City of New York and the New York State Retirement and Social Security Law.

TRS' pension plan became a tax-qualified retirement plan under Section 401(a) of the Internal Revenue Code (IRC) and is known as our Qualified Pension Plan (QPP). The QPP is a cost-sharing, multiple employer defined-benefit pension plan. The QPP provides pension benefits to teachers and educational or administrative personnel employed by the Department of Education, participating New York City Charter Schools, and the City University of New York.

TRS' Tax-Deferred Annuity (TDA) Program was established and is administered pursuant to IRC Section 403(b) and NYC Administrative Code section 13-582, and became effective February 1, 1970. The TDA Program is a voluntary defined-contribution savings option available to TRS members.

### **Member Profile**

Our programs impact approximately 216,000 in-service members, retirees, and beneficiaries. Our membership includes individuals of varying ages, membership tiers, and employment status. And although many TRS members are currently in active service, more than 40% of them have retired. As of June 30, 2022, there were approximately 124,000 in-service members and approximately 92,000 retired members and beneficiaries receiving monthly benefits.

### **Participating Employers**

The participating employers that share the cost of the defined-benefit QPP plan are the New York City Department of Education (DOE), City University of New York (CUNY), and certain New York City Charter Schools that offer TRS benefits to their employees. Employees who become TRS members may participate in the TDA Program in addition to the QPP plan.

### **Initiatives**

TRS continued to adapt to the changing environment as the City moved past the worst of the pandemic. While our onsite operations increased, virtual member services options such as video appointments and online educational programs remained popular. We also introduced a live chat feature on our website for members who are logged in to the secure portal.

TRS worked to implement laws that impacted our membership and operations. Chapter 529 of the Laws of 2021 mandated TRS membership for paraprofessionals, and we welcomed over 3,000 incumbent paraprofessionals and 2,000 newly hired paraprofessionals by the end of the fiscal year. Chapter 56 of the Laws of 2022 lowered the vesting requirement from 10 years to 5, temporarily adjusted the salary basis for calculation of Tier VI pension contribution rates, and temporarily excluded certain earnings from the annual retiree earnings limit. Implementation of these provisions began in the new fiscal year (2022-23).

Our modernization project reached a milestone, as we moved most retiree-related operations to our new pension administration system. Specific member-facing enhancements include the following: Retirees can now manage their electronic payments from TRS through an online “wallet”; they can also make tax withholding elections, view all 1099 Forms, and obtain an income verification letter using new or updated online features. In addition, production stabilization continued through weekly maintenance releases, and planning for future phases continued.

## **Financial Statements**

The financial statements and notes along with Management’s Discussion and Analysis in this report present and analyze the changes in the TRS fiduciary net position for the fiscal year ended June 30, 2022. Since markets are dynamic and fluid, any judgment of the financial statements should also consider current market conditions.

## **Funding**

The Qualified Pension Plan’s funding objective is to meet long-term benefit promises through employer and member contributions, together with investment earnings. Annual funding by employer contributions is determined through an actuarial valuation of all liabilities to the QPP with adjustments to allow for an incremental phase-in of newly assumed actuarial liabilities. As such, employer contributions have been increasing steadily in line with current membership liabilities.

The QPP’s funding ratios are also developed as part of the QPP’s actuarial valuation. The funding ratios are determined at specific points in time, are usually expressed in various relationships of assets to obligations, and, over time, can provide insight into the long-term financial trend of the QPP.

One measure of the QPP’s funded status, the ratio of Actuarial Asset Value to the Entry Age Normal Actuarial Accrued Liability, determined as of June 30, 2020, is 80.4%. Please refer to the report’s Actuarial Section for a detailed discussion of the Plan’s measures of funded status.

Under Governmental Accounting Standards Board (GASB) Statement No. 67, Financial Reporting for Pension Plans, a defined-benefit pension plan is also required to report fiduciary net position as a percentage of the plan’s total pension liability. This method reports assets at current fair market value and, as such, is more sensitive to market volatility. As of June 30, 2022, the Qualified Pension Plan’s fiduciary net position represents 81.3% of the QPP’s total pension liability.

Funds needed to finance the QPP’s long-term benefit are accumulated through the collection of employer and member contributions and through income from investments. Primary expenses include benefit and survivor payments as well as investment and administrative expenses, and refunds of contributions to terminated employees. An overview of revenue and expenses, as well as asset and liability information, is provided in the Management’s Discussion and Analysis portion of the Financial Section.

## **Management Responsibility for Financial Reporting and Internal Controls**

The financial statements were prepared in accordance with accounting principles generally accepted in the United States of America and GASB pronouncements. Management is responsible for the integrity and fairness of the information presented in the financial statements, including data that, out of necessity, is based on estimates and judgments. Management is also responsible for establishing and maintaining an effective internal control structure. A system of internal controls provides reasonable, but not absolute, assurance that assets are properly safeguarded and that financial statements are reliable. The concept of reasonable assurance recognizes that first, the cost of a control should not exceed the benefits likely to be derived, and second, the valuation of the cost and benefits requires estimates and judgments by management. We believe that the internal controls currently in place support this purpose, and that the financial statements, accompanying schedules, and statistical tables are fairly presented in all material respects.

## Investments

Assets of the QPP and the TDA Program are invested together in the following investment funds: the Pension Fund, the Diversified Equity Fund, the Balanced Fund, the International Equity Fund, the Sustainable Equity Fund, the U.S. Equity Index Fund, and the International Equity Index Fund. The performance summary for Fiscal Year 2022 follows:

Rate of Return by Fund—Fiscal Year 2022		
Fund	ROR	Gross vs. Net Returns
Pension	-9.77%	Net of Fees
Variable Fund	ROR	Gross vs. Net Returns
Diversified Equity Fund	-17.12%	Net of Fees
Balanced Fund	-9.05%	Net of Fees
International Equity Fund	-20.73%	Net of Fees
Sustainable Equity Fund	-18.81%	Net of Fees
U.S. Equity Index Fund	-13.03%	Net of Fees
International Equity Index Fund	-18.28%	Net of Fees

For Funds other than the Pension Fund, members' accounts are valued on a monthly basis based on unit values. The unit values are based on each Fund's closing market value as of the end of the preceding month and are comparable to shares in mutual funds. TRS members who invest in these variable-return funds purchase units with their contributions.

The following table showing July unit values for 2022 and 2021 was based on the performance of the variable-return funds as of June 30. In addition to the changes in unit values, members' accounts are credited with a 4% increment factor increasing the number of units they hold, and their accounts are similarly discounted to offset this increase.

Unit Values for Fiscal Years 2022 and 2021		
Variable Fund	Unit Value July 2022	Unit Value July 2021
Diversified Equity Fund	\$106.266	\$133.347
Balanced Fund	15.368	17.572
International Equity Fund	10.121	13.280
Sustainable Equity Fund	21.882	28.029
U.S. Equity Index Fund	12.800	15.306
International Equity Index Fund	10.478	13.335

The Administrative Code of the City of New York and Retirement and Social Security Law authorize the investments of plan assets subject to the terms, conditions, limitations, and restrictions imposed by law. The New York State Retirement and Social Security Law, Banking Law, and the Administrative Code establish the criteria for permissible equity investments. Plan assets are diversified over a range of investments, and multiple investment strategies are used to limit risk. Details concerning the criteria for TRS' investments may be found in the Notes to the Financial Statements. A detailed discussion of TRS' investment strategies, asset classes, and yield information is provided in the report's Investment Section.

## Actuarial Reports

The Actuarial Section contains the Actuary's certification letter, the actuary's statements, a summary of actuarial assumptions, and the actuarial tables. The actuarial valuation provides a picture of the overall funding health of the QPP.

## Statistical Reports

Past and current data are contained in this section. The section includes tables that reflect the net position and demographic characteristics of the QPP and the TDA Program. Also captured in the tables, when applicable, is information comparing ten years of data. This look back shows overall trends in our programs and membership demographics that help to accurately forecast our future ability to meet our members' retirement needs.

## Independent Audit & Professional Services

State statutes require an annual audit by independent certified public accountants. TRS' auditor, Grant Thornton LLP, provides a Report of Independent Certified Public Accountants on the financial statements and schedules in the Financial Section of this Report.

Investment professionals are appointed under the direction of the Teachers' Retirement Board. Investment administration services for the TRSNYC Pension Fund are provided by the New York City Office of the Comptroller. Investment administration services for TRS's Variable-Return Funds are performed by TRS. The Office of the Comptroller and TRS hire consultants and other investment professionals to perform additional investment services. The Summary of Investment Managers and Fees and the Schedule of Payments of Commissions to Brokers can be found starting on pages 107 and 115, respectively.

Legal services to TRS are provided by the City's Corporation Counsel and Groom Law Group.

Actuarial services are provided by the Office of the Actuary of the City of New York, which is employed by the City's five major pension systems.

## Awards

The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to TRS for its Annual Comprehensive Financial Report for the Fiscal Year ended June 30, 2021. This was the 34th consecutive year that TRS was accorded this prestigious award. In order to be awarded a Certificate of Achievement, a government must publish an easily readable and efficiently organized Annual Comprehensive Financial Report. This report must satisfy both the generally accepted accounting principles and the applicable legal requirements.

A Certificate of Achievement is valid for a period of one year only. We believe that our current annual comprehensive financial report continues to meet the Certificate of Achievement Program's requirements, and we are submitting it to the GFOA for its consideration.

## Acknowledgements

The compilation of the Report reflects the efforts of the TRS staff under the leadership of the Board of Trustees. It is intended to provide complete and reliable information as a basis for making management decisions, as a means of determining compliance with legal provisions, and as a means for determining responsible stewardship for the assets contributed by the members and their employers.

Finally, we would like to take this opportunity to express our gratitude to the staff, the advisors, and the many people who have worked diligently to ensure the successful operation of TRS.

Sincerely,

Patricia M. Reilly  
Executive Director

Paul J. Raucci  
Chief Accountant

# SUMMARY OF PLAN PROVISIONS

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## SUMMARY OF PLAN PROVISIONS

TRS' principal benefit provisions correspond to the tier structure established by applicable New York State Law.<sup>1</sup>

### **Tiers III, IV, VI**

Members with a date of membership of July 27, 1976 or later are covered by the following provisions:

#### **SERVICE RETIREMENT**

##### ***Normal Service Retirement***

###### **Eligibility:**

A member is eligible to retire at age 62 (age 63 for Tier VI) with immediate payability after 5 or more years of service.<sup>2</sup>

Current members as of February 27, 2008 (excluding CUNY employees) were provided a 180-day period during which they were allowed to join a plan that permitted them to retire at age 55 and later with immediate payability and without reduction after 25 years of service, provided they pay an additional 1.85% of future pay, subject to contribution obligations.

After February 27, 2008, new members (excluding CUNY employees) are eligible to retire at age 55 and later with immediate payability and without reduction after 27 years of service and are required to pay an additional 1.85% of future pay, subject to contribution obligations.

After December 10, 2009, new members in a position represented by the UFT under the 55/27 retirement program are required to make contributions of 4.85% of salary until they have 27 years of credited service and contributions of 1.85% of salary thereafter.

After March 31, 2012, new Tier VI members are required to make contributions in amounts ranging from 3% to 6% per annum, based on annual wages earned during a "plan year," originally defined as April 1 to March 31, but amended to January 1 to December 31 as of January 1, 2016.<sup>3</sup>

###### **Benefits:**

- (1) For a member with fewer than 20 years of service, the benefit is 1.67% times FAS<sup>4</sup> multiplied by years of service.
- (2) For a member with at least 20 (Tier VI) but fewer than 30 years of service (Tier III/IV), the benefit is 2% times FAS multiplied by years of service (Tier III/IV) or 35% plus 2% times FAS multiplied by each additional year exceeding 20 years of service (Tier VI).
- (3) For a member with 30 or more years of service, the benefit is 2% times FAS for each of the first 30 years of service plus 1.5% times FAS for each additional year (Tier III/IV).

##### ***Early Service Retirement***

###### **Eligibility:**

A member is eligible to retire at age 55 or later with immediate payability, after 5 or more years of service.<sup>2</sup>

<sup>1</sup>Chapter 274 of the Laws of 1970 (Tiers I/II), as restricted by RSSL Article 11; RSSL Articles 14 and 15 (Tiers III/IV); Chapter 18 of the Laws of 2012 (Tier VI).

<sup>2</sup>Prior to the enactment of Chapter 56 of the Laws of 2022 on April 9, the vesting requirement was 10 years of service for all Tier VI members, as well as UFT-affiliated Tier IV members who joined TRS after December 10, 2009.

<sup>3</sup>For the first three plan years of membership, TRS uses projected annual earnings provided by the employer(s) to determine the contribution rates. For the fourth plan year of membership and each plan year thereafter, TRS uses the actual wages earned two plan years prior to the current plan year. Chapter 56 of the Laws of 2022 excludes overtime pay from the "actual wages" figure for plan years 2022, 2023, and 2024.

<sup>4</sup>Final Average Salary (FAS) is the average earned during any three consecutive years (any five consecutive years for Tier VI) providing the highest average salary. However, if salary earned during any year included in the three-year period (five-year period for Tier VI) exceeds the average of the previous two years by more than 10%, the amount in excess of 10% will be excluded.

**Benefits:**

The pension is calculated similarly to the pension of a Normal Service Retirement, but it is reduced as follows:

- (1) For a Tier III/IV member who retires prior to age 62 with less than 30 years of service and is not a member of an Age 55 Plan, his/her pension for service is reduced by 0.5% for each of the first 24 months that the payability date precedes age 62, and by 0.25% for each additional month.
- (2) A Tier III/IV member with 30 or more years of service receives no reduction in benefits because of early retirement.
- (3) For a Tier VI member who retires prior to age 63, the retirement allowance is reduced by 6.5% per year.

**Deferred Vested Benefit**

**Eligibility:**

A member who has 5 or more years of credited service upon termination of employment is entitled to a deferred vested benefit payable at age 55 or later.<sup>2</sup>

A member who elects payability before age 62 (age 63 for Tier VI) will receive a reduced benefit unless they have 30 years of service under Tier III/IV or meet the eligibility requirements of their retirement plan.

**Benefits:**

The benefit formulas are the same as those set forth under a Normal Service Retirement and an Early Service Retirement.

**DISABILITY RETIREMENTS**

**Ordinary Disability Retirement**

**Eligibility:**

A member is eligible for Ordinary Disability Retirement benefits if (s)he has completed 10 or more years of service and is incapacitated for performance of gainful employment. If the disability is judged to be the result of an accident in the performance of duty, the 10-year requirement is waived.

**Benefits:**

The benefit is the greater of: (a) 33.33% of FAS (66.67% of FAS for a member if the disability is judged to be the result of an accident in the performance of duty); or (b) 1.67% times FAS multiplied by the credited service.

A lump-sum disability benefit equals the in-service death benefit amount for members with: a terminal illness with a life expectancy of one year or less; or a medical condition of a long, continued, and indefinite duration requiring extraordinary care and treatment, regardless of life expectancy.

**Accident Disability Retirement**

**Eligibility:**

A member is entitled to an accident disability retirement allowance upon the occurrence of a disability caused by an accident in the actual performance of duty.

**Benefits:**

The retirement allowance will consist of a pension equal to 66.67% (60% under Tier III) of FAS.

## DEATH BENEFITS

### *Ordinary Death Benefits*

#### **Benefits:**

For members joining TRS after January 1, 2001, Death Benefit 2 below would be payable if a member dies before retirement. For members joining prior to that date, the greater of the two death benefits described below would be payable.

**Death Benefit 1:** This benefit provides one month's salary for each year of service up to a maximum of three years' salary. If the member would have been eligible to receive an unreduced retirement allowance at the time of his/her death, the benefit is a lump sum that is actuarially equivalent to the retirement allowance which would have been payable had the member retired on the day before his/her death, if greater.

**Death Benefit 2:** This benefit provides one year's salary for each year of service up to a maximum of three years' salary after three years of service. The benefits reduce after age 60 at the rate of 5% per year, to a maximum reduction of 50% of the benefit in effect at age 60.

A benefit is also payable upon death after retirement and is expressed as follows:

- If death occurs in the first year after retirement, 50% of the benefit in force immediately before retirement.
- If death occurs in the second year following retirement, 25% of the benefit in force immediately before retirement.
- If death occurs subsequently, 10% of the benefit in force at age 60 or immediately before retirement if retirement was earlier than age 60.

If retirement occurs after age 60, the minimum death benefit payable after retirement is 10% of the death benefit in force at age 60.

The death benefit for a vested member with at least 10 years of credited service, who died while inactive before retirement, is equal to 50% of the death benefit that would have been payable had the member died on their last day of active service, in addition to a refund of the member contributions.

The Rules and Regulations adopted by the Teachers' Retirement Board in accordance with Chapter 581 of the Laws of 1970 provide that the first \$50,000 of each benefit on account of death in active service is payable from the Group Term Life Insurance Plan. Only the amount in excess of \$50,000, if any, is payable by TRS.

#### **Beneficiaries:**

The latest named beneficiary, duly designated with TRS, will receive the death benefits. If there is no eligible beneficiary on file, the benefits will be paid to the member's estate.

### *Accidental Death Benefits*

#### **Eligibility:**

A beneficiary is entitled to the benefit if the member died before the effective date of retirement as a natural and proximate result of an accident sustained in the performance of duty, and if the accident was not caused by the member's willful negligence.

**Benefits:**

Benefits are payable to “eligible beneficiaries,” as defined by law. The beneficiary receives a benefit equal to 50% of the wages the member earned during the last year of actual service. If there is no eligible beneficiary on file, the benefits will be paid to the member’s estate.

**Special Provisions:**

An Accidental Death Benefit (resulting from a qualifying World Trade Center-related condition or COVID-19, as defined in law) is payable to the eligible beneficiary(ies).

## **Tiers I, II**

Members with a date of membership before July 27, 1976 are covered by the following provisions:

### **SERVICE RETIREMENT**

#### ***Twenty-Year Pension Plan***

**Eligibility:**

- (1) A Tier I member who elects the Twenty-Year Pension Plan is eligible to retire after having completed 20 years of service, with benefits to begin on the latter of: a) the day they cease active employment, b) age 55, or c) the date they could have completed 25 years of service had they remained active. Regardless of the number of years of service, such a member who has elected the Twenty-Year Pension Plan and who is at least 55 years of age may retire with benefits payable immediately by canceling his/her election of the Twenty-Year Pension Plan, thereby becoming eligible for the benefits under the Age-55-Increased-Benefits Pension Plan.
- (2) A member who joined TRS under Tier II must also have rendered five years of continuous service immediately prior to retiring and must have attained age 55.

**Benefits:**

The service retirement allowance for a Tier I member is the sum of the following:

- (1) 50% of the average salary<sup>5</sup>, reduced by an annuity which is the actuarial equivalent of the minimum accumulation<sup>6</sup>;
- (2) an annuity which is the actuarial equivalent of the accumulated contributions; and
- (3) for service in excess of 20 years, a pension for Increased-Take-Home-Pay<sup>7</sup>, which is the actuarial equivalent of the Reserve for Increased-Take-Home-Pay credited in such years, 1.2% of the average salary for each such year prior to July 1, 1970, and 1.7% of the average salary for each such year beginning on that date.

If a Tier II member retires prior to age 62 with less than 30 years of service, his/her pension for service is reduced by 0.5% for each of the first 24 months that the payability date precedes age 62, and by 0.25% for each additional month.

<sup>5</sup>For a Tier I member, salary earnable in the last year of the most recent three-year period during which (s)he held no more than one position, or the average annual salary earnable in any five consecutive years designated by the member. For a Tier II member, the average salary earned during any three consecutive years which provides the highest salary. However, if salary earned during any year included in the three-year period exceeds the average of the previous two years by more than 20%, the amount in excess of 20% will be excluded.

<sup>6</sup>The difference between (1) the amount of required contributions during the member's first 20 years of city service, accumulated with interest to the member's payability date, and (2) the amount of the reserve for Increased-Take-Home-Pay on the date such period of 20 years is completed.

<sup>7</sup>Increased-Take-Home-Pay consists of special contributions made by the employer at 2.5%, 5%, or 8% of salary, with applicable interest.

Current Tier II members as of February 27, 2008 (excluding CUNY employees) were provided a 180-day period during which they were allowed to join a plan that permitted them to retire at age 55 and later with immediate payability and without reduction after 25 years of service, provided they pay an additional 1.85% of future pay.

#### **Age-55-Increased-Benefits Pension Plan**

##### **Eligibility:**

- (1) A Tier I member who either elects the Age-55-Increased-Benefits Pension Plan or cancels his/her election of the Twenty-Year Pension Plan may retire after having attained age 55 with benefits payable immediately upon retirement.
- (2) A Tier II member must have rendered five years of continuous service immediately prior to retiring and must have attained age 55.

##### **Benefits:**

The service retirement allowance consists of a pension for service, a pension for Increased-Take-Home-Pay, and an annuity.

The pension for service is equal to 1.2% of the average salary multiplied by years of service prior to July 1, 1970, plus 1.53% of the average salary multiplied by years of service after June 30, 1970.

The pension for Increased-Take-Home-Pay is the actuarial equivalent of the Reserve for Increased-Take-Home-Pay, and the annuity is the actuarial equivalent of the member's accumulated deductions.

If a Tier II member retires prior to age 62 with less than 30 years of service, his/her pension for service is reduced by 0.5% for each of the first 24 months that the payability date precedes age 62, and by 0.25% for each additional month.

Current Tier II members as of February 27, 2008 (excluding CUNY employees) were provided a 180-day period during which they were allowed to join a plan that permitted them to retire at age 55 and later with immediate payability and without reduction after 25 years of service, provided they pay an additional 1.85% of future pay.

#### **VESTED DEFERRED RETIREMENT ALLOWANCE**

##### **Eligibility:**

A member who either resigns or is dismissed from service would receive a benefit equal to his/her accumulated deductions. However, a member who is eligible for benefits under the Age-55-Increased-Benefits Pension Plan and who has at least 5 years of service immediately preceding resignation may instead elect to receive a deferred vested allowance.

##### **Benefits:**

This allowance is computed in the same manner as the retirement allowance for service retirement under the Age-55-Increased-Benefits Pension Plan, except that the allowance is deferred to age 55. Should a member who elected to receive a vested deferred retirement allowance and who had 10 years of service die before the attainment of age 55, the death benefit is 50% of the Ordinary Death Benefit in force on the last day of service.

## DISABILITY RETIREMENTS

### *Ordinary Disability Retirement*

#### **Eligibility:**

Regardless of the Plan elected, a member who has completed 10 or more years of City service preceding the occurrence of disability, for causes other than an accident in the actual performance of duty, is entitled to an ordinary disability retirement allowance.

#### **Benefits:**

If, at the time of becoming disabled, the member could have retired for service with benefits payable immediately, the ordinary disability allowance will be the same as the service retirement allowance without reduction on account of age. For all other members, the ordinary disability allowance is computed in the same manner as though the member had been eligible for service retirement under the Age-55-Increased-Benefits Pension Plan with benefits payable immediately, but never less than the allowance that would have been payable under the provisions in effect prior to July 1, 1970.

### *Accident Disability Retirement*

#### **Eligibility:**

A member is entitled to an accident disability retirement allowance upon the occurrence of a disability caused by an accident in the actual performance of duty.

#### **Benefits:**

The retirement allowance will consist of a pension equal to 75% of the average salary in the last 5 years, plus a pension which is the actuarial equivalent of the Reserve for Increased-Take-Home-Pay, and an annuity purchased with the member's accumulated deductions.

## DEATH BENEFITS

### *Ordinary Death Benefits*

#### **Benefits:**

Upon the death of a member in active service, a benefit is paid to his/her estate or to such person(s) as (s)he shall have nominated.

#### **Tier I Members**

- If a member completed less than 10 years of City Service, the benefit is equal to the compensation earnable by the member in the 6 months immediately preceding death.
- If the total number of years of City Service is greater than 10, but less than 20, the benefit is equal to the compensation earnable by the member during the 12 months immediately preceding death.
- If the total number of years of City Service exceeds 20, the benefit is equal to twice the compensation earnable by the member during the 12 months immediately preceding death.
- In addition, the member's accumulated deductions and the Reserve for Increased-Take-Home-Pay are paid to the member's estate or to the designated beneficiary.

The benefits payable on account of such a member who, at the time of his/her death, would have been eligible for service retirement is either the benefit described above or a lump sum that is actuarially equivalent to the retirement allowance which would have been payable had the member retired on the day before his/her death, whichever is greater.

**Tier II Members** must choose between the two following death benefits so that, upon the member's death, benefits are paid pursuant to the member's election:

**Death Benefit 1:** This benefit provides one month's salary for each year of service, up to a maximum of three years' salary. In addition, the member's accumulated deductions are payable.

If the member would have been eligible to receive an unreduced retirement allowance at the time of his/her death, the benefit is a lump sum that is actuarially equivalent to the retirement allowance which would have been payable had the member retired on the day before his/her death, if greater.

**Death Benefit 2:** In addition to a refund of the member's accumulated deductions, this benefit provides one year's salary for each year of service up to a maximum of three years' salary after three years of service. The benefit reduces after age 60 at the rate of 5% per year, to a maximum reduction of 50% of the benefits in effect at age 60.

A benefit is also payable upon death after retirement and is expressed as follows:

- If death occurs in the first year after retirement, 50% of the benefit in force immediately before retirement.
- If death occurs in the second year following retirement, 25% of the benefit in force immediately before retirement.
- If death occurs subsequently, 10% of the benefit in force at age 60 or immediately before retirement if retirement was earlier than age 60.

If retirement occurs after age 60, the minimum death benefit payable after retirement is 10% of the death benefit in force at age 60.

The death benefit for a vested member with at least 10 years of credited service, who died while inactive before becoming eligible for unreduced retirement benefits, is equal to 50% of the death benefit that would have been payable had the member died on their last day of active service, in addition to a refund of the member contributions.

The Rules and Regulations adopted by the Teachers' Retirement Board in accordance with Chapter 581 of the Laws of 1970 provide that the first \$50,000 of each benefit on account of death in active service is payable from the Group Term Life Insurance Plan. Only the amount in excess of \$50,000, if any, is payable by TRS.

### **Beneficiaries:**

The latest named beneficiary, duly designated with TRS, will receive the death benefits. If there is no eligible beneficiary on file, the benefits will be paid to the member's estate.

### **Accidental Death Benefits**

#### **Eligibility:**

A member is entitled to accidental death benefits upon the occurrence of death caused by an accident in the actual performance of duty and not the result of willful negligence.

#### **Benefits:**

The accidental death benefits are (a) a lump-sum equal to the Reserve for Increased-Take-Home-Pay and (b) a pension equal to 50% of the average salary in the last five years payable annually to the widow until remarriage or death, or if there is no widow, to a child or children until the attainment of age 18 of the youngest child, or if there is no widow or child, to the dependent parents, and (c) a lump-sum equal to the member's accumulated deductions and Reserve for Increased-Take-Home-Pay payable to the member's

estate or to the designated beneficiary. Alternatively, the beneficiary of a Tier I member may elect to receive a lump sum that is actuarially equivalent to the retirement allowance which would have been payable if the member had retired on the day before the member's death, provided that the death occurred after the member became eligible to retire for service.

## **Cost-of-Living Adjustments**

### **Eligibility:**

Automatic annual Cost-of-Living Adjustments (COLA) are applicable to retired members in all tiers. COLA are payable to members who are either (1) at least age 62 and have been retired for at least 5 years or (2) at least age 55 and have been retired for at least 10 years. Additionally, COLA are payable to members who retired for disability after being retired for 5 or more years and beneficiaries receiving accidental death benefits who have been receiving them for at least 5 years.

### **Benefits:**

Starting with benefits for September 2001, the annual increase for COLA is equal to 50% of the increase in the Consumer Price Index for all Urban Consumers (CPI-U) based on the year ending March 31, rounded to the next higher 0.1%, not less than 1% nor greater than 3% of the first \$18,000 of the sum of maximum retirement allowance and prior COLA.

COLA are payable during the life of the retired member. Fifty percent of the amount is also payable after the member's death and during the life of the spouse beneficiary if such retired member had elected one of the options under the Administrative Code which provides that benefits are to be continued for the life of such spouse after the death of the retired member, and where the death of such retired member occurred or occurs more than 30 days after the effective date of the retirement of such member..

## **Options on Retirement**

A member, upon retirement, may receive his/her basic retirement allowance in monthly installments throughout life with all payments ending at death, or may elect to receive the actuarial equivalent in the following optional forms.

- (1) A joint-and-survivor allowance under which reduced payment will be made during life, with a provision that upon the member's death, the same payments or 50% of such payments shall be continued throughout the life of other such person(s) as the member shall have designated.  
(Applicable to members under Tiers I and II.)
- (2) A joint-and-survivor allowance under which reduced payments will be made during life, with a provision that upon the member's death, 100% or less (*i.e.*, in 10% increments) of such payments shall be continued throughout the life of such other person(s) as the member shall have designated.  
(Applicable to members under Tier III.)
- (3) A joint-and-survivor allowance under which reduced payments will be made during life, with a provision that upon a member's death, 100% or less (*i.e.*, in 25% increments) of such payments shall be continued throughout the life of such other person(s) as the member shall have designated.  
(Applicable to members under Tiers IV and VI.)

- (4) A joint-and-survivor allowance under which reduced payments will be made during life, with a provision that in the event of a member's death prior to the death of the designated beneficiary, the person designated would receive a percentage of the payments under the applicable plan, which had been received by the member under that plan. Should the designated beneficiary predecease the member, the member's retirement allowance "pops up" to the amount which would have been payable, had no optional modification of the retirement allowance been in effect. (All Tiers)
- (5) A ten-year or five-year certain and life allowance under which reduced payments will be made during life, with a provision that in case of death within ten or five years of retirement, the balance that would have been payable had the member survived for ten or five years, shall continue to be paid to the designated beneficiary or estate. (All Tiers)
- (6) A cash refund allowance under which reduced payment will be made during life, with a provision that, in case of death before such payments have equaled the present value of the retirement allowance at the time of retirement, the balance shall be paid to the designated beneficiary or estate in a lump sum. (Applicable to members under Tier I.)
- (7) A cash refund allowance under which reduced payments will be made during life, with a provision that, in case of death before such payments have equaled the present value of the retirement allowance at the time of retirement, the balance from the annuity portion of the retirement allowance shall be paid to the designated beneficiary or estate in a lump sum. (Applicable to members under Tier II.)
- (8) A cash refund allowance under which reduced payment will be made during life, with a provision that, upon the member's death, a sum specified by the retiree at the time of retirement, would be paid to the designated beneficiary or estate. (Applicable to members under Tiers I and II, by resolution of the Teachers' Retirement Board.)
- (9) Such other actuarial equivalent optional forms as may be certified by the Actuary and approved by the Teachers' Retirement Board. (All Tiers).

## **Annuitization Options for Beneficiaries of a Death Benefit**

Upon a member's death, the beneficiary may elect to receive the actuarial equivalent of a lump-sum death benefit, otherwise payable, in one of the following forms: 1) An annual amount payable for life in monthly installments, all payments ending at death (only available to the beneficiary of a member who joined under Tiers I and II); or 2) A cash refund allowance under which reduced payments will be made during life, with a provision that, in case of death before such payments have equaled the lump sum payable upon the member's death, the balance shall be paid to the designated beneficiary or estate (only available to the beneficiary of a member who joined under Tier I).

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## Financial Section

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## REPORT OF INDEPENDENT CERTIFIED PUBLIC ACCOUNTANTS

To the Board of Trustees of  
Teachers' Retirement System of the City of New York

### Opinion

We have audited the combining financial statements of Teachers' Retirement System of the City of New York Qualified Pension Plan and the Teachers' Retirement System of the City of New York Tax-Deferred Annuity Program, which collectively comprise the Teachers' Retirement System of the City of New York (the "System"), which comprise the combining statements of fiduciary net position as of June 30, 2022 and 2021 and the related combining statements of changes in fiduciary net position for the years then ended, and the related notes to combining financial statements, which collectively comprise the System's basic combining financial statements.

In our opinion, the accompanying combining financial statements present fairly, in all material respects, the combining fiduciary net position of the System as of June 30, 2022 and 2021, and the changes in the combining fiduciary net position for the years then ended in accordance with accounting principles generally accepted in the United States of America.

### Basis for opinion

We conducted our audits of the financial statements in accordance with auditing standards generally accepted in the United States of America (US 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 audits. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

### Responsibilities of management for the financial statements

Management is responsible for the preparation and fair presentation of the combining 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 Plan's ability to continue as a going concern for one year after the date the financial statements are available to be issued.



### **Auditor's responsibilities for the audit of the financial statements**

Our objectives are to obtain reasonable assurance about whether the combining 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 US 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 combining financial statements.

In performing an audit in accordance with US GAAS, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the combining 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 combining 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, schedule 1 - schedules of changes in the employer's net pension liability and related ratios for each of the nine years in the period ended June 30, 2022, schedule 2 - schedules of employer contributions for each of the ten years in the period ended June 30, 2022, and schedule 3 - schedule of investment returns for each of the nine years in the period ended June 30, 2022, be presented to supplement the basic combining financial statements. Such information is the responsibility of management and, although not a required part of the basic combining financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic combining financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with US GAAS. These limited procedures consisted of inquiries of management about the methods of preparing the



information and comparing the information for consistency with management's responses to our inquiries, the basic combining financial statements, and other knowledge we obtained during our audit of the basic combining financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

#### **Supplementary information**

Our audit was conducted for the purpose of forming an opinion on the basic combining financial statements as a whole. The schedule of administrative expenses, and schedule of investment expenses and services ("Additional Supplementary Information") for the year ended June 30, 2022, are presented for purposes of additional analysis and are not a required part of the basic financial statements. Such supplementary 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 combining financial statements. The information has been subjected to the auditing procedures, applied in the audit of the basic combining financial statements and certain additional procedures. These additional procedures included comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic combining financial statements or to the basic combining financial statements themselves, and other additional procedures in accordance with US GAAS. In our opinion, the Additional Supplementary Information is fairly stated, in all material respects, in relation to the basic combining financial statements taken as a whole.

#### **Other information**

Management is responsible for the other information. The other information comprises the accompanying Introductory Section, Investment Section, Actuarial Section, and Statistical Section, but does not include the basic combining financial statements and our auditor's report thereon. Our opinion on the basic combining financial statements does not cover the other information, and we do not express an opinion or any form of assurance thereon.

In connection with our audit of the basic combining financial statements, our responsibility is to read the other information and consider whether a material inconsistency exists between the other information and the basic combining financial statements, or the other information otherwise appears to be materially misstated. If, based on the work performed, we conclude that an uncorrected material misstatement of the other information exists, we are required to describe it in our report.

*Grant Thornton LLP*

New York, New York  
October 26, 2022

(except for the Additional Supplementary Information and the Other information section of our report, as to which the date is December 19, 2022)

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK

## Teachers' Retirement System of the City of New York

### MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

June 30, 2022 and 2021

This narrative discussion and analysis of the Teachers' Retirement System of the City of New York's ("TRS" or the "System") financial performance provides an overview of the System's combining financial activities for the Fiscal Years ended June 30, 2022 and 2021. It is meant to assist the reader in understanding TRS' combining financial statements by providing an overall review of the combining financial activities during the years and the effects of significant changes, as well as a comparison with prior years' activity and results. This discussion and analysis is intended to be read in conjunction with the System's combining financial statements. TRS administers the TRS Qualified Pension Plan ("QPP") and the TRS Tax-Deferred Annuity ("TDA") Program. The QPP is a cost-sharing, multiple-employer, defined-benefit pension plan. The QPP provides pension benefits to New York City ("The City" or "City") public school teachers and certain other personnel, participating Charter Schools, and participating City University of New York ("CUNY") teachers and other personnel. The TDA Program is a tax-deferred annuity program described in Internal Revenue Code section 403(b) and is available as a supplemental savings option to QPP members.

### OVERVIEW OF COMBINING FINANCIAL STATEMENTS

The following discussion and analysis is intended to serve as an introduction to the System's combining financial statements. The combining financial statements, which are prepared in conformity with Generally Accepted Accounting Principles ("GAAP") as prescribed by Government Accounting Standards Board ("GASB"), include the financial statements of the QPP and the TDA Programs and are as follows:

- **The Combining Statements of Fiduciary Net Position** – presents the financial position of the System at fiscal year-end. It provides information about the nature and amounts of resources with present service capacity that the System presently controls (assets), consumption of net assets by the System that is applicable to a future reporting period (deferred outflow of resources), present obligations to sacrifice resources that the System has little or no discretion to avoid (liabilities), and acquisition of net assets by the System that is applicable to a future reporting period (deferred inflow of resources), with the difference between assets/deferred outflow of resources and liabilities/deferred inflow of resources being reported as net position. Investments are shown at fair value. All other assets and liabilities are determined on an accrual basis of accounting.
- **The Combining Statements of Changes in Fiduciary Net Position** – presents the results of activities during the fiscal year. All changes affecting the assets/deferred outflow and liabilities/deferred inflow of the System are reflected on an accrual basis when the activity occurred, regardless of the timing of the related cash flows. In that regard, changes in the fair values of investments are included in the year's activity as net appreciation (depreciation) in fair value of investments.
- **The Notes to Combining Financial Statements** – provide additional information that is essential to a full understanding of the data provided in the combining financial statements. The notes present information about the System's accounting policies, significant account balances and activities, material risks, obligations, contingencies, and subsequent events, if any.
- **Required Supplementary Information ("RSI") (Unaudited)** – as required by GASB, the RSI includes the management discussion and analysis (this section) and information presented following the notes to combining financial statements.

**Teachers' Retirement System of the City of New York****MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED) – CONTINUED**

June 30, 2022 and 2021

**HIGHLIGHTS AND RECENT DEVELOPMENTS*****Employer Information***

Employers that participate in TRS include the New York City Department of Education (“DOE”), CUNY both Junior and Senior Colleges, and New York City Charter Schools that elect to participate. All employers may participate in the QPP and the TDA Program.

The following schedule provides the 2022 QPP summary information of the employer groups.

***Contributions Employers and Contributions Members***

	Members Active	Contribution Employer	Contribution Member	Members Retired	Pension Payments
DOE	116,000	\$ 3.2 billion	\$ 257 million	90,000	\$ 4.6 billion
CUNY	8,000	\$ 143 million	\$ 14.9 million	2,700	\$ 144 million
Charter Schools	500	\$ 6.6 million	\$ 1.8 million	Less than 50	\$ 2.5 million

***United Federation of Teachers (“UFT”) Contract***

Negotiation sessions between the DOE and the UFT, the primary union for the DOE's employees, began on October 13, 2022. The most recent collective bargaining agreement between the DOE and the UFT was ratified in October 2018 and ran from February 14, 2019 to September 13, 2022. In addition to workplace improvements, the 2018 agreement included wage increases and upward adjustments to starting and top salary amounts. Contractual wages impact employer contributions, member contributions, and payments to retirees.

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK

## Teachers' Retirement System of the City of New York

### MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED) – CONTINUED

June 30, 2022 and 2021

#### FINANCIAL HIGHLIGHTS

##### ***QPP Fiduciary Net Position***

The QPP's net position restricted for benefits is held in trust for the payment of future benefits to members and pensioners. The QPP's net position restricted for benefits was \$64.0 billion, \$78.3 billion, and \$59.3 billion as of June 30, 2022, 2021, and 2020, respectively. The System's employer contributions amounted to \$3.4 billion, \$3.2 billion, and \$3.7 billion for Fiscal Years 2022, 2021, and 2020, respectively. The QPP's benefit payments totaled \$4.9 billion, \$4.7 billion, and \$4.6 billion for Fiscal Years 2022, 2021, and 2020, respectively. Below is a summary of the QPP's net position and changes in net position.

##### ***QPP Fiduciary Net Position***

**June 30, 2022, 2021, and 2020**

**(In thousands)**

	<u>2022</u>	<u>2021</u>	<u>2020</u>
Cash	\$ 86,489	\$ 74,742	\$ 48,488
Receivables for investments sold	1,544,209	3,560,628	1,889,299
Receivables for accrued interest and dividends	339,801	304,145	289,845
Member loan receivables	301,958	310,380	323,805
Investments, at fair value	96,153,573	110,210,315	87,842,740
Collateral from securities lending	828,300	1,242,351	1,391,240
Other assets	166,039	46,194	63,899
<b>Total assets</b>	<b>99,420,369</b>	<b>115,748,755</b>	<b>91,849,316</b>
Accounts payable	308,685	349,820	299,648
Payable for investments purchased	2,230,369	5,723,528	3,096,888
Accrued benefits payable	44,285	49,585	88,957
Investments due to TDA Program	31,868,042	30,036,173	27,653,633
Payable for securities lending	828,300	1,242,351	1,391,240
Other liabilities	131,260	-	-
<b>Total liabilities</b>	<b>35,410,941</b>	<b>37,401,457</b>	<b>32,530,366</b>
<b>Net position restricted for benefits</b>	<b>\$ 64,009,428</b>	<b>\$ 78,347,298</b>	<b>\$ 59,318,950</b>

Cash balances amounted to \$86.5 million at June 30, 2022, an increase of \$11.7 million (15.7%) from June 30, 2021. Cash balances amounted to \$74.7 million at June 30, 2021, an increase of \$26.3 million (54.2%) from June 30, 2020. Cash balances consist of advances to investment managers' accounts, accounts used to process reimbursement transfers between the System's investment programs, and bank accounts associated with the collections of loan insurance premiums and loan service charges. As of June 30, 2022, the largest cash balances consisted of the International and Private Equity investment manager, with \$49.8 million and \$20.9 million, respectively. Large cash balances held by an investment manager are due to a recent sale or the general investment cycle. For example, Private Equity's investment cycle generally begins with cash from assets sold during the month and ends with subsequent purchases following month-end.

**Teachers' Retirement System of the City of New York****MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED) – CONTINUED****June 30, 2022 and 2021**

Receivables for investment securities sold amounted to \$1.5 billion at June 30, 2022, a decrease of \$2.0 billion (-56.6%) from June 30, 2021. Receivables for investment securities sold amounted to \$3.6 billion at June 30, 2021, an increase of \$1.7 billion (88.5%) from June 30, 2020. These balances are principally composed of receivables for securities that have been sold but have not yet settled (*i.e.*, the cash has not been collected). The changes resulted primarily from timing differences between trade and settlement dates occurring around fiscal year-end. Trades typically do not settle until a few days after the trade date.

Receivables for accrued interest and dividends amounted to \$339.8 million as of June 30, 2022, an increase of \$35.7 million (11.7%) from June 30, 2021. Receivables for accrued interest and dividends amounted to \$304.1 million as of June 30, 2021, an increase of \$14.3 million (4.9%) from June 30, 2020. Changes in accrued earnings are impacted primarily by the cumulative value of the interest or dividend bearing securities, as well as by changes in discount rates and interest-payable dates.

At June 30, 2022, member loan receivables amounted to \$302.0 million, a decrease of \$8.4 million (-2.7%) from the previous year. At June 30, 2021, member loan receivables amounted to \$310.4 million, a decrease of \$13.4 million (-4.2 %) from the previous year.

Investments at June 30, 2022 were \$96.2 billion, a decrease of \$14.1 billion (-12.8%) from June 30, 2021. Investments at June 30, 2021 were \$110.2 billion, an increase of \$22.4 billion (25.5%) from June 30, 2020. As of June 30, 2022, the QPP's total investment portfolio, including both the TRSNYC Pension and Variable-Return Funds, consisted of 46% equity investments, 35% fixed income securities and 19% alternative investments. The alternative investments consisted of private equity (8%), private real estate investments (6%), opportunistic-fixed income (3%), and infrastructure securities (2%). The \$14.1 billion annual decrease in investments is the result of \$10.9 billion in net investment loss, a \$1.5 billion net decrease in the year-over-year payables for investment securities purchased and investment securities sold and \$1.3 billion of QPP payments in excess of QPP contributions. More generally, investments as of June 30, 2022, in comparison with investment values as of June 30, 2021, reflect the equity and fixed income markets' annual returns. For the year ended June 30, 2022, the Russell 3000 Index, a broad measure of U.S. equity markets, returned (-13.9%). The Morgan Stanley Capital International ("MSCI") World Index Custom Benchmark excluding the United States returned (-17.73%). The NYC Customized Structured Index returned (-9.75%). The Dow Jones U.S. Select Real Estate Securities Index returned (-6.4%). For the year ended June 30, 2021, the Russell 3000 Index, a broad measure of U.S. equity markets, returned 44.2%. The Morgan Stanley Capital International ("MSCI") World Index Custom Benchmark excluding the United States returned 34.82%. The NYC Custom Structured Index returned (-2.88%). The Dow Jones U.S. Select Real Estate Securities Index returned 40.0%.

Other assets at June 30, 2022 totaled \$166.0 million, a \$119.8 million (259.4%) increase from June 30, 2021. The year-over-year increase in other assets, as of June 30, 2022, was primarily due to recognition of \$127.8 million lease assets less an \$8.0 million decrease in amounts due from the TDA Program. Other assets at June 30, 2021 totaled \$46.2 million, a \$17.7 million (-27.7%) decrease from June 30, 2020. The year-over-year decrease in other assets, as of June 30, 2021, was primarily due to a \$23.2 million decrease in amounts due from the TDA Program, less a \$9.1 million increase in amounts due from Corpus Expenses.

Accounts payable at June 30, 2022 amounted to \$308.7 million, a \$41.1 million (-11.8%) decrease from June 30, 2021. Accounts payable as of June 30, 2022 consisted of balances due to depositories (49.7%), reserve for expenses (18.0%), accrued investment expenses (15.1%), unclaimed funds (8.2%), and other payables (9.0%). Accounts payable at June 30, 2021 amounted to \$349.8 million, a \$50.2 million (16.7%) increase from June 30, 2020. Accounts payable as of June 30, 2021 consisted of balances due to depositories (44.6%), reserve for expenses (18.4%), accrued investment expenses (16.1%), unclaimed funds (7.3%), and other payables (13.6%).

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK

## Teachers' Retirement System of the City of New York

### MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED) – CONTINUED

June 30, 2022 and 2021

Payables for investment securities purchased at June 30, 2022 amounted to \$2.2 billion, a \$3.5 billion (-61.0%) decrease from June 30, 2021. Payables for investment securities purchased at June 30, 2021 amounted to \$5.7 billion, a \$2.6 billion (84.8%) increase from June 30, 2020. Investments purchased are accounted for on a trade-date basis. The increase resulted from timing differences between settlement dates and trade dates, similar to receivables for investment securities sold (discussed earlier).

Accrued benefits payable at June 30, 2022 amounted to \$44.3 million, a \$5.3 million (-10.7%) decrease from June 30, 2021. The \$5.3 million decrease is primarily attributed to a decrease of pending death benefits due to beneficiaries at year-end. Accrued benefits payable at June 30, 2021 amounted to \$49.6 million, a \$39.4 million (-44.3%) decrease from June 30, 2020.

Investments due to the TDA Program reflect the TDA Program's share of assets of the TRSNYC Pension Fund/Fixed Fund investments. Assets in the TDA Program's Fixed-Return Fund are pooled with the QPP assets as System assets in the TRSNYC Pension Fund for investment purposes only. The amounts owned by the TDA Program are equal to member contributions, inter-fund transfers from other TDA program's passport funds, and earnings applied in accordance with statutory-interest rates (7% for members of the UFT and 8.25% for certain other members). See Note 2 for a full description of the TDA Fixed-Return Fund investment program.

Other liabilities represent amounts due to vendors for the underlying leased assets measured at the present value of the future payments. At June 30, 2022, other liabilities amounted to \$131.3 million.

#### **QPP Changes in Fiduciary Net Position**

**Years ended June 30, 2022, 2021, and 2020**

**(In thousands)**

	2022	2021	2020
<b>Additions:</b>			
Member contributions	\$ 273,686	\$ 247,751	\$ 226,920
Employer contributions	3,364,379	3,193,270	3,652,570
Net receipts from other retirement systems	(2,993)	(5,550)	(2,798)
Net securities lending income	4,932	6,396	10,510
Net investment income	<u>(10,858,794)</u>	<u>22,356,592</u>	<u>3,900,677</u>
Total additions	<u>(7,218,790)</u>	<u>25,798,459</u>	<u>7,787,879</u>
<b>Deductions:</b>			
Administrative expenses	71,490	68,100	64,532
TDA Rebalance	(2,537)	4,175	(42,651)
Benefits payments and withdrawals	4,909,488	4,699,448	4,591,086
Payment of statutory interest to TDA Program	<u>2,140,639</u>	<u>1,998,388</u>	<u>1,846,173</u>
Total deductions	<u>7,119,080</u>	<u>6,770,111</u>	<u>6,459,140</u>
Net (decrease) increase in net position	(14,337,870)	19,028,348	1,328,739
<b>Net position restricted for benefits</b>			
Beginning of year	<u>78,347,298</u>	<u>59,318,950</u>	<u>57,990,211</u>
End of year	<u>\$ 64,009,428</u>	<u>\$ 78,347,298</u>	<u>\$ 59,318,950</u>

**Teachers' Retirement System of the City of New York****MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED) – CONTINUED****June 30, 2022 and 2021**

TRS received \$273.7 million in member contributions in Fiscal Year 2022, a \$25.9 million (10.5%) increase from Fiscal Year 2021. TRS received \$247.8 million in member contributions in Fiscal Year 2021, a \$20.8 million (9.2%) increase from Fiscal Year 2020. The \$25.9 million increase in Fiscal Year 2022 and the \$20.8 million increase in Fiscal Year 2021 were both primarily due to UFT salary increases and a larger active Tier VI membership.

Employer contributions during Fiscal Year 2022, including other employer contributions, were \$3.4 billion, a \$171.1 million (5.4%) increase from Fiscal Year 2021. Employer contributions during Fiscal Year 2021, including other employer contributions, were \$3.2 billion, a \$459.3 million (-12.6%) decrease from Fiscal Year 2020. The Fiscal Year 2022 increase in employer contributions was primarily due to changes in actuarial methods. (See Note 5.) The June 30, 2020 (Lag) actuarial valuation and June 30, 2019 (Lag) actuarial valuation were used to determine Fiscal Year 2022 and 2021 employer contributions, respectively.

The QPP's net investment income for Fiscal Year 2022 was -\$10.9 billion, a \$33.2 billion (loss) decrease from Fiscal Year 2021. The QPP's net investment income of -\$10.9 billion consisted of \$2.7 billion in dividend and interest income less a net loss of \$13.0 billion on the appreciation in fair value of the QPP's investments and \$535.3 million in investment expenses. Net investment income (loss) for the QPP portion of the TRSNYC Pension Fund, QPP portion of the Diversified Equity Fund, QPP portion of the Balanced Fund, QPP portion of the International Equity Fund, QPP portion of the Sustainable Equity Fund, QPP portion of the U.S. Equity Index Fund, and QPP portion of the International Equity Index Fund totaled -\$9.8 billion, -\$1.1 billion, -\$3.4 million, -\$1.9 million, -\$3.0 million, -\$546.4 thousand, and -\$25.0 thousand, respectively. The QPP's net investment income for Fiscal Year 2021 was \$22.4 billion, a \$18.5 billion (473.1%) increase from Fiscal Year 2020. The QPP's net investment income of \$22.4 billion consisted of \$2.3 billion in dividend and interest income plus a net gain of \$20.5 billion on the appreciation in fair value of the QPP's investments less \$405.7 million in investment expenses. Net investment income for the QPP portion of the TRSNYC Pension Fund, QPP portion of the Diversified Equity Fund, QPP portion of the Balanced Fund, QPP portion of the International Equity Fund, QPP portion of the Sustainable Equity Fund, QPP portion of the U.S. Equity Index Fund, and QPP portion of the International Equity Index Fund totaled \$20.1 billion, \$2.3 billion, \$7.7 million, \$3.6 million, \$5.0 million, \$1.5 million, and \$79.2 thousand, respectively.

For Fiscal Year 2022, the QPP's effective net investment income for the QPP portion of the TRSNYC Pension Fund decreased due to investment returns attributable to the TDA Program's TRSNYC Pension Fund assets. The TDA Fixed-Return Fund program resulted in approximately \$5.3 billion less assets accruing to the QPP's Contingent Reserve Fund of Employer's Contributions, as a result of the TDA Program's investment returns being below the statutory rates. For Fiscal Year 2021, the QPP's effective net investment income for the QPP portion of the TRSNYC Pension Fund increased due to investment returns attributable to the TDA Program's TRSNYC Pension Fund assets. The TDA Fixed-Return Fund program resulted in approximately \$4.3 billion more assets accruing to the QPP's Contingent Reserve Fund of Employer's Contributions, as a result of the TDA Program's investment returns being above the statutory rates. The table below displays the TDA Program's impact on the QPP's Contingent Reserve Fund of Employer's Contributions for Fiscal Years 2022, 2021, and 2020.

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK

## Teachers' Retirement System of the City of New York

### MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED) – CONTINUED

June 30, 2022 and 2021

#### Revenue (Expense) to Contingent Reserve Fund

##### TRS NYC Pension Fund Assets (QPP)\*

Years ended June 30, 2022, 2021, and 2020

(In thousands)

	2022	2021	2020
Net investment income	\$ (9,762,620)	\$ 20,059,992	\$ 3,759,578
TDA percent of fixed assets as of June 30	35.11%	29.18%	33.67%
TDA percent of fixed assets as of 6/30/19:			32.95%
TDA percent of fixed assets (average)	32.14%	31.42%	33.31%
Investment income on account of TDA investment	\$ (3,138,080)	\$ 6,303,326	\$ 1,252,282
Less statutory interest to TDA	<u>(2,140,639)</u>	<u>(1,998,388)</u>	<u>(1,846,173)</u>
Revenue (expense) to QPP contingent reserve	<u>\$ (5,278,719)</u>	<u>\$ 4,304,938</u>	<u>\$ (593,891)</u>

\*Includes security-lending income

Administrative expenses during Fiscal Year 2022 were \$71.5 million, an increase of \$3.4 million (5.0%) from Fiscal Year 2021. The System continues its phased implementation to replace its legacy IBM A/S 400 computer system with a system based on Microsoft's .NET programming framework. Sagitec, an outside vendor and a provider of Pension Database Systems, and Cognizant, a software testing company, have been assisting with this multi-year project. In Fiscal Year 2022, the System continued with the implementation of certain new pension payroll modules and development of active account modules. The change in administrative expenses also reflects the annual update in the System's administrative expenses attributed to the QPP. (See Note 8.) In addition, Fiscal Year 2022 QPP and TDA administrative expense increased \$3.5 million and \$1.8 million respectively, due to recognition of interest and amortization expenses as required by GASB No. 87. The QPP's total administrative expenses for Fiscal Year 2022 accounted for 78.2% of the System's administrative expenditures. The balance of \$19.9 million (21.8%) was expensed to the TDA Program. Administrative expenses during Fiscal Year 2021 were \$68.1 million, an increase of \$3.6 million (5.5%) from Fiscal Year 2020. The QPP's total administrative expenses for Fiscal Year 2021 accounted for 78.8% of the System's administrative expenditures. The balance of \$18.3 million (21.2%) was expensed to the TDA Program. Less GASB No. 87 recognition, the System's administrative expenditures have been \$86.0 million, \$86.4 million, and \$88.5 million for Fiscal Years 2022, 2021, and 2020, respectively.

The TDA rebalance during Fiscal Year 2022 resulted in \$2.5 million in transfers to the QPP TRSNYC Pension Fund from the TDA Program. The Administrative Code of The City of New York under sections 13-582 and 13-577 provides for certain internal transfer of funds. These transfers are intended to rebalance estimated actuarial liabilities with reported assets and follow liability reviews conducted by the Actuary of The City of New York. Also, \$41.5 million was transferred from the QPP Program's Variable-Return Funds to the QPP TRSNYC Pension Fund. The \$41.5 million transfer increased the investments held by QPP's TRSNYC Pension Fund and decreased the investments held by the QPP Program's Variable-Return Funds but did not impact net investments held by the QPP (see Note 2, Intra-Fund Payable/Receivable). The TDA rebalance during Fiscal Year 2021 resulted in \$4.2 million in transfers from the TRSNYC Pension Fund to the TDA Program due to a surplus in the TDA Program's Variable Annuity and Pension Reserve Funds.

Benefit payments and withdrawals during Fiscal Year 2022 were \$4.9 billion, a \$210.0 million (4.5%) increase from Fiscal Year 2021. The \$210.0 million increase in benefit payments and withdrawals was primarily due to a \$205.1 million (4.5%) increase in payments to retirees. In total, benefit payments and withdrawals distributed during Fiscal Year 2022 were composed of 97.8% in retirement benefits and 2.2%

## Teachers' Retirement System of the City of New York

## MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED) – CONTINUED

June 30, 2022 and 2021

in refund/withdrawals and survivor benefits. Benefit payments and withdrawals during Fiscal Year 2021 were \$4.7 billion, a \$108.4 million (2.4%) increase from Fiscal Year 2020. The \$108.4 million increase in benefit payments and withdrawals was primarily due to a \$140.0 million (3.1%) increase in payments to retirees, and a \$30.0 million (-28.5%) decrease in death benefit payments. In total, benefit payments and withdrawals distributed during Fiscal Year 2021 were composed of 97.8% in retirement benefits and 2.2% in refund/withdrawals and survivor benefits.

Payments of statutory interest due to the TDA from its investment in the TRSNYC Pension Fund Assets (Fixed-Return Fund) during Fiscal Year 2022 were \$2.1 billion, an increase of \$142.3 million (7.1%) from Fiscal Year 2021. Payments of statutory interest due to the TDA from its investment in the TRSNYC Pension Fund Assets (Fixed-Return Fund) during Fiscal Year 2021 were \$2.0 billion, an increase of \$152.2 million (8.2%) from Fiscal Year 2020.

**TDA Program Financial Highlights** – The TDA Program's net position restricted for benefits was \$42.2 billion, \$43.0 billion, and \$37.0 billion as of June 30, 2022, 2021, and 2020, respectively. Member contributions amounted to \$1.1 billion, \$1.1 billion, and \$1.0 billion for Fiscal Years 2022, 2021, and 2020, respectively. Benefit payments and withdrawals totaled \$1.9 billion, \$1.0 billion, and \$1.4 billion for Fiscal Years 2022, 2021, and 2020, respectively. Below is a summary of the TDA program's net position and changes in net position.

**TDA Program's Fiduciary Net Position****June 30, 2022, 2021, and 2020**

(In thousands)

	2022	2021	2020
Cash	\$ 9,983	\$ 7,222	\$ 7,477
Receivables for investments sold	2,473	5,275	8,378
Receivables for accrued interest and dividends	21,565	21,013	18,164
Member loan receivables	418,199	410,153	401,243
Investments, at fair value	10,451,408	13,014,474	9,427,396
Investment in TRSNYC Pension Fund	31,868,042	30,036,173	27,653,633
Collateral from securities lending	529,602	542,063	54,770
Other assets	43,495	8,781	18,454
Total assets	<u>43,344,767</u>	<u>44,045,154</u>	<u>37,589,515</u>
Accounts payable	43,330	52,205	83,749
Payable for investment securities purchased	6,306	2,605	15,402
Accrued benefits payable	526,673	488,806	412,069
Payable for securities lending transactions	529,602	542,063	54,770
Other liabilities	34,787	-	-
Total liabilities	<u>1,140,698</u>	<u>1,085,679</u>	<u>565,990</u>
Net position held in trust for benefits	<u>\$ 42,204,069</u>	<u>\$ 42,959,475</u>	<u>\$ 37,023,525</u>

Cash balances amounted to \$10.0 million at June 30, 2022, an increase of \$2.8 million (38.2%) from June 30, 2021. Cash balances amounted to \$7.2 million at June 30, 2021, a decrease of \$255.0 thousand (-3.4%) from June 30, 2020. Cash balances consist of accounts used to reimburse the funds of the Variable-Annuity Program and accounts used for advance funding of the Variable-Return Funds' investment managers.

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK

## Teachers' Retirement System of the City of New York

### MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED) – CONTINUED

June 30, 2022 and 2021

Receivables for investment securities sold at June 30, 2022 amounted to \$2.5 million, a decrease of \$2.8 million (-53.1%) from June 30, 2021. Receivables for investment securities sold at June 30, 2021 amounted to \$5.3 million, a decrease of \$3.1 million (-37.0%) from June 30, 2020. These balances are principally composed of receivables for securities that have been sold but have not yet settled (*i.e.*, the cash has not been collected). The year-over-year changes resulted from timing differences in trading and settlement dates. Trades typically do not settle until a few days after the trade date.

Receivables for accrued earnings at June 30, 2022 were \$21.6 million, an increase of \$552.0 thousand (2.6%) from June 30, 2021. Receivables for accrued earnings at June 30, 2021 were \$21.0 million, an increase of \$2.8 million (15.7%) from June 30, 2020. Changes in accrued earnings are impacted by the cumulative value of the interest or dividend-bearing securities, discount rates, and interest payable dates at fiscal year-end.

Member loan receivables at June 30, 2022 amounted to \$418.2 million, an increase of \$8.0 million (2.0%) from June 30, 2021. There were 24,294 new TDA loan issues in Fiscal Year 2022 compared to 22,376 in Fiscal Year 2021, an increase of 1,918 (8.6%) from Fiscal Year 2021. For Fiscal Year 2022, loan disbursements amounted to \$220.1 million, and principal and interest payments amounted to \$231.3 million. Member loan receivables at June 30, 2021 amounted to \$410.2 million, an increase of \$8.9 million (2.2%) from June 30, 2020. There were 22,376 new TDA loan issues in Fiscal Year 2021 compared to 17,286 in Fiscal Year 2020, an increase of 5,090 (29.5%) from Fiscal Year 2020. For Fiscal Year 2021, loan disbursements amounted to \$212.1 million, and principal and interest payments amounted to \$224.3 million.

The Variable-Return Funds' investments at June 30, 2022, including collateral received for securities lending, were \$11.0 billion, a decrease of \$2.6 billion (-19.0%) from June 30, 2021. The Variable-Return Funds' investments at June 30, 2021, including collateral received for securities lending, were \$13.6 billion, an increase of \$4.1 billion (43.0%) from June 30, 2020.

Assets of the TDA Program's Fixed-Return Fund invested in the TRSNYC Pension Fund at June 30, 2022 were \$31.9 billion, an increase of \$1.8 billion (6.1%) from June 30, 2021. In addition to the 7% statutory return for UFT members [and 8.25% for non-UFT members] for Fiscal Year 2022, contributions, withdrawals, and investment transfers to (from) the Fixed-Return Fund totaled \$735.1 million, -\$1.5 billion, and \$362.8 million, respectively. Assets of the TDA Program's Fixed-Return Fund invested in the TRSNYC Pension Fund at June 30, 2021 were \$30.0 billion, an increase of \$2.4 billion (8.6%) from June 30, 2020. In addition to the 7% statutory return for UFT members [and 8.25% for non-UFT members] for Fiscal Year 2021, contributions, withdrawals and investment transfers to (from) the Fixed-Return Fund totaled \$742.0 million, -\$828.7 million, and \$437.1 million, respectively.

Other assets at June 30, 2022 were \$43.5 million, an increase of \$34.7 million (395.3%) from June 30, 2021. The year-over-year increase in other assets, as of June 30, 2022, was primarily due to recognition of \$33.9 million of leased assets. Other assets at June 30, 2021 were \$8.8 million, a decrease of \$9.7 million (-52.4%) over June 30, 2020. Besides leased assets, other assets primarily represent assets already allocated for future administrative expenses.

Accounts payable at June 30, 2022 amounted to \$43.3 million, a decrease of \$8.9 million (-17.0%) from June 30, 2021. Accounts payable at June 30, 2021 amounted to \$52.2 million, a decrease of \$31.5 million (-37.7%) from June 30, 2020. The TDA Program's accounts payable balance primarily represents a reserve fund to pay the TDA Program's investment and administrative expenses.

Payables for investment securities purchased at June 30, 2022 amounted to \$6.3 million, an increase of \$3.7 million (142.1%) from June 30, 2021. Payables for investment securities purchased at June 30, 2021 amounted to \$2.6 million, a decrease of \$12.8 million (-83.1%) from June 30, 2020. Investments purchased are accounted for on a trade-date basis. The changes resulted from timing differences in settlement and trade dates, similar to receivables for investments sold (discussed earlier).

## Teachers' Retirement System of the City of New York

## MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED) – CONTINUED

June 30, 2022 and 2021

Accrued benefits payable at June 30, 2022 amounted to \$526.7 million, an increase of \$37.9 million (7.8%) from June 30, 2021. Accrued benefits payable at June 30, 2021 amounted to \$488.8 million, an increase of \$76.7 million (18.6%) from June 30, 2020. Both fiscal years increases are primarily attributed to increases of benefits due to beneficiaries at year-end.

Other liabilities represent amounts due to vendors for the underlying leased assets measured at the present value of the future payments. At June 30, 2022 other liabilities amounted to \$34.8 million.

**Changes in TDA Program's Fiduciary Net Position****Years ended June 30, 2022, 2021, and 2020****(In Thousands)**

	2022	2021	2020
<b>Additions:</b>			
Member contributions	\$ 1,088,219	\$ 1,060,833	\$ 1,029,758
Net investment income	(2,088,612)	3,909,235	326,442
Net securities lending income	1,568	1,699	1,171
<b>Total additions</b>	<b>(998,825)</b>	<b>4,971,767</b>	<b>1,357,371</b>
<b>Deductions:</b>			
Administrative expenses	19,872	18,290	23,957
TDA rebalance	2,537	(4,175)	42,651
Benefits payments and withdrawals	1,874,811	1,020,090	1,446,806
Receipt of statutory interest for portion of investment in TRSNYC Pension Fund	(2,140,639)	(1,998,388)	(1,846,173)
<b>Total deductions</b>	<b>(243,419)</b>	<b>(964,183)</b>	<b>(332,759)</b>
<b>Net increase in net position</b>	<b>(755,406)</b>	<b>5,935,950</b>	<b>1,690,130</b>
<b>Net position restricted for benefits</b>			
<b>Beginning of year</b>	<b>42,959,475</b>	<b>37,023,525</b>	<b>35,333,395</b>
<b>End of year</b>	<b>\$ 42,204,069</b>	<b>\$ 42,959,475</b>	<b>\$ 37,023,525</b>

TRS's TDA Program received \$1.1 billion in member contributions during Fiscal Year 2022, an increase of \$27.4 million (2.6%) from Fiscal Year 2021. TRS's TDA Program received \$1.1 billion in member contributions during Fiscal Year 2021, an increase of \$31.1 million (3.0%) from Fiscal Year 2020.

Net investment income for the TDA Program's Variable-Return Funds for Fiscal Year 2022 decreased by \$6.0 billion (loss) from Fiscal Year 2021. Net investment income for the TDA Program's Variable-Return Funds for Fiscal Year 2021 increased by \$3.6 billion (1,097.5%) from Fiscal Year 2020. Net investment gains/losses primarily reflect the appreciation/depreciation in fair value of the TDA Program's Variable-Return Fund investments, including both realized and unrealized gains and losses.

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK

## Teachers' Retirement System of the City of New York

### MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED) – CONTINUED

June 30, 2022 and 2021

Administrative expenses for the Fiscal Year ended June 30, 2022 totaled \$19.9 million, an increase of \$1.6 million (8.7%) from Fiscal Year 2021. Administrative expenses for the Fiscal Year ended June 30, 2021 totaled \$18.3 million, a decrease of \$5.7 million (-23.7%) from Fiscal Year 2020. Fiscal Year 2022 TDA administrative expenses includes a \$1.8 million expense due to recognition of future lease expenses as required by GASB No. 87. The TDA Program accounted for a portion of the System's total administrative expenses; see QPP administrative expenses above and Note 8.

The TDA rebalance during Fiscal Year 2022 resulted in a \$2.5 million transfer from the TDA Program to the TRSNYC Pension Fund. The TDA rebalance during Fiscal Year 2021 resulted in a \$4.2 million transfer to the TDA Program from the TRSNYC Pension Fund. The Administrative Code of the City of New York under sections 13-582 and 13-577 provides for certain internal transfers of funds. These transfers are intended to rebalance estimated actuarial liabilities with reported assets; see Note 2, Intra-Fund Payable/Receivable.

Benefit payments and withdrawals for the Fiscal Year ended June 30, 2022 totaled \$1.9 billion, an increase of \$854.7 million (83.8%) from Fiscal Year 2021. The increase was due to Fiscal Year 2022 disbursements of required minimum withdrawals, previously temporarily suspended due to the CARES Act of 2020. Benefit payments and withdrawals for the Fiscal Year ended June 30, 2021 totaled \$1.0 billion, a decrease of \$426.7 million (-29.5%) from Fiscal Year 2020. The decrease was due to the CARES Act of 2020 provision that suspended required minimum withdrawals in 2020.

Receipts of statutory interest for the TDA Program's Fixed-Return Fund portion in investments in the TRSNYC Pension Fund assets for Fiscal Year 2022 were \$2.1 billion, an increase of \$142.3 million (7.1%) from Fiscal Year 2021. Receipts of statutory interest for the TDA Program's Fixed-Return Fund portion in investments in the TRSNYC Pension Fund assets for Fiscal Year 2021 were \$2.0 billion, an increase of \$152.2 million (8.2%) from Fiscal Year 2020.

#### **Cash Flow**

Monthly contributions, loan repayments, and interest and dividends earned on investments less benefit payments, new loans, and investment and administrative expenses account for the System's non-investment cash flow. The table below provides a three-year summary.

Cash Flow Review (In thousands)	June 30, 2022 QPP	June 30, 2022 TDA	June 30, 2021 QPP	June 30, 2021 TDA	June 30, 2020 QPP	June 30, 2020 TDA
Contributions	\$ 3,638,065	\$ 1,088,219	\$ 3,441,021	\$ 1,060,833	\$ 3,879,490	\$ 1,029,758
Contributions - Loan adj.	-	(21)	-	(87)	-	(207)
Loan repayments (cash)	142,132	231,268	148,284	224,288	146,168	216,254
401(a) receipts (payments)	(2,993)	-	(5,550)	-	(2,798)	-
Interest income	1,412,618	22,992	1,197,604	30,357	1,094,140	32,127
Interest income - Loan adj.	(18,433)	(29,633)	(14,341)	(28,119)	(14,901)	(28,573)
Dividend income	1,238,843	198,217	1,075,166	159,751	1,125,180	166,496
Investment expenses (net)	(535,284)	(24,194)	(405,713)	(13,732)	(290,871)	(563)
Benefits/withdrawals	(4,909,488)	(1,874,811)	(4,699,448)	(1,020,090)	(4,591,086)	(1,446,806)
Withdrawals - Loan adj.	22,905	11,145	10,208	7,828	14,239	7,946
New loans	(137,894)	(220,082)	(130,464)	(212,148)	(147,950)	(192,358)
Administrative expenses	(71,490)	(19,872)	(68,100)	(18,290)	(64,532)	(23,957)
Admin exp- GASB87 adj.	3,491	1,851	-	-	-	-
	<u>\$ 782,472</u>	<u>\$ (614,921)</u>	<u>\$ 548,667</u>	<u>\$ 190,591</u>	<u>\$ 1,147,079</u>	<u>\$ (239,883)</u>

## Teachers' Retirement System of the City of New York

## MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED) – CONTINUED

June 30, 2022 and 2021

***Investments***

TRS investment funds include both QPP and TDA Program assets. The table below details the QPP and TDA Program's portions of the funds.

TRS Investment Funds by Plan Percentage	June 30, 2022 QPP	June 30, 2022 TDA	June 30, 2021 QPP	June 30, 2021 TDA	June 30, 2020 QPP	June 30, 2020 TDA
TRSNYC Pension Fund	64.9%	35.1%	70.8%	29.2%	66.3%	33.7%
Variable-Return Funds:						
Diversified Equity Fund*	34.8%	60.8%	36.3%	59.5%	37.9%	58.1%
Balance Fund**	7.9%	92.1%	9.6%	90.4%	12.1%	87.9%
International Equity Fund	4.3%	95.7%	4.5%	95.5%	5.7%	94.3%
Sustainable Equity Fund***	3.1%	96.9%	3.3%	96.7%	4.3%	95.7%
U.S. Equity Index Fund****	4.6%	95.4%	6.9%	93.1%	12.8%	87.2%
International Equity Index Fund****	3.0%	97.0%	1.0%	99.0%	1.9%	98.1%

\* Remaining portion is held by Board of Education Retirement System.

\*\* Bond Fund prior to January 1, 2018.

\*\*\* Socially Responsive Equity Fund prior to October 1, 2019.

\*\*\*\* New funds established as of January 1, 2020.

To rate investment performance, both the TRSNYC Pension Fund assets and Variable-Return Funds' investments are monitored with various benchmarks.

In addition to other indices, the "policy index" is a custom benchmark for the complete TRSNYC Pension Fund. As of June 30, 2022, the policy index includes the following percentage weights:

***TRSNYC Pension Fund Policy Index as of June 30, 2022\****

Investment Type	Benchmark	Percent
U.S. Equity	Russell 3000	26.2%
International Developed EAFA Markets	MSCI World ex USA IMI Net	9.6
Int'l Active - Global	MSCI World Net Dividends Index	1.0
Emerging Markets	MSCI Custom TRS Emerging Markets (Net)	9.3
International Emerging Managers FoF	NYC Blended Custom Benchmark for FoF	0.7
Private Equity	Russell 3000 + 300 b.p. per annum	7.0
Private Real Estate - Core	NFI - ODCE Net	3.0
Private Real Estate - Non Core	NFI - ODCE Net + 200 bps	2.0
Infrastructure	CPI + 4%	1.8
U.S. Treasury Short Term	FTSE US Government Bond 1-3 Years Index	2.7
U.S. Treasury Intermediate	USBIG TSY AGN 1-10Y	9.3
U.S. Treasury Long Duration	FTSEUS Government Bond 10+ Years Index	3.3
Mortgage	Bloomberg U.S. Mortgage Backed Securities	5.2
ETI	ETI Custom Benchmark	0.7
Investment Grade Corporate	NYC Custom IGC Benchmark	5.9
High Yield	Bloomberg U.S. HY 2% Issuer Cap	5.3
TIPS	Bloomberg Global Inf-Linked: US TIPS	3.6
Opportunistic Fixed	OFI - JPMGHY/CSFB 50/50 Blend Plus 300 b.p. per annum	3.4
		<u>100.0%</u>

\* Source: Teachers' Retirement System of New York City Performance Overview as of June 30, 2022, prepared by State Street Bank and Trust Company ("State Street").

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**

**Teachers' Retirement System of the City of New York**

**MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED) – CONTINUED**

**June 30, 2022 and 2021**

Variable-Return Funds are benchmarked using the Russell 3000 Index, Dow Jones U.S. Total Stock Market Index, MSCI ACWI ex USA IMI Net Index, FTSE Global All Cap Index, Bloomberg U.S. 1-5 Year Government/Credit Float Adjusted Index, as well as numerous other indices.

TRS earns additional investment income by lending its investment securities. The borrowers provide collateral to TRS that is valued in excess of the securities loaned, and the collateral is invested in short-term interest-bearing funds. For the Fiscal Year ended June 30, 2022, net securities lending income amounted to \$6.5 million, a decrease of \$1.6 million from Fiscal Year 2021. For the Fiscal Year ended June 30, 2021, net securities lending income amounted to \$8.1 million, a decrease of \$3.6 million from Fiscal Year 2020. (See Note 2.)

Investments held by TRS, including collateral from securities-lending transactions, are listed according to their investment classification in the following table:

Investment Summary (by Asset Class) (In thousands)	2022	2021	2020
Short-term investments	\$ 3,083,489	\$ 3,219,653	\$ 3,519,502
Debt securities	31,150,798	35,378,973	28,073,127
Equity securities	54,492,993	70,549,286	54,912,360
Alternative investments	17,877,701	14,076,877	10,765,147
Collateral from securities lending	1,357,902	1,784,414	1,446,010
 Total	 <u>\$ 107,962,883</u>	 <u>\$ 125,009,203</u>	 <u>\$ 98,716,146</u>
Investment Summary (by Plan) (In thousands)	2022	2021	2020
TRSNYC Pension Fund:			
QPP	\$ 58,902,644	\$ 72,900,195	\$ 54,488,989
TDA	31,868,042	30,036,173	27,653,633
Total	<u>90,770,686</u>	<u>102,936,368</u>	<u>82,142,622</u>
Variable-Return Funds:			
QPP	5,382,887	7,273,947	5,700,118
TDA	10,451,408	13,014,474	9,427,396
Total	<u>15,834,295</u>	<u>20,288,421</u>	<u>15,127,514</u>
Collateral for Security Lending			
QPP Pension Fund	525,316	911,346	1,355,516
QPP Variable-Return Funds	302,984	331,005	35,724
TDA Variable-Return Funds	529,602	542,063	54,770
Total	<u>1,357,902</u>	<u>1,784,414</u>	<u>1,446,010</u>
Total investments	<u>\$ 107,962,883</u>	<u>\$ 125,009,203</u>	<u>\$ 98,716,146</u>

**Teachers' Retirement System of the City of New York**

**MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED) – CONTINUED**

**June 30, 2022 and 2021**

**CONTACT INFORMATION**

This financial report is designed to provide a general overview of the Teachers' Retirement System's finances. Questions concerning any data provided in this report or requests for additional information should be directed to Mr. Paul J. Raucci, Chief Accountant, Teachers' Retirement System of the City of New York, 55 Water Street, New York, New York 10041.

\* \* \* \* \*

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**

**Teachers' Retirement System of the City of New York**

**COMBINING STATEMENT OF FIDUCIARY NET POSITION**

**June 30, 2022  
(In thousands)**

	<b>QPP</b>	<b>TDA</b>	<b>Eliminations</b>	<b>Total</b>
<b>ASSETS</b>				
Cash	\$ 86,489	\$ 9,983	\$ -	\$ 96,472
Receivables:				
Investments securities sold	1,544,209	2,473	-	1,546,682
Accrued interest and dividends	339,801	21,565	-	361,366
Member loans (Note 6)	301,958	418,199	-	720,157
Total receivables	2,185,968	442,237	-	2,628,205
Investments - at fair value (Notes 2 and 3):				
TRSNYC Pension Fund Assets (Fixed-Return Fund):				
Short-term investment:				
Commercial paper	453,349	-	-	453,349
Short-term investment fund	812,986	-	-	812,986
Discount notes	52,418	-	-	52,418
U.S. treasury bills and agencies	1,551,644	-	-	1,551,644
Debt securities:				
U.S. government	13,757,296	-	-	13,757,296
Corporate and other	13,989,550	-	-	13,989,550
Treasury inflation-protected securities	3,403,952	-	-	3,403,952
Equity securities:				
Domestic equity	23,674,370	-	-	23,674,370
International equity	15,197,420	-	-	15,197,420
Alternative investments	17,877,701	-	-	17,877,701
Collateral from securities lending (Fixed-Return Fund)	525,316	-	-	525,316
Variable-Return Funds:				
Diversified Equity Fund:				
Short-term investments	95,485	105,160	-	200,645
Equity securities	5,217,721	9,120,327	-	14,338,048
Debt securities	-	-	-	-
Balanced Fund:				
Short-term investments	105	1,224	-	1,329
Equity securities	42,523	495,497	-	538,020
International Equity Fund:				
Short-term investments	106	2,359	-	2,465
International equity	8,524	191,240	-	199,764
Sustainable Equity Fund:				
Short-term investments	267	8,386	-	8,653
Equity securities	13,620	427,040	-	440,660
U.S. Equity Index Fund:				
Equity securities	4,092	85,585	-	89,677
International Equity Index Fund:				
Equity securities	444	14,590	-	15,034
Collateral from securities lending (Variable-Return Funds)	302,984	529,602	-	832,586
Total investments	96,981,873	10,981,010	-	107,962,883
TDA investment in TRSNYC Pension Fund	-	31,868,042	(31,868,042)	-
Other assets	166,039	43,495	(15,787)	193,747
Total assets	99,420,369	43,344,767	(31,883,829)	110,881,307
<b>LIABILITIES</b>				
Accounts payable	308,685	43,330	(15,787)	336,228
Payable for investment securities purchased	2,230,369	6,306	-	2,236,675
Accrued benefits payable	44,285	526,673	-	570,958
Due to TDA program's Fixed-Return Fund	31,868,042	-	(31,868,042)	-
Securities lending (Note 2)	828,300	529,602	-	1,357,902
Other liabilities	131,260	34,787	-	166,047
Total liabilities	35,410,941	1,140,698	(31,883,829)	4,667,810
Net position restricted for benefits:				
Benefits to be provided by QPP	64,009,428	-	-	64,009,428
Benefits to be provided by TDA Program	-	42,204,069	-	42,204,069
Total net position restricted for benefits	\$ 64,009,428	\$ 42,204,069	\$ -	\$ 106,213,497

The accompanying notes are an integral part of this combining financial statement.

## Teachers' Retirement System of the City of New York

## COMBINING STATEMENT OF FIDUCIARY NET POSITION

**June 30, 2021**  
**(In thousands)**

	<b>QPP</b>	<b>TDA</b>	<b>Eliminations</b>	<b>Total</b>
<b>ASSETS</b>				
Cash	\$ 74,742	\$ 7,222	\$ -	\$ 81,964
Receivables:				
Investments securities sold	3,560,628	5,275	-	3,565,903
Accrued interest and dividends	304,145	21,013	-	325,158
Member loans (Note 6)	310,380	410,153	-	720,533
Total receivables	4,175,153	436,441	-	4,611,594
Investments - at fair value (Notes 2 and 3):				
TRSNYC Pension Fund Assets (Fixed-Return Fund):				
Short-term investment:				
Commercial paper	867,918	-	-	867,918
Short-term investment fund	1,028,743	-	-	1,028,743
U.S. treasury bills and agencies	1,090,552	-	-	1,090,552
Debt securities:				
U.S. government	14,889,426	-	-	14,889,426
Corporate and other	16,435,107	-	-	16,435,107
Treasury inflation-protected securities	3,594,216	-	-	3,594,216
Equity securities:				
Domestic equity	30,992,669	-	-	30,992,669
International equity	19,960,860	-	-	19,960,860
Alternative investments	14,076,877	-	-	14,076,877
Collateral from securities lending (Fixed-Return Fund)	911,346	-	-	911,346
Variable-Return Funds:				
Diversified Equity Fund:				
Short-term investments	110,049	112,971	-	223,020
Equity securities	6,901,203	11,301,600	-	18,202,803
Debt securities	174,484	285,740	-	460,224
Balanced Fund:				
Short-term investments	231	2,177	-	2,408
Equity securities	55,650	523,351	-	579,001
International Equity Fund:				
Short-term investments	114	2,396	-	2,510
International equity	10,881	229,166	-	240,047
Sustainable Equity Fund:				
Short-term investments	149	4,353	-	4,502
Equity securities	16,272	476,586	-	492,858
U.S. Equity Index Fund:				
Equity securities	4,797	64,485	-	69,282
International Equity Index Fund:				
Equity securities	117	11,649	-	11,766
Collateral from securities lending (Variable-Return Funds)	331,005	542,063	-	873,068
Total investments	111,452,666	13,556,537	-	125,009,203
TDA investment in TRSNYC Pension Fund	-	30,036,173	(30,036,173)	-
Other assets	46,194	8,781	(26,300)	28,675
Total assets	115,748,755	44,045,154	(30,062,473)	129,731,436
<b>LIABILITIES</b>				
Accounts payable	349,820	52,205	(26,300)	375,725
Payable for investment securities purchased	5,723,528	2,605	-	5,726,133
Accrued benefits payable	49,585	488,806	-	538,391
Due to TDA program's Fixed-Return Fund	30,036,173	-	(30,036,173)	-
Securities lending (Note 2)	1,242,351	542,063	-	1,784,414
Total liabilities	37,401,457	1,085,679	(30,062,473)	8,424,663
Net position restricted for benefits:				
Benefits to be provided by QPP	78,347,298	-	-	78,347,298
Benefits to be provided by TDA Program	-	42,959,475	-	42,959,475
Total net position restricted for benefits	\$ 78,347,298	\$ 42,959,475	\$ -	\$ 121,306,773

The accompanying notes are an integral part of this combining financial statement.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**

**Teachers' Retirement System of the City of New York**

**COMBINING STATEMENT OF CHANGES IN FIDUCIARY NET POSITION**

**Year ended June 30, 2022**  
**(In thousands)**

	<b>QPP</b>	<b>TDA</b>	<b>Total</b>
<b>Additions</b>			
Contributions:			
Member contributions (Note 4)	\$ 273,686	\$ 1,088,219	\$ 1,361,905
Employer contributions	3,303,798	-	3,303,798
Other employer contributions	60,581	-	60,581
Total contributions	<u>3,638,065</u>	<u>1,088,219</u>	<u>4,726,284</u>
Investment income (loss) (Note 2):			
Interest income	1,412,618	22,992	1,435,610
Dividend income	1,238,843	198,217	1,437,060
Net (depreciation) appreciation in fair value of investments	<u>(12,974,971)</u>	<u>(2,285,627)</u>	<u>(15,260,598)</u>
Total investment (loss) income	<u>(10,323,510)</u>	<u>(2,064,418)</u>	<u>(12,387,928)</u>
Less:			
Investment expenses	544,879	27,002	571,881
Net decrease in variable expense provision	<u>(9,595)</u>	<u>(2,808)</u>	<u>(12,403)</u>
Net investment (loss) income	<u>(10,858,794)</u>	<u>(2,088,612)</u>	<u>(12,947,406)</u>
Securities lending transactions:			
Securities lending income	7,057	1,742	8,799
Less - securities lending fees	<u>(2,125)</u>	<u>(174)</u>	<u>(2,299)</u>
Net securities lending income	<u>4,932</u>	<u>1,568</u>	<u>6,500</u>
Other:			
Net receipts from other retirement systems	<u>(2,993)</u>	<u>-</u>	<u>(2,993)</u>
Total additions	<u>(7,218,790)</u>	<u>(998,825)</u>	<u>(8,217,615)</u>
<b>Deductions</b>			
Benefit payments and withdrawals	4,909,488	1,874,811	6,784,299
Administrative expenses (Note 8)	71,490	19,872	91,362
Other:			
Statutory interest for TDA Program's Fixed-Return Fund	2,140,639	(2,140,639)	-
TDA rebalance	<u>(2,537)</u>	<u>2,537</u>	<u>-</u>
Total deductions	<u>7,119,080</u>	<u>(243,419)</u>	<u>6,875,661</u>
Net (decrease) increase in net position	(14,337,870)	(755,406)	(15,093,276)
Net position restricted for benefits			
Beginning of year	<u>78,347,298</u>	<u>42,959,475</u>	<u>121,306,773</u>
End of year	<u>\$ 64,009,428</u>	<u>\$ 42,204,069</u>	<u>\$ 106,213,497</u>

The accompanying notes are an integral part of this combining financial statement.

## Teachers' Retirement System of the City of New York

## COMBINING STATEMENT OF CHANGES IN FIDUCIARY NET POSITION

**Year ended June 30, 2021**  
**(In thousands)**

	<b>QPP</b>	<b>TDA</b>	<b>Total</b>
<b>Additions</b>			
Contributions:			
Member contributions (Note 4)	\$ 247,751	\$ 1,060,833	\$ 1,308,584
Employer contributions	3,131,607	-	3,131,607
Other employer contributions	61,663	-	61,663
Total contributions	<u>3,441,021</u>	<u>1,060,833</u>	<u>4,501,854</u>
Investment income (Note 2):			
Interest income	1,197,604	30,357	1,227,961
Dividend income	1,075,166	159,751	1,234,917
Net appreciation in fair value of investments	20,489,535	3,732,859	24,222,394
Total investment income	<u>22,762,305</u>	<u>3,922,967</u>	<u>26,685,272</u>
Less:			
Investment expenses	415,229	15,912	431,141
Net decrease in variable expense provision	(9,516)	(2,180)	(11,696)
Net investment income	<u>22,356,592</u>	<u>3,909,235</u>	<u>26,265,827</u>
Securities lending transactions:			
Securities lending income	7,252	1,891	9,143
Less - securities lending fees	(856)	(192)	(1,048)
Net securities lending income	<u>6,396</u>	<u>1,699</u>	<u>8,095</u>
Other:			
Net receipts from other retirement systems	(5,550)	-	(5,550)
Total additions	<u>25,798,459</u>	<u>4,971,767</u>	<u>30,770,226</u>
<b>Deductions</b>			
Benefit payments and withdrawals	4,699,448	1,020,090	5,719,538
Administrative expenses (Note 8)	68,100	18,290	86,390
Other:			
Statutory interest for TDA Program's Fixed-Return Fund	1,998,388	(1,998,388)	-
TDA rebalance	4,175	(4,175)	-
Total deductions	<u>6,770,111</u>	<u>(964,183)</u>	<u>5,805,928</u>
Net increase in net position	19,028,348	5,935,950	24,964,298
Net position restricted for benefits			
Beginning of year	<u>59,318,950</u>	<u>37,023,525</u>	<u>96,342,475</u>
End of year	<u>\$ 78,347,298</u>	<u>\$ 42,959,475</u>	<u>\$ 121,306,773</u>

The accompanying notes are an integral part of this combining financial statement.

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK

## Teachers' Retirement System of the City of New York

### NOTES TO COMBINING FINANCIAL STATEMENTS

June 30, 2022 and 2021

#### NOTE 1 – SYSTEM AND PLAN DESCRIPTIONS

The City of New York ("The City" or "City") maintains a number of pension systems providing benefits for employees of its various agencies (as defined within New York State ("State") and City laws). The City's five major actuarially-funded pension systems are the Teachers' Retirement System of the City of New York ("TRS" or the "System"), the New York City Employees' Retirement System ("NYCERS"), the New York City Board of Education Retirement System ("BERS"), the New York City Police Pension Funds ("POLICE"), and the New York City Fire Pension Funds ("FIRE"). Each pension system is a separate Public Employee Retirement System ("PERS") with a separate oversight body and is financially independent of the others.

TRS administers the TRS Qualified Pension Plan (the "QPP") and the TRS Tax-Deferred Annuity Program (the "TDA Program").

The QPP is a cost-sharing, multiple-employer pension plan. The QPP provides pension benefits for City public school teachers, certain other school employees, and college teachers. The Employers, in addition to The City, are the City University of New York ("CUNY") and several Charter Schools (collectively, the "Employers"). Substantially all teachers in the public schools of The City become members of the QPP, and certain other specified school and college personnel may become members on the first day of permanent employment.

The QPP functions in accordance with State and City laws, which establish benefit terms and Employer and member contribution requirements for the QPP. The QPP is a tax-qualified retirement plan under section 401(a) of the Internal Revenue Code ("IRC") that has received a favorable determination letter from the Internal Revenue Service ("IRS"). The QPP combines features of a defined-benefit pension plan with those of a defined-contribution pension plan, but is a defined-benefit pension plan for financial reporting purposes. Contributions are made by the Employers and the members.

The TDA Program was established and is administered pursuant to IRC Section 403(b) and New York City Administrative Code ("NYCAC") section 13-582 and became effective February 1, 1970. Members of the QPP have the option to participate in the TDA Program, which provides a means of deferring income tax payments on members' voluntary contributions until after retirement or upon withdrawal of contributions. Contributions to the TDA Program are made by the members only and are voluntary. Benefits provided under the TDA Program are derived from members' accumulated contributions and earnings thereon. The TDA Program is a defined-contribution pension plan for financial reporting purposes.

The QPP and TDA Program are fiduciary funds of The City and are included in the Pension and Other Employee Benefit Trust Funds section of The City's Annual Comprehensive Financial Report ("ACFR").

#### ***Board of Trustees ("TRS Board")***

The Teachers' Retirement Board, a seven-trustee Board, sets policy and oversees TRS' operations. Three TRS Board trustees are elected from and by the TRS membership. These trustees serve three-year terms. The Mayor appoints two Board trustees, one of whom must be a member of the Panel for Educational Policy. The New York City Comptroller ("Comptroller") and the Chair of the Panel for Education Policy are the other two Board trustees, each of which may designate a representative to act on his or her behalf.

## Teachers' Retirement System of the City of New York

## NOTES TO COMBINING FINANCIAL STATEMENTS – CONTINUED

June 30, 2022 and 2021

***Membership Data***

The QPP's and TDA Program's membership, at June 30, 2022 and June 30, 2021, consisted of:

	QPP	
	2022*	2021
Retirees and beneficiaries receiving benefits	92,000	89,997
Terminated vested members not yet receiving benefits	16,000	15,128
Terminated non-vested members**	4,000	4,574
Active members receiving salary	124,000	123,211
 Total	 <u>236,000</u>	 <u>232,910</u>
 TDA Program		
	2022*	
	2021	
Retirees receiving a TDA annuity	2,800	2,724
Retirees or Inactive members with TDA deferral	63,000	60,594
Active members with TDA	100,000	96,790
 Total	 <u>165,800</u>	 <u>160,108</u>

\* Preliminary

\*\* As of June 30, 2020, members that are on leave with insufficient service for vesting and assumed to not return to active service are classified as terminated non-vested members.

The QPP's and TDA Program's membership, at June 30, 2020 and June 30, 2019, the dates of the membership data used in determining Fiscal Year 2022 and Fiscal Year 2021 employer contributions, consisted of:

	QPP	
	2020	2019
Retirees and beneficiaries receiving benefits	89,536	88,507
Terminated vested members not yet receiving benefits	15,502	13,410
Terminated non-vested members** / Other inactives***	5,604	8,174
Active members	124,276	123,336
 Total	 <u>234,918</u>	 <u>233,427</u>
 TDA Program		
	2020	
	2019	
Retirees receiving a TDA annuity	2,755	2,827
Retirees or inactive members with TDA deferral	59,636	57,730
Active members with TDA	95,111	93,600
 Total	 <u>157,502</u>	 <u>154,157</u>

\*\*\* Prior to June 30, 2020, represents members who are no longer on payroll but not otherwise classified.

**Teachers' Retirement System of the City of New York**

**NOTES TO COMBINING FINANCIAL STATEMENTS – CONTINUED**

**June 30, 2022 and 2021**

***Summary of Benefits***

***QPP Plan***

The State Constitution provides that the pension rights of public employees are contractual and shall not be diminished or impaired. In 1973, 1976, 1983, and 2012, significant amendments made to the New York State Retirement and Social Security Law ("RSSL") modified certain benefits and member contributions for employees joining the QPP on or after the effective date of such amendments. As such, benefits under the QPP fall into various categories (also referred to as "Tiers") based on the year when an employee joined the QPP. A brief overview follows:

- Members who joined prior to July 1, 1973 ("Tier I") are entitled to service retirement benefits of 50% of "final salary" (as defined within State and City laws) after 20 years of service; a portion is provided from member contributions, plus additional benefits equal to specified percentages (as defined within State and City laws) per year of service of "final salary" for years in excess of the 20-year minimum. These benefits are increased, where applicable, by an annuity attributable to accumulated member contributions in excess of the minimum required balance and by any benefits attributable to Increased-Take-Home-Pay ("ITHP") contributions [accumulated after the 20th year of member qualifying service]. ITHP represents amounts contributed by The City to members' QPP accounts in lieu of members' own contributions. These amounts reduce the contributions that members would have to make to the QPP during their service and thereby increase their take-home pay. Members have the choice of waiving their ITHP reduction, which would reduce their take-home pay, but provide them with increased benefits upon retirement.

In addition, these same members could elect a service retirement benefit with no minimum service requirement that provides an annual benefit for each year of service equal to a specified percentage (as described within State statutes and City laws) of "final salary" payable on attainment of age 55. This benefit is increased, where applicable, by an annuity attributable to the member's contributions and by any benefits attributable to the Employers' contributions with respect to such service under the ITHP contributions.

- Members who joined the QPP after June 30, 1973 and before July 27, 1976 ("Tier II") have provisions similar to Tier I, except that the eligibility for retirement and the salary base for benefits are different and there is a limitation on the maximum benefit. This maximum limitation was subsequently eliminated under Chapter 574 of the Laws of 2000 for all Tier II members who retired after December 8, 2000. Members retiring prior to the age of 62 without 30 years of credited service are subject to an age-reduction factor in their retirement allowance. Effective February 27, 2008, active members were eligible to enroll in a 55-retirement-age minimum and 25 credited years of service retirement option ("55/25 retirement option") enabling them to eliminate any age-reduction factor in their retirement allowance (Chapter 19 of Laws of 2008). Those choosing the 55/25 retirement option are required to make additional contributions of 1.85% of salary from February 28, 2008 until June 29, 2008, or until they have accumulated 25 years of credited service, whichever is later.

For Tier I and II members enrolled in the QPP prior to July 27, 1976, ITHP contributions made on their behalf, as well as their own contributions, are invested, at their election, in the Fixed-Return Fund or in Variable-Return Funds. Members can elect to invest in multiples of 5% and change their elections on a quarterly basis. Members receive statutory returns, currently 8.25%, on member contributions or ITHP contributions to the Fixed-Return Fund ("Fixed Annuity Program").

Certain members of Tier I and Tier II have the right to make voluntary member contributions ("Voluntary Contributions") in excess of their required member contributions ("Required Contributions"). Both the investment of the Voluntary Contributions and the Required Contributions

**Teachers' Retirement System of the City of New York****NOTES TO COMBINING FINANCIAL STATEMENTS – CONTINUED****June 30, 2022 and 2021**

are directed by each member. A member may invest in: (1) the QPP's Fixed-Return Fund, in which it is credited with interest at the Statutory-Interest Rate (currently 8.25% for Tier I and Tier II contributions and 7.0% for United Federation of Teachers ("UFT") members and 8.25% for non-UFT members for TDA Contributions); and/or (2) in one or more of the QPP's Variable-Return Funds (see Note 2 – Investment Programs). At the time of retirement or refund of contributions, a member's aggregate balance of actual Required Contributions and Voluntary Contributions, including the actual accumulated earnings thereon, less the outstanding balance of any member loans ("Net Actual Contributions"), may exceed ("Excess of Contributions") or fall short of ("Deficiency of Contributions") the member's Expected Balance. The Expected Balance is the sum of the Required Contributions which a member should have made during his or her credited service, plus the earnings that would have accumulated thereon at the Statutory-Interest rate. The amount of the member's retirement annuity or the refund of contributions that he or she is entitled to is increased by any Excess of Contributions or reduced by any Deficiency of Contributions. The total value of active members' Excess of Contributions, net of all Deficiencies of Contributions, is \$33.8 million and \$39.9 million, for the years ended June 30, 2022 and 2021, respectively. Actuarial estimates of the impact of Excesses and Deficiencies are incorporated into the calculation of the QPP's net pension liability.

The Variable-Return Funds include only member contributions and ITHP contributions made on their behalf, as described above, and are expressed in terms of units that are valued monthly based on investment experience. At retirement, monthly annuities attributable to member Voluntary Excess Contributions and ITHP contributions can be paid in both fixed and variable amounts, based on the member's election, which can be changed quarterly. Other benefits are paid only in fixed amounts. Monthly annuities attributable to investments in the Variable-Return Funds are not fixed in amount, but are based on investment experience through the preceding month.

- Members who joined the QPP on or after July 27, 1976 and prior to September 1, 1983 ("Tier III") were later mandated into Tier IV. However, these members retain their Tier III rights. Tier III requires member contributions of 3.0% of salary for a 10-year period (Chapter 126 of the Laws of 2000) and generally provides for reducing benefits by one-half of the primary Social Security benefit attributable to service with the Employer and for an annual cost-of-living escalator in pension benefits of not more than 3.0%. Members retiring prior to the age of 62 without 30 years of credited service are subject to an age-reduction factor in their retirement allowance.
- Members who joined the QPP on or after September 1, 1983 ("Tier IV") were required to make contributions of 3.0% of salary until termination of service. As of October 1, 2000, these members are not required to make contributions after the 10th anniversary of their membership date or completion of 10 years of credited service, whichever is earlier (Chapter 126 of the Laws of 2000). The annual benefit is approximately 1.67% of "final average salary" per year of service for members with less than 20 years of service and 2.0% of "final average salary" per year of service for members with 20 to 30 years of service, plus a 1.5% addition of "final average salary" per year of service in excess of 30 years of service. Members retiring prior to the age of 62 without 30 years of credited service experience an age-reduction factor in their retirement allowance. Effective February 27, 2008, active members were eligible to enroll in a 55-retirement-age minimum and 25-credited years of service retirement option enabling them to eliminate any age-reduction factor in their retirement allowance. Those choosing the age 55 retirement option are required to make additional contributions of 1.85% of salary from February 28, 2008 until June 29, 2008, or until they have accumulated 25 years of credited service, whichever is later. Members joining after February 27, 2008 are automatically enrolled in a 55-retirement-age minimum and 27-credited years of service retirement program ("55/27 retirement program"). These members are required to make additional plan contributions of 1.85% of salary until they have accumulated 27 years of credited service.

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK

## Teachers' Retirement System of the City of New York

### NOTES TO COMBINING FINANCIAL STATEMENTS – CONTINUED

June 30, 2022 and 2021

Members under the 55/27 retirement program who joined after December 10, 2009, but before April 1, 2012, were required to make contributions of 4.85% of salary until they have 27 years of credited service and contributions of 1.85% of salary thereafter.

- Members who joined on and after April 1, 2012 (“Tier VI”) are required to make contributions of 3.0% per year through March 31, 2013. Thereafter, contributions range from 3.0% to 6.0% in accordance with a schedule based on salary. Member contributions continue until retirement. Salary is limited to the New York State Governor’s salary. Tier VI members are generally eligible to retire with unreduced benefits beginning at age 63 or with reduced benefits beginning at age 55, if vested. As of April 9, 2022, Tier VI members are vested after five years of service (Chapter 56 of the Laws of 2022).

Members enrolled in the QPP on or after July 27, 1976 (“Tier III, IV, and VI”) who resign or otherwise terminate from service prior to eligibility for a benefit, are refunded all of their member contributions with 5.0% interest (RSSL, Article 15). Tier III, IV, and VI members who work for the Department of Education also receive a monthly supplemental contribution. Monthly supplemental contributions totaling \$550 per year for supervisors and administrators and \$400 per year for other eligible members is credited to the members’ Annuity Savings Accumulation Fund (“ASAF”).

Under all service retirement categories, annuities attributable to member contributions are reduced on an actuarial basis for any loans with unpaid balances outstanding at the date of retirement.

Subject to certain conditions, members become fully vested and eligible for benefits upon the completion of five years of service. After December 10, 2009, new members who belong to the UFT, and all Tier VI members, become fully vested upon the completion of 10 years of service.

The QPP provides death benefits and retirement benefits on the occurrence of accidental or ordinary disability. In terms of payment options of the retirement annuity, the QPP provides a number of options depending on whether retirement payments, following death, will continue to an assigned beneficiary.

During the Spring 2000 session, the State Legislature approved and the State Governor (“Governor”) authorized automatic Cost-of-Living Adjustments (“COLAs”) for certain retirees and beneficiaries (Chapter 125 of the Laws of 2000). COLA is payable to all members who are either: (1) at least age 62 and have been retired for at least five years; or (2) at least age 55 and have been retired for at least 10 years. Additionally, COLA is payable to members who retired for disability after being retired for five or more years and beneficiaries receiving accidental death benefits who have been receiving them for at least five years. COLA is one-half of the increase in the Consumer Price Index for All Urban Consumers (“CPI-U”) based on the year ending March 31, rounding to the next higher 0.1%, not less than 1% nor greater than 3% of the first \$18,000 of the sum of the maximum retirement allowance and prior COLA.

#### *TDA Program*

The TDA Program is administered by the TRS Board. Contributions to the TDA Program are made by the members only and are voluntary. To participate in the TDA Program, active members of the QPP are required to submit a salary-reduction agreement and enrollment request. Members may choose to stop contributions at any time. A participant may elect to exclude an amount of compensation (within the maximum allowed by the IRS) from current taxable income by contributing it to the TDA Program. This maximum amount is calculated based on various individual factors. Members can elect to invest in the Fixed-Return Fund or the Variable-Return Funds.

A participant may withdraw all or part of the balance of their account prior to or at the time of retirement. As of January 1, 1989, the tax laws restricted withdrawals of tax-deferred annuity contributions and accumulated earnings thereon for reasons other than retirement or termination. Contributions made after

## Teachers' Retirement System of the City of New York

## NOTES TO COMBINING FINANCIAL STATEMENTS – CONTINUED

June 30, 2022 and 2021

December 31, 1988 and investment earnings credited after December 31, 1988 may only be withdrawn upon attainment of age 59½ or for reasons of hardship (as defined by IRS regulations). Hardship withdrawals are limited to (post 88) contribution only. Previously, if a hardship withdrawal occurred, the member was not able to contribute for a six-month period. The Budget Act of 2018 authorized the plan to remove the six-month restriction beginning no later than January 2020.

If a member dies while an in-service employee, the full value of his/her TDA Program account at the date of death is paid to the member's beneficiary or estate.

When a member resigns before attaining vested rights under the QPP, (s)he may withdraw the value of the account or may leave the account in the TDA Program for a period of up to seven school years after the date of resignation, provided the member does not withdraw their account from the QPP. If a member resigns after attaining vested rights under the QPP, (s)he may leave the account in the TDA Program, provided the member does not withdraw their QPP funds. Once a withdrawal is made from the QPP, the member's participation in the TDA Program is automatically terminated, and the value of the account in the TDA Program will be paid out to the member. Upon death, TDA balances are paid to the assigned beneficiaries or may be invested on behalf of the beneficiaries in the TDA Program's Variable-Return Funds. The option for new beneficiaries to invest in the TDA Program's Variable-Return Funds was statutorily rescinded in August 2021.

At retirement, several payment options are available to those who annuitize their TDA Program funds. Generally, payment options similar to the QPP are available under the TDA Program.

See "Investments" below for a discussion of TDA investment programs.

## NOTE 2 – SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

**Basis of Accounting** – The QPP and the TDA Program use the accrual basis of accounting where the measurement focus is on the flow of economic resources. Revenues are recognized in the accounting period in which they are earned, and expenses are recognized in the period incurred. Contributions from members are recognized when the Employers make payroll deductions from members' salary. Employer contributions to the QPP are recognized when due, and the Employer has a legal obligation to provide the contributions. Benefit payments and withdrawals are recognized when due and payable in accordance with the terms of the QPP and the TDA Program.

**Use of Estimates** – The preparation of combining financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, and disclosure of contingent assets and liabilities, at the date of the combining financial statements, and revenues and expenses, during the reporting period. Actual results could differ from those estimates.

**Investment Valuation** – Investments are reported at fair value. Fair value is defined as the quoted market price at the end of the last trading day for the specified period, except for Alternative investments, which are considered long-term and illiquid in nature. Alternative investments consist of limited partnership structures invested in privately held investments for which exchange quotations are not readily available, and are valued at estimated fair value. Fair value at fiscal year-end is based on the fair value of net assets reported in the most recently available partnership's capital account statements from the general partner, adjusted for any subsequent contributions, distributions, management fees and changes in values of foreign currency. They include investments held within Private Equity, Real Estate, Opportunistic Fixed Income, and Infrastructure.

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK

## Teachers' Retirement System of the City of New York

### NOTES TO COMBINING FINANCIAL STATEMENTS – CONTINUED

June 30, 2022 and 2021

Purchases and sales of securities are reflected on the trade date. Dividend income is recorded on the ex-dividend date. Interest income is recorded as earned on an accrual basis.

**Fair Value Measurement** – Government Accounting Standards Board (“GASB”) Statement No. 72, *Fair Value Measurement and Application* (“GASB 72”), describes fair value as an exit price, requiring investments to be categorized under a fair value hierarchy prescribed by GASB. GASB 72 establishes a hierarchy of inputs used to measure fair value consisting of three levels based on market price observability. Level 1 inputs are quoted prices in active markets for identical assets or liabilities. Level 2 inputs are inputs, other than quoted prices included within Level 1, that are observable for the asset or liability, either directly or indirectly. Level 3 inputs are unobservable inputs, and typically reflect management’s estimates of assumptions that market participants would use in pricing the asset or liability. GASB 72 also contains note disclosure requirements regarding the hierarchy of valuation inputs and valuation techniques that were used for the fair value measurements.

**Investment Presentation** – The TDA Program Fixed-Return Fund’s portion of TRSNYC Pension Fund assets are shown as commingled with the QPP’s portion of TRSNYC Pension Fund assets, and an offsetting liability is used to show the TDA Program’s share of the funds.

**Investment Programs** – Prior to July 1, 2008, investments were comprised of the assets of the following investment programs: the TRSNYC Pension Fund (which includes the Fixed-Return Fund, which was previously referred to as the Fixed Annuity Program) and two Variable-Return Funds – the Diversified Equity Fund and the Stable-Value Fund. As of July 1, 2008, the investment programs were expanded to include three new Variable-Return Funds – the International Equity Fund, the Inflation Protection Fund, and the Socially Responsive Equity Fund. On January 1, 2012, the Stable-Value Fund became the Bond Fund. On January 1, 2018, the Bond Fund became the Balanced Fund. The Balanced Fund’s objective is to seek current income and some capital appreciation by investing in a portfolio that includes both stocks and bonds. As of October 1, 2019, the Socially Responsive Equity Fund became the Sustainable Equity Fund. On January 1, 2020, the investment programs were expanded to include two new Variable-Return Funds – U.S. Equity Index Fund and International Equity Index Fund. The investment objective of the U.S. Equity Index Fund is to track the total return of the broad U.S. equity market, including large-, mid-, and small-capitalization stocks. The investment objective of the International Equity Index Fund is to track the total return of non-U.S. equity markets, including developed markets and emerging markets. As of April 1, 2020, the Inflation Protection Fund was discontinued. The TRS investment programs are collectively referred to as TRS Passport Funds.

All investment programs excluding the TRSNYC Pension Fund are referred to as the Variable-Return Funds. The TRSNYC Pension Fund includes System investments from QPP employer contributions, QPP Tier I and II members’ and ITHP contributions, QPP Tier III, IV, and VI members’ contributions, and ASAF contributions and TDA Program member contributions invested in the Fixed-Return Fund. Investing in Variable-Return Funds is available for both QPP Tier I and II members’ and ITHP contributions, and TDA program investments.

In the Fixed-Return Fund, deposits from members’ TDA Program accounts are invested along with QPP assets and TDA Program accounts and are credited with a fixed rate of return, determined by the New York State Legislature (“Statutory-Interest Rates”). Payment of the Statutory Interest is an obligation of The City (NYCAC section 13-533). The Statutory-Interest Rates are as follows:

- 7% for TDA investments by members who are serving in (or resigned/retired from) titles represented by the UFT. The crediting rate of 7% has been in effect since December 11, 2009. The prior crediting rate of 8.25% had been in effect from July 1, 1988 to December 11, 2009.
- 8.25% for TDA investments by all other members. This crediting rate has been in effect since July 1, 1988.

## Teachers' Retirement System of the City of New York

## NOTES TO COMBINING FINANCIAL STATEMENTS – CONTINUED

June 30, 2022 and 2021

TDA Program assets are pooled with QPP assets for investment purposes only. NYC Administrative Code section 13-582, subdivision [K], provides for the maintenance of TDA accounts in the Annuity Savings Funds (“Fixed-Return Fund”) and Variable Annuity Programs (“Variable-Return Funds”), which are distinct from similar funds for the QPP. This is in accordance with requirements that assets of the TDA Program be accounted for separately from assets of the QPP Plan. Statutory Rates received by funds invested in the QPP and the TDA Program’s Annuity Savings Fund (“Fixed-Return Fund”) are set, respectively, by NYCAC sections 13-638.2 and 13-582 [d].

Assets in the TDA Fixed-Return Fund are invested with assets of the QPP on a pro-rata basis consistent with the QPP’s asset allocation policy. Earnings on these investments over (or under) the Statutory Rates are considered by The City’s Chief Actuary of the Office of the Actuary (the “Actuary”) in determining employer contribution obligations. Earnings over the Statutory Rates accrue to the benefit of the QPP. Earnings under the Statutory Rates are considered by the Actuary in determining employer contributions to the QPP, such that The City is ultimately responsible for any deficiency. For financial reporting purposes, TDA fixed return assets, invested alongside QPP assets, are reflected as a receivable due from the QPP equal in amount to the aggregate original principal amounts contributed by TDA Program members to the fixed return program, plus accrued interest at the Statutory Rate adjusted for withdrawals and transfers to or from variable funds. This receivable is reported by the TDA Program as an Investment in the Fixed-Return Fund, and the corresponding liability is reported by the QPP as Fixed-Return Funds due to TDA.

Assets of the Variable-Return Funds of the QPP and the TDA Program Diversified Equity Fund are co-invested along with certain assets of the BERS. These financial statements reflect the QPP’s and TDA Program’s Variable-Return Funds’ proportionate shares of Diversified Equity Fund investments and the related activity.

**Other Employer Contributions** – Include amounts for Contingent Reserve Funds for half (or employer’s portion) of Additional Member Contributions (Chapter 19 1.85%), buyback payments for outside and military service, and The New York City Department of Education (“DOE”) supplemental contributions for the ASAF and Annuity Savings Fund (“ASF”). The Employer portion of Additional Member Contributions is not part of the employer’s appropriation amount and also not recoverable by the member upon the member’s resignation.

**Investment Expenses** – The Variable-Return Funds maintain a reserve for administrative and investment expenses. As of June 30, 2022, the reserve was \$55.5 million for QPP and \$28.4 million for TDA. The expense reserve and net investment expenses for 2022 were reduced by \$9.6 million for QPP and \$2.8 million for TDA. As of June 30, 2021, the reserve was \$64.6 million for QPP and \$30.2 million for TDA. The expense reserve and net investment expenses for 2021 were reduced by \$9.5 million for QPP and \$2.2 million for TDA.

**Income Taxes** – Income earned by the QPP and TDA Program is not subject to federal income tax.

**Accounts Payable** – Accounts payable is principally comprised of amounts owed to the System’s banks due to depositories, unclaimed payments, reserves for investment and administrative expenses for the Variable-Return Funds, and investment expenses accrued to the QPP and TDA Program. The System’s practice is to fully invest its day-end cash balances in a pooled short-term fund. A typical benefit payment bank account would show no balance, since funding only occurs when benefit payment checks are presented to the bank for payment each day.

Teachers' Retirement System of the City of New York

NOTES TO COMBINING FINANCIAL STATEMENTS – CONTINUED

June 30, 2022 and 2021

**Intra-fund Payable/Receivable** – At fiscal year-end, intra-fund payables/receivables between the TRSNYC Pension Fund and the Variable-Return Funds are excluded from QPP and TDA Program assets. The NYCAC Sections 13-577 and 13-582 provide for certain internal transfers of funds. These transfers are intended to rebalance estimated actuarial liabilities with reported assets. In Fiscal Year 2022, \$41.5 million was transferred from the QPP Variable-Return Funds to the QPP TRSNYC Pension Fund. In addition, in Fiscal Year 2022, \$2.5 million was transferred from the TDA to the QPP Program.

In Fiscal Year 2021, \$38.7 million was transferred from the QPP Variable-Return Funds to the QPP TRSNYC Pension Fund. In addition, in Fiscal Year 2021, \$4.2 million was transferred from the QPP to the TDA Program.

**Payment of Statutory-Interest on the TDA Program's Fixed-Return Fund** – The fixed interest, credited to TDA Program member account balances invested in the Fixed-Return Fund (7.0% APR for UFT members after December 10, 2009; 8.25% APR for non-UFT members and for UFT members prior to December 10, 2009), and owed and transferred to the TDA Program, is reported as a transfer payment of interest by the QPP and transfer receipt of interest for the TDA Program.

**Inter-Plan Eliminations** – Included on the Combining Statements of Fiduciary Net Position and the Combining Statements of Changes in Fiduciary Net Position is an elimination column, the purpose of which is to remove from the statement any transactions involving dealings between reported entities. The eliminations include offsetting payables and receivables associated with the TDA Program's investment in the TRSNYC Pension Fund. In addition, payables and receivables between the QPP, the TDA Program, and the System's administrative expense fund are eliminated.

**Securities-Lending Transactions** – State statutes and Board policies permit the Funds to lend their investments to broker-dealers and other entities for collateral, for the same securities in the future with a simultaneous agreement to return the collateral in the form of cash, U.S. Treasury, and U.S. Government securities. The Funds' agent lends the following types of securities: short-term securities, common stocks, long-term corporate bonds, U.S. Government and U.S. Government agency bonds, asset-backed securities, international equities, and bonds held in collective investment funds. In return, the Funds receive collateral in the form of cash, U.S. Treasury, and U.S. Government agency securities at 100% to 105% of the principal plus accrued interest for reinvestment. At June 30, 2022 and 2021, management believes that the Funds had no credit risk exposure to borrowers because the fair value of collateral held by the System equaled or exceeded the fair value of securities lent to the borrowers. Also, the contracts with the Funds' Securities Lending Agent (the "Agent") require the Agent to indemnify the Funds as follows: In the situation when a borrower goes into default, the Agent will liquidate the collateral to purchase replacement securities. Any shortfall before the replacement securities' cost and the collateral value is covered by the Agent. All securities loans can be terminated on demand within a period specified in each agreement by either the Funds or the borrowers. Cash collateral is invested by the securities-lending agent using approved Lender's Investment guidelines. The weighted-average maturity is 3.5 days for collateral investments under State Street's TRSNYC Pension Fund investments and 1.0 days for JPMorgan Chase's Variable-Return Fund investments. The securities-lending program in which the Funds participate only allows pledging or selling securities in the case of borrower default.

During Fiscal Year 2022, net earnings from the securities-lending program were \$6.5 million. Net earnings from QPP were \$4.9 million, including \$4.0 million from TRSNYC Pension Fund and \$897.9 thousand from Variable-Return Funds. The TDA net earnings from the Variable-Return Funds securities-lending program amounted to \$1.6 million.

During Fiscal Year 2021, net earnings from the securities-lending program were \$8.1 million. Net earnings from QPP were \$6.4 million, including \$5.4 million from TRSNYC Pension Fund and \$1.0 million from Variable-Return Funds. The TDA net earnings from the Variable-Return Funds securities-lending program amounted to \$1.7 million.

## Teachers' Retirement System of the City of New York

## NOTES TO COMBINING FINANCIAL STATEMENTS – CONTINUED

June 30, 2022 and 2021

GASB Statement No. 28, *Accounting and Financial Reporting for Securities-Lending Transactions*, requires that securities loaned as assets and related liabilities be reported in the Combining Statements of Fiduciary Net Position. Cash received as collateral on securities-lending transactions and investments made with that cash are reported as assets. As of the balance sheet date, the maturities of the investments made with cash collateral on average exceed the maturities of the securities loans by approximately 0.8 days for State Street's TRSNYC Pension Fund investments and 0.0 days for JPMorgan Chase's Variable-Return Fund investments. Securities received as collateral are also reported as assets if the government entity has the ability to pledge or sell them with a borrower default. Accordingly, the System records the investments purchased with the cash collateral from securities lending with a corresponding liability for securities lending. Securities on loan are carried at fair value; as of June 30, 2022 and 2021, the values on loan by the TRSNYC Pension Fund were \$546.0 million and \$1.0 billion, respectively, and the values on loan by the Variable-Return Funds were \$811.9 million and \$853.0 million, respectively. Collateral received related to securities lending as of June 30, 2022 and 2021 was \$562.5 million and \$1.1 billion, respectively, for the TRSNYC Pension Fund, and \$832.6 million and \$873.1 million, respectively, for the Variable-Return Funds.

**New Accounting Standards Adopted** – GASB Statement No. 98, *The Annual Comprehensive Financial Report*, establishes the term Annual Comprehensive Financial Report and its acronym ACFR. The new term replaces comprehensive annual financial report and its acronym in generally accepted accounting principles for state and local governments. The System, beginning in fiscal year 2021, had decided to early implement this pronouncement and has applied the change as of the issuance of this report.

GASB Statement No. 87, *Leases*, establishes a single model for lease accounting based on the principle that leases are financings of the right to use of an underlying asset. It requires recognition of lease assets and liability for certain leases and associated inflows or outflows of resources based on the provision of the lease contract. The purpose of this Statement is to standardize comparability of financial statements and enhancing the consistency of the information about leasing activities of governments (see Note 8, Administrative Expenses).

GASB Statement No. 97, *Certain Component Unit Criteria, and Accounting and Financial reporting for Internal Revenue Code Section 457 Deferred Compensation Plans* ("GASB 97"), clarifies component unit criteria for a potential component unit in the absence of a governing board in determining financial accountability; limits the applicability of financial burden criteria in paragraph 7 of GASB Statement No. 84; and classifies Section 457 Deferred Compensation plans as either a pension plan or other employee benefit plan. The adoption of GASB Statement No. 97 did not have a significant impact on these financial statements.

### NOTE 3 – INVESTMENTS AND DEPOSITS

The Comptroller acts as an investment advisor to TRS and employs an independent consultant for the TRSNYC Pension Fund. In addition, TRS employs an independent investment consultant as an investment advisor for its Variable-Return Funds. TRS utilizes investment managers to manage the long-term debt and equity portfolios. The managers are regularly reviewed with regard to both their investment performance and their adherence to investment guidelines.

RSSL and NYCAC authorize the investment of assets subject to the terms, conditions, limitations, and restrictions imposed by law for investments by savings bank and domestic life insurance companies. The State Retirement and Social Security Law §§ 176-178(a), Banking Law § 235, and the ACNY establish the criteria for permissible equity investments. Investments up to 25% of total assets of the QPP and the TDA Program may be made in instruments not expressly permitted by the State RSSL.

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK

## Teachers' Retirement System of the City of New York

### NOTES TO COMBINING FINANCIAL STATEMENTS – CONTINUED

June 30, 2022 and 2021

QPP and TDA Program assets are diversified over a range of investments, and multiple strategies are used in an effort to limit overall risk.

TRS possesses investment policy statements for its QPP and TDA Program, and investment risk management is an inherent function of the asset allocation process. The System's assets are diversified over a broad range of asset classes and encompass multiple investment strategies aimed at limiting concentration risk. The asset allocation per investment program and targeted for Fiscal Years 2022 and 2021 included securities in the following categories. TRSNYC Pension Fund primarily holds QPP assets and the returns from this fund impact the funding of the QPP, a defined-benefit plan. The Variable-Return Funds primarily relate to the TDA Program, a defined-contribution plan.

Investment Type	Asset Allocation Percentages *	
	2022	2021
Common stock	24.8%	28.4%
International investments - Non-U.S.	10.4%	10.5%
International investments - Emerging markets	9.6%	9.6%
Alternative investments - Real estate	5.8%	3.7%
Alternative investments - Private equity	8.6%	6.2%
Alternative investments - Infrastructure	1.9%	1.2%
Alternative investments - Opportunistic fixed income	3.6%	2.9%
Fixed income	35.3%	37.5%
Total	100.0%	100.0%

\* Represents adjusted target policy percentages.

Investment Type	Asset Allocation Percentages	
	2022	2021
Diversified Equity (Variable A):		
Common stock - Passive	62.0%	55.0%
Common stock - Active	15.0%	15.0%
Common stock - Defensive	0.0%	10.0%
International investments	23.0%	20.0%
Balanced Fund (formerly Bond Fund - Variable B):		
Fixed Income	70.0%	70.0%
Equity	30.0%	30.0%
International Equity (Variable C):		
International Investments	100.0%	100.0%
Sustainable Equity (former Socially Responsible - Variable E):		
Sustainable Equity BA SEF	100.0%	100.0%
U.S. Equity Index (established January 1, 2020 - Variable F):		
U.S. Equity Index Fund	100.0%	100.0%
International Equity Index (established January 1, 2020 - Variable G):		
International Equity Index Fund	100.0%	100.0%

State Street is currently the custodial bank for the securities of the TRSNYC Pension Fund. JPMorgan Chase is currently the custodial bank for the securities of the Variable-Return programs.

**Teachers' Retirement System of the City of New York****NOTES TO COMBINING FINANCIAL STATEMENTS – CONTINUED****June 30, 2022 and 2021**

The information reflected in the Credit Ratings and in the Years to Maturity is derived from the Custodians' Risk and Performance Analytics Reporting System.

**Concentrations** – In accordance with RSSL § 177, the System's investment programs do not have investments in any individual company that may represent more than 2% of the QPP or TDA Program total net assets or 5% of the company's total outstanding shares. The above concentration exclusion does not apply to obligations of the United States, or those for which the faith of the United States is pledged to provide payment of the interest and principal.

## Teachers' Retirement System of the City of New York

## NOTES TO COMBINING FINANCIAL STATEMENTS – CONTINUED

June 30, 2022 and 2021

**Credit Risk** – The possibility of a loss or default resulting from a borrower's inability to repay a loan or fulfill its contractual debt obligations. Portfolios, other than U.S. Government and related portfolios, have credit rating limitations. Investment Grade portfolios are limited to mostly ratings, of BBB/Baa2 and above, except that they are also permitted a 10% maximum exposure to BB & B/Ba2 & B2 rated securities. While high yield non-investment grade managers primarily invest in BB & B/Ba2 & B2 rated securities, they can also invest up to 10% of their portfolio in securities rated CCC/Caa2.

The quality ratings of the TRSNYC Pension Fund investments, by percentage of the rated portfolio, as described by nationally recognized rating organizations, at June 30, 2022 and 2021, are as follows:

Investment Type Pension Fund June 30, 2022 (In percent)	Moody's Quality Ratings																	Caa1 & Below	Not Rated	Total
	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3				
U.S. government Corporate bonds Short term: Commercial paper	39.52%	0.01%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	0.93%	40.46%	
Discount notes and T-bills	22.63%	0.02%	0.10%	0.16%	1.13%	1.84%	1.70%	2.22%	2.66%	2.57%	1.21%	1.71%	1.99%	2.06%	1.99%	1.64%	1.60%	3.35%	50.58%	
Pooled fund	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	1.31%	1.31%	
Percent of rated portfolio	<u>62.15%</u>	<u>0.03%</u>	<u>0.10%</u>	<u>0.16%</u>	<u>1.13%</u>	<u>1.84%</u>	<u>1.70%</u>	<u>2.22%</u>	<u>2.66%</u>	<u>2.57%</u>	<u>1.21%</u>	<u>1.71%</u>	<u>1.99%</u>	<u>2.06%</u>	<u>1.99%</u>	<u>1.64%</u>	<u>1.60%</u>	<u>13.24%</u>	<u>100.00%</u>	
Investment Type Pension Fund June 30, 2021 (In percent)	Moody's Quality Ratings																	Caa1 & Below	Not Rated	Total
	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3				
U.S. government Corporate bonds Short term: Commercial paper	37.81%	0.03%	-%	-%	0.02%	-%	-%	0.01%	0.07%	0.01%	-%	-%	-%	-%	-%	-%	-%	1.09%	39.04%	
Discount notes and T-bills	22.73%	0.15%	0.20%	0.15%	0.75%	2.14%	1.76%	2.33%	3.10%	1.36%	1.65%	2.10%	2.28%	1.98%	1.90%	2.26%	2.83%	52.28%		
Pooled fund	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	2.27%	2.27%	
Percent of rated portfolio	<u>60.54%</u>	<u>0.18%</u>	<u>0.20%</u>	<u>0.15%</u>	<u>0.77%</u>	<u>2.14%</u>	<u>1.76%</u>	<u>2.34%</u>	<u>3.17%</u>	<u>2.62%</u>	<u>1.36%</u>	<u>1.65%</u>	<u>2.10%</u>	<u>2.28%</u>	<u>1.98%</u>	<u>1.90%</u>	<u>2.26%</u>	<u>12.60%</u>	<u>100.00%</u>	

## Teachers' Retirement System of the City of New York

## NOTES TO COMBINING FINANCIAL STATEMENTS – CONTINUED

June 30, 2022 and 2021

The quality ratings of the Variable-Return Fund investments, both QPP and TDA, by percentage of the rated portfolio, as described by nationally recognized statistical rating organizations, at June 30, 2022 and 2021, are as follows:

Investment Type Variable-Return Funds June 30, 2022 (In percent)	Moody's Quality Ratings																	Not Rated	Total
	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1 & Below		
Corporate	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	
Short term: U.S. Treasury bills	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	
Money market funds	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	100.00%	
Percent of rated portfolio	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	100.00%	
Investment Type Variable-Return Funds June 30, 2021 (In percent)	Moody's Quality Ratings																	Not Rated	Total
	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1 & Below		
Corporate	-%	-%	-%	-%	-%	0.14%	-%	1.25%	1.13%	0.72%	-%	0.84%	-%	0.87%	-%	-%	-%	60.45%	65.40%
Short term: U.S. Treasury bills	0.12%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	0.12%	
Money market funds	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	-%	34.48%	34.48%	
Percent of rated portfolio	0.12%	-%	-%	-%	-%	0.14%	-%	1.25%	1.13%	0.72%	-%	0.84%	-%	0.87%	-%	-%	-%	94.93%	100.00%

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK

## Teachers' Retirement System of the City of New York

### NOTES TO COMBINING FINANCIAL STATEMENTS – CONTINUED

June 30, 2022 and 2021

**Custodial Credit Risk** – Deposits are exposed to custodial credit risk if they are uninsured and uncollateralized. Custodial credit risk is the risk that in the event of a failure of the counterparty or depository financial institution, the Fund will not be able to recover the value of its investment or collateral securities that are in the possession of an outside party. Investment securities are exposed to custodial credit risk if the securities are not registered in the name of the Funds and are held by either the counterparty or the counterparty's trust department or agent but not in the name of the Funds. Consistent with the Funds' investment policy, investments are held by the custodians of the TRSNYC Pension Fund and Variable-Return Funds and registered in the System's or QPP and TDA Program's name.

Generally, the System is the sole account owner of the custodial account. However, the Diversified Equity Fund is co-invested along with certain assets of BERS. Also, as of June 30, 2022, 0.6% of the TRSNYC Pension Fund assets were held in NYC commingled trust accounts owned 100% by The City's pension systems and related funds.

All of the System's deposits are insured by the Federal Deposit Insurance Corporation ("FDIC") or are collateralized by securities held by a financial institution separate from the Funds' depository financial institution. However, the Fund's cash balances can exceed FDIC insured limits. Non-invested cash is swept into the custodial bank's short-term investment intraday account, which is not FDIC insured.

**Interest Rate Risk** – Interest rate risk is the risk that the value of debt securities will be affected by fluctuations in market interest rates. The duration of the portfolio, relative to the duration of the portfolio's benchmark, is monitored by the Comptroller's Bureau of Asset Management.

## Teachers' Retirement System of the City of New York

## NOTES TO COMBINING FINANCIAL STATEMENTS – CONTINUED

June 30, 2022 and 2021

The lengths of investment maturities (in years) of TRSNYC Pension Fund investments, both QPP and TDA, as shown by the percent of the rated portfolio at June 30, 2022 and 2021, are as follows:

Investment Type TRSNYC Pension Fund June 30, 2022	Investment Maturities				
	Fair Value	Less Than One Year	One to Five Years	Six to Ten Years	More Than Ten Years
U.S. government	40.46%	0.11%	26.25%	6.53%	7.57%
Corporate bonds	50.58%	0.31%	17.65%	12.45%	20.17%
Short term:					
Commercial paper	1.31%	1.31%	-%	-%	-%
Discount notes and treasury bills	4.41%	4.41%	-%	-%	-%
Pooled funds	3.24%	3.24%	-%	-%	-%
Percent of rated portfolio	<u>100.00%</u>	<u>9.38%</u>	<u>43.90%</u>	<u>18.98%</u>	<u>27.74%</u>

Investment Type TRSNYC Pension Fund June 30, 2021	Investment Maturities				
	Fair Value	Less Than One Year	One to Five Years	Six to Ten Years	More Than Ten Years
U.S. government	39.02%	-%	24.63%	6.11%	8.28%
Corporate bonds	52.29%	0.19%	15.98%	13.61%	22.51%
Short term:					
Commercial paper	2.28%	2.28%	-%	-%	-%
Discount notes and treasury bills	2.78%	2.78%	-%	-%	-%
Pooled funds	3.63%	3.63%	-%	-%	-%
Percent of rated portfolio	<u>100.00%</u>	<u>8.88%</u>	<u>40.61%</u>	<u>19.72%</u>	<u>30.79%</u>

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK

## Teachers' Retirement System of the City of New York

### NOTES TO COMBINING FINANCIAL STATEMENTS – CONTINUED

June 30, 2022 and 2021

The lengths of investment maturities (in years) of the Variable-Return Funds for QPP and TDA, as shown by the percent of the rated portfolio at June 30, 2022 and 2021, are as follows:

Investment Type Variable-Return Funds June 30, 2022	Investment Maturities				
	Fair Value	Less Than One Year	One to Five Years	Six to Ten Years	More Than Ten Years
Corporate bonds	-%	-%	-%	-%	-%
Short term:					
U.S. treasury bills	-%	-%	-%	-%	-%
Money market funds	100.00%	100.00%	-%	-%	-%
Percent of rated portfolio	100.00%	100.00%	-%	-%	-%

Investment Type Variable-Return Funds June 30, 2021	Investment Maturities				
	Fair Value	Less Than One Year	One to Five Years	Six to Ten Years	More Than Ten Years
Corporate bonds	65.40%	1.74%	47.68%	14.20%	1.78%
Short term:					
U.S. treasury bills	0.12%	0.12%	-%	-%	-%
Money market funds	34.48%	34.48%	-%	-%	-%
Percent of rated portfolio	100.00%	36.34%	47.68%	14.20%	1.78%

**Foreign Currency Risk** – Foreign currency risk is the risk that changes in the exchange rates will adversely impact the fair value of an investment. Currency risk is present in underlying portfolios that invest in foreign stocks and/or bonds. The currency markets have proven to be effective diversifiers in a total portfolio context; therefore, the TRSNYC Pension Fund has numerous managers that invest globally. In general, currency exposure is viewed as a benefit for its diversification reasons and not as an inherent risk within the portfolio. In addition, the TRSNYC Variable-Return Funds have investments in foreign stocks and/or bonds denominated in foreign currencies.

## Teachers' Retirement System of the City of New York

## NOTES TO COMBINING FINANCIAL STATEMENTS – CONTINUED

June 30, 2022 and 2021

Foreign currency exposures as of June 30, 2022 and 2021, are as follows:

Trade Currency (in thousands)	Pension Fund June 30, 2022		Variable-Return Funds June 30, 2022		Pension Fund June 30, 2021		Variable-Return Funds June 30, 2021	
Euro Currency	\$ 4,247,372	\$ 764,184	\$ 5,288,835	\$ 900,568				
Hong Kong Dollar	2,319,755	284,169	2,871,758	278,805				
Japanese Yen	1,514,993	481,602	2,033,567	551,608				
British Pound Sterling	1,250,952	389,827	1,630,961	418,876				
Indian Rupee	1,061,362	129,449	1,209,648	129,047				
New Taiwan Dollar	1,047,773	104,419	1,425,501	133,473				
South Korean Won	985,851	162,763	1,514,184	200,064				
Swiss Franc	783,479	220,379	1,060,872	224,007				
Canadian Dollar	539,810	67,925	543,778	90,768				
Brazilian Real	399,482	48,899	437,951	54,757				
Australian Dollar	338,665	120,804	470,171	129,060				
Danish Krone	331,315	55,862	429,059	71,691				
Chinese Yuan (Offshore)	249,250	-	255,441	-				
Indonesian Rupiah	197,797	23,663	158,395	14,925				
Swedish Krona	186,758	66,412	272,588	82,261				
Singapore Dollar	185,121	40,884	168,072	30,592				
South African Rand	184,427	57,889	272,607	41,611				
Chinese Yuan Renminbi	154,595	33,747	203,122	37,586				
Thai Baht	152,332	21,554	118,343	15,910				
Mexican Nuevo Peso	125,461	35,504	142,919	21,830				
Polish Zloty	78,890	13,853	167,807	12,067				
Malaysian Ringgit	68,896	9,889	75,121	3,710				
Norwegian Krone	58,494	18,147	119,825	22,097				
Qatari Rial	48,624	-	12,175	-				
UAE Dirham	44,405	12,155	17,383	7,292				
Philippines Peso	33,281	537	40,081	31				
Israeli Shekel	31,104	6,879	22,815	5,734				
Turkish Lira	28,798	9,180	29,282	5,795				
Chilean Peso	22,038	711	39,859	955				
Hungarian Forint	13,202	1,367	32,682	224				
New Zealand Dollar	12,028	6,241	10,042	9,176				
Kuwaiti Dinar	10,887	-	6,135	-				
Czech Koruna	6,049	3,699	7,209	51				
Colombian Peso	3,390	-	4,270	-				
Russian Ruble	1,793	8,634	46,415	3,310				
Egyptian Pound	1,002	6,940	1,344	6,150				
Peruvian Nuevo Sol	44	63	-	-				
Pakistan Rupee	7	-	838	-				
Saudi Arabian Ryal	-	10,879	-	18,160				
	\$ 16,719,482	\$ 3,219,109	\$ 21,141,055	\$ 3,522,191				

## Teachers' Retirement System of the City of New York

## NOTES TO COMBINING FINANCIAL STATEMENTS – CONTINUED

June 30, 2022 and 2021

**Securities Lending Transactions**

**Credit Risk** – The quality ratings of investments held as collateral for Securities Lending by the TRSNYC Pension Fund at June 30, 2022 and 2021 are as follows:

Investment Type and Fair Value of  
Securities Lending Transactions - TRSNYC Pension Fund

June 30, 2022 (In thousands)	Moody's Quality Ratings							Total
	Aaa & Below	A1	A2	A3	Baa2	Not Rated		
<b>Short term:</b>								
Reverse repurchase agreements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 124,727	\$ 124,727	
Money market	267,664	-	-	-	-	86,136	353,800	
U.S. agency	-	-	-	-	-	-	-	
Cash or cash equivalent	-	53,170	-	-	-	-	53,170	
Uninvested	-	-	-	-	-	(6,381)	(6,381)	
<b>Total</b>	<b>\$ 267,664</b>	<b>\$ 53,170</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 204,482</b>	<b>\$ 525,316</b>	
Percent of securities lending portfolio	50.95%	10.12%	-%	-%	-%	38.93%	100.00%	

Uninvested securities are due to late collateral settlements where the cash positions changed after cash-collateral investments were made. As of June 30, 2022, the System had a greater amount of cash-collateral investments than amount in open loans which resulted in an overinvestment of \$6.4 million.

June 30, 2021 (In thousands)	Moody's Quality Ratings							Total
	Aaa & Below	A1	A2	A3	Baa2	Not Rated		
<b>Short term:</b>								
Reverse repurchase agreements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 121,000	\$ 121,000	
Money market	508,615	-	-	-	-	165,144	673,759	
U.S. agency	-	-	-	-	-	34,954	34,954	
Cash or cash equivalent	-	92,365	-	-	-	-	92,365	
Uninvested	-	-	-	-	-	(10,732)	(10,732)	
<b>Total</b>	<b>\$ 508,615</b>	<b>\$ 92,365</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 310,366</b>	<b>\$ 911,346</b>	
Percent of securities lending portfolio	55.81%	10.13%	-%	-%	-%	34.06%	100.00%	

## Teachers' Retirement System of the City of New York

## NOTES TO COMBINING FINANCIAL STATEMENTS – CONTINUED

June 30, 2022 and 2021

The quality ratings of investments held as collateral for Securities Lending under the Variable-Return Funds at June 30, 2022 and 2021 are as follows:

## Investment Type and Fair Value of

## Securities Lending Transactions - Variable-Return Funds

June 30, 2022 (In thousands)	Moody's Quality Ratings				Total
	Aaa	A3	Not Rated		
Government	\$ 712,403	\$ -	\$ -	\$ 712,403	
Short term:					
Repurchase agreements	81,289	-	32,748	114,037	
U.S. treasury	6,147	-	-	6,147	
Uninvested	-	-	-	-	
Total	<u>\$ 799,839</u>	<u>\$ -</u>	<u>\$ 32,748</u>	<u>\$ 832,587</u>	
Percent of securities lending portfolio	<u>96.07%</u>	<u>-%</u>	<u>3.93%</u>	<u>100.00%</u>	

## Investment Type and Fair Value of

## Securities Lending Transactions - Variable-Return Funds

June 30, 2021 (In thousands)	Moody's Quality Ratings				Total
	Aaa	A3	Not Rated		
Government	\$ 710,023	\$ -	\$ -	\$ 710,023	
Short term:					
Repurchase agreements	-	-	131,050	131,050	
U.S. treasury	31,975	-	-	31,975	
Uninvested	-	-	20	20	
Total	<u>\$ 741,998</u>	<u>\$ -</u>	<u>\$ 131,070</u>	<u>\$ 873,068</u>	
Percent of securities lending portfolio	<u>84.99%</u>	<u>-%</u>	<u>15.01%</u>	<u>100.00%</u>	

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**

**Teachers' Retirement System of the City of New York**

**NOTES TO COMBINING FINANCIAL STATEMENTS – CONTINUED**

**June 30, 2022 and 2021**

*Interest Rate Risk* – The lengths of investment maturities (in years) of the collateral for Securities Lending held by the TRSNYC Pension Fund at June 30, 2022 and 2021 are as follows:

**Years to Maturity**

**Investment Type TRSNYC Pension Fund**

June 30, 2022 (In thousands)	<u>Fair Value</u>	Investment Maturities			
		Less Than One Year	One to Five Years	Six to Ten Years	More Than Ten Years
<b>Short term:</b>					
Reverse repurchase agreement	\$ 124,727	\$ 124,727	\$ -	\$ -	\$ -
Money market	353,800	353,800	-	-	-
U.S. agency	-	-	-	-	-
Cash equivalents	53,170	53,170	-	-	-
Uninvested	(6,381)	(6,381)	-	-	-
<b>Total</b>	<b>\$ 525,316</b>	<b>\$ 525,316</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
Percent of securities lending portfolio	<u>100.00%</u>	<u>100.00%</u>	<u>-%</u>	<u>-%</u>	<u>-%</u>

**Years to Maturity**

**Investment Type TRSNYC Pension Fund**

June 30, 2021 (In thousands)	<u>Fair Value</u>	Investment Maturities			
		Less Than One Year	One to Five Years	Six to Ten Years	More Than Ten Years
<b>Short term:</b>					
Reverse repurchase agreement	\$ 121,000	\$ 121,000	\$ -	\$ -	\$ -
Money market	673,759	673,759	-	-	-
U.S. agency	34,954	34,954	-	-	-
Cash equivalents	92,365	92,365	-	-	-
Uninvested	(10,732)	(10,732)	-	-	-
<b>Total</b>	<b>\$ 911,346</b>	<b>\$ 911,346</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
Percent of securities lending portfolio	<u>100.00%</u>	<u>100.00%</u>	<u>-%</u>	<u>-%</u>	<u>-%</u>

## Teachers' Retirement System of the City of New York

## NOTES TO COMBINING FINANCIAL STATEMENTS – CONTINUED

June 30, 2022 and 2021

The lengths of investment maturities (in years) of the collateral for Securities Lending held under the Variable-Return Funds at June 30, 2022 and 2021 are as follows:

## Years to Maturity

## Investment Type Variable-Return Funds

June 30, 2022 (In thousands)	Fair Value	Investment Maturities			
		Less Than One Year	One to Five Years	Six to Ten Years	More Than Ten Years
Government	\$ 712,403	\$ 76,085	\$ 324,425	\$ 156,505	\$ 155,388
Short term:					
Repurchase agreements	114,037	114,037	-	-	-
U.S. treasury	6,147	6,147	-	-	-
Uninvested	-	-	-	-	-
Total	<u>\$ 832,587</u>	<u>\$ 196,269</u>	<u>\$ 324,425</u>	<u>\$ 156,505</u>	<u>\$ 155,388</u>
Percent of securities lending portfolio	<u>100.00%</u>	<u>23.57%</u>	<u>38.97%</u>	<u>18.80%</u>	<u>18.66%</u>

## Years to Maturity

## Investment Type Variable-Return Funds

June 30, 2021 (In thousands)	Fair Value	Investment Maturities			
		Less Than One Year	One to Five Years	Six to Ten Years	More Than Ten Years
Government	\$ 710,023	\$ 76,148	\$ 357,414	\$ 155,185	\$ 121,276
Short term:					
Repurchase agreements	131,050	131,050	-	-	-
U.S. treasury	31,975	31,975	-	-	-
Uninvested	20	20	-	-	-
Total	<u>\$ 873,068</u>	<u>\$ 239,193</u>	<u>\$ 357,414</u>	<u>\$ 155,185</u>	<u>\$ 121,276</u>
Percent of securities lending portfolio	<u>100.00%</u>	<u>27.40%</u>	<u>40.94%</u>	<u>17.77%</u>	<u>13.89%</u>

**Rate of Return** – For the years ended June 30, 2022 and 2021, the annual money-weighted rate of return on the TRSNYC Pension Fund was (-9.72%) and 24.8%, respectively. The money-weighted rate of return expresses investment performance, net of investment expense adjusted for the changing amounts actually invested.

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK

## Teachers' Retirement System of the City of New York

### NOTES TO COMBINING FINANCIAL STATEMENTS – CONTINUED

June 30, 2022 and 2021

In Fiscal Year 2015, the System adopted GASB 72. GASB 72 was issued to address accounting and financial reporting issues related to fair value measurements.

The System categorizes its fair value measurements within the fair value hierarchy established by generally accepted accounting principles. The hierarchy is based on the valuation inputs used to measure the fair value of the asset. Level 1 inputs are quoted prices in active markets for identical assets; Level 2 inputs are significant other observable inputs; Level 3 inputs are significant unobservable inputs. The System has the following recurring fair value measurements as of June 30, 2022 and June 30, 2021:

GASB 72 - Disclosure (TRS NYC Pension Fund) (In thousands)	2022			
	Level 1	Level 2	Level 3	Total
<b>Investments - at fair value (Notes 2 and 3):</b>				
Short-term investments:				
Commercial paper	\$ -	\$ 453,349	\$ -	\$ 453,349
Discount notes	-	52,418	-	52,418
Short-term investment fund	-	812,986	-	812,986
U.S. Treasury bills and agencies	-	1,551,644	-	1,551,644
Debt securities:				
U.S. government	-	13,757,296	-	13,757,296
Corporate and other	-	13,558,337	431,213	13,989,550
Treasury inflation-protected securities	-	3,403,952	-	3,403,952
Equity securities:				
Domestic equity	23,668,902	37	5,431	23,674,370
International equity	15,197,392	-	28	15,197,420
Alternative investments	865	216,701	17,660,135	17,877,701
<b>Total pension fund investments</b>	<b>\$ 38,867,159</b>	<b>\$ 33,806,720</b>	<b>\$ 18,096,807</b>	<b>\$ 90,770,686</b>
GASB 72 - Disclosure (TRS NYC Pension Fund) (In thousands)	2021			
	Level 1	Level 2	Level 3	Total
<b>Investments - at fair value (Notes 2 and 3):</b>				
Short-term investments:				
Commercial paper	\$ -	\$ 867,918	\$ -	\$ 867,918
Short-term investment fund	-	1,028,743	-	1,028,743
U.S. Treasury bills and agencies	-	1,090,552	-	1,090,552
Debt securities:				
U.S. government	-	14,885,336	4,090	14,889,426
Corporate and other	-	16,200,968	234,139	16,435,107
Treasury inflation-protected securities	-	3,594,216	-	3,594,216
Equity securities:				
Domestic equity	30,977,695	6,576	8,398	30,992,669
International equity	19,816,594	-	144,266	19,960,860
Alternative investments	22,602	235,533	13,818,742	14,076,877
<b>Total pension fund investments</b>	<b>\$ 50,816,891</b>	<b>\$ 37,909,842</b>	<b>\$ 14,209,635</b>	<b>\$ 102,936,368</b>

#### **Equity and Debt Securities and Short-Term Investments**

Equity securities classified in Level 1 of the fair value hierarchy are valued using prices quoted in active markets issued by pricing vendors for these securities. Debt, equity securities, and short-term investments classified in Level 2 of the fair value hierarchy are valued using prices determined by the use of matrix pricing techniques maintained by the various pricing vendors for these securities. Matrix pricing is used to value securities based on the securities' relationship to benchmark quoted prices. Debt and equity securities classified in Level 3 of the fair value hierarchy are securities whose stated market price is unobservable by the marketplace; many of these securities are priced by the issuers or industry groups for these securities. Fair value is defined as the quoted market value on the last trading day of the period. These prices are obtained from various pricing sources by the System's custodian bank.

## Teachers' Retirement System of the City of New York

## NOTES TO COMBINING FINANCIAL STATEMENTS – CONTINUED

June 30, 2022 and 2021

***Alternative Investments***

Alternative investments include Private Equity, Real Estate, Opportunistic Fixed Income, and Infrastructure Investments.

Alternative investments by Asset Class (in thousands)	2022	2021
Infrastructure	\$ 1,699,055	\$ 1,236,015
Opportunistic fixed income	3,211,829	2,891,031
Private equity	7,724,308	6,182,170
Private real estate	5,242,509	3,767,661
	<hr/> <u>\$ 17,877,701</u>	<hr/> <u>\$ 14,076,877</u>

These are mainly investments for which exchange quotations are not readily available. They are valued at Net Asset Value ("NAV") calculated by the GP's time-lagged valuation policy, and involve estimation. Alternative investments are mainly illiquid and typically not sold or redeemed.

Investments in non-public equity securities are valued by the GP or by the fund administrator using one or more valuation methodologies outlined in GASB 72, depending upon the availability of data required by each methodology. In some cases, the GP may use multiple approaches to estimate a valuation range.

Because of the subjective nature of estimated fair value of the private investments, such value may differ significantly from the values that would have been used had a ready market existed for these investments. Distributions from each fund will be received as the underlying investments of the funds are liquidated. It is expected that the underlying assets of the funds will generally be liquidated within 10 years but in some cases can take longer.

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK

## Teachers' Retirement System of the City of New York

### NOTES TO COMBINING FINANCIAL STATEMENTS – CONTINUED

June 30, 2022 and 2021

Alternative investments are not fully funded upon subscribing to the investment. The GP can draw down or call for capital as the fund goes into more investments or when the need arises, such as expenses associated with the partnership. The residual balance of uncalled capital is also known as “unfunded commitments,” which are restricted to the maximum amount of the limited partners’ total committed amount. The total unfunded commitments for the alternative investments as of June 30, 2022 and 2021 amounted to \$10.9 billion and \$10.3 billion, respectively.

#### GASB 72 - Disclosure (Variable-Return Funds)

June 30, 2022

(In thousands)

	2022			
	Level 1	Level 2	Level 3	Total
Investments - at fair value				
Diversified Equity Fund:				
Short-term investments	\$ -	\$ 200,645	\$ -	\$ 200,645
Equity securities	14,123,601	212,001	2,446	14,338,048
Debt securities	-	-	-	-
Balanced Fund:				
Short-term investments	-	1,329	-	1,329
Equity securities	538,020	-	-	538,020
International Equity Fund:				
Short-term investments	-	2,465	-	2,465
International equity	185,939	13,647	178	199,764
Sustainable Equity Fund:				
Short-term investments	-	8,653	-	8,653
Equity securities	440,660	-	-	440,660
U.S. Equity Index Fund:				
Equity securities	-	89,677	-	89,677
International equity index fund:				
Equity securities	-	15,034	-	15,034
Total Variable-Return Funds investments	<u>\$ 15,288,220</u>	<u>\$ 543,451</u>	<u>\$ 2,624</u>	<u>\$ 15,834,295</u>

#### GASB 72 - Disclosure (Variable-Return Funds)

June 30, 2021

(In thousands)

	2021			
	Level 1	Level 2	Level 3	Total
Investments - at fair value				
Diversified Equity Fund:				
Short-term investments	\$ -	\$ 223,020	\$ -	\$ 223,020
Equity securities	17,362,473	519,461	320,869	18,202,803
Debt securities	-	460,224	-	460,224
Balanced Fund:				
Short-term investments	-	2,408	-	2,408
Equity securities	579,001	-	-	579,001
International Equity Fund:				
Short-term investments	-	2,510	-	2,510
International equity	228,965	6,851	4,231	240,047
Sustainable Equity Fund:				
Short-term investments	-	4,502	-	4,502
Equity securities	492,858	-	-	492,858
U.S. Equity Index Fund:				
Equity securities	-	69,282	-	69,282
International equity index fund:				
Equity securities	-	11,766	-	11,766
Total Variable-Return Funds investments	<u>\$ 18,663,297</u>	<u>\$ 1,300,024</u>	<u>\$ 325,100</u>	<u>\$ 20,288,421</u>

Equity securities classified in Level 1 of the fair value hierarchy (above) are valued using prices quoted in active markets for those securities.

**Teachers' Retirement System of the City of New York****NOTES TO COMBINING FINANCIAL STATEMENTS – CONTINUED****June 30, 2022 and 2021**

Equity, short-term investments, and debt securities classified in Level 2 of the fair value hierarchy (above) are valued using a matrix pricing technique. Matrix pricing is used to value securities based on the securities' relationship to benchmark quoted prices.

Securities are classified in Level 3 (above) when inputs to the valuation methodology are unobservable and significant to the fair value measurement. Instruments are often based on internally developed models of the custodian, in which there are few, if any, external observations. Generally, Level 3 includes distressed securities or alternative investments.

**NOTE 4 – QPP CONTRIBUTIONS**

The financial objective of the QPP is to fund members' retirement benefits during their active service and to establish employer contribution rates that, expressed as a percentage of annualized covered payroll, will remain approximately level from year to year. The Employers contribute amounts that, together with member contributions and investment income, are intended to ultimately be sufficient to accumulate assets to pay benefits when due.

**Member Contributions** – Members who joined prior to July 27, 1976 contribute by salary deductions on the basis of a normal rate of contribution that is assigned by the QPP at membership. This member normal rate, which is dependent upon age, years of prior service, and actuarial tables in effect at the time of membership, is determined so as to provide approximately one-fourth of the service retirement allowance at the earliest age for service retirement. For age at membership equal to 20 and with no prior service, the member normal rate is equal to 4.6%. For age at membership equal to 40 with no prior service, the member normal rate is equal to 3.6%.

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK

## Teachers' Retirement System of the City of New York

### NOTES TO COMBINING FINANCIAL STATEMENTS – CONTINUED

June 30, 2022 and 2021

Members who joined on or after July 27, 1976 are mandated to contribute 3% of salary. Effective October 1, 2000, these members are not required to make contributions after the 10th anniversary of their membership date or completion of 10 years of credited service, whichever is earlier.

Effective February 27, 2008, active members were eligible to enroll in a 55 retirement-age minimum and 25 credited years of service retirement option ("55/25 retirement option"), enabling them to eliminate any age-reduction factor in their retirement allowance. Those choosing the age 55/25 retirement option are required to make additional contributions of 1.85% of salary from February 28, 2008 until June 29, 2008, or until they have accumulated 25 years of credited service, whichever is later. Members joining after February 27, 2008 are automatically enrolled in a 55-retirement-age minimum and 27 credited years of service retirement program ("55/27 retirement program"). These members are required to make additional pension contributions of 1.85% of salary until they have accumulated 27 years of credited service. Chapter 504 of the Laws of 2009 ("Chapter 504/09") provides that individuals joining after December 10, 2009, who participate in the 55/27 retirement program, are required to make pension contributions of 4.85% of salary until they have 27 years of credited service and contributions of 1.85% of salary thereafter.

Under Chapter 18 of the Laws of 2012, members who join on and after April 1, 2012 are automatically enrolled in Tier VI. These members are required to make contributions ranging from 3.0% (based on a salary of \$45,000 and less) to 6.0% (based on a salary above \$100,000) until separation from service or retirement.

**Employer Contributions** – Statutorily-required contributions ("Statutory Contributions") to the QPP, determined by the Actuary in accordance with the State statutes and City laws, are generally funded by the Employers within the appropriate fiscal year. These contributions consider any expected deficiencies between the statutory rates of interest on TDA Program deposits in the Fixed-Return Fund and on statutory rates of interest credited to QPP members and actual investment earnings on such funds. The Statutory Contribution for the year ended June 30, 2022, based on an actuarial valuation as of June 30, 2020, was \$3.3 billion, and the Statutory Contribution for the year ended June 30, 2021, based on an actuarial valuation as of June 30, 2019, was \$3.1 billion. The Statutory Contributions for Fiscal Years 2022 and 2021 were equal to the Actuarial Contributions. Refer to the Schedule of Employers' Contributions in the accompanying required supplementary information for more information on the actuarial methods and assumptions applied by the Actuary to determine the Statutory Contributions.

#### NOTE 5 – QPP NET PENSION LIABILITY

The components of the net pension liability of the Employers at June 30, 2022 and 2021 were as follows:

	2022	2021
	(in millions)	
Total pension liability	\$ 78,721	\$ 78,418
Fiduciary net position *	<u>64,010</u>	<u>78,347</u>
Employers' net pension liability	<u>\$ 14,711</u>	<u>\$ 71</u>
Fiduciary net position as a percentage of the total pension liability	<u>81.3%</u>	<u>99.9%</u>

\* Such amounts represent the preliminary System's fiduciary net position and may differ from the final System's fiduciary net position.

## Teachers' Retirement System of the City of New York

## NOTES TO COMBINING FINANCIAL STATEMENTS – CONTINUED

June 30, 2022 and 2021

***Actuarial Methods and Assumptions***

The total pension liability as of June 30, 2022 and 2021 was calculated from the actuarial valuations as of June 30, 2021 (Preliminary) and June 30, 2020 (Updated Preliminary), respectively, that were rolled forward to develop the total pension liability to the respective fiscal year-end. The following actuarial assumptions were applied to all periods included in the measurement:

Projected Salary Increases	In general, merit and promotion increase plus assumed General Wage Increases of 3.0% per annum.
Investment Rate of Return	7.0% per annum, net of Investment Expenses.
COLAs	1.5% per annum for AutoCOLA. 2.5% per annum for Escalation.

The above assumptions were developed assuming a long-term Consumer Price Inflation assumption of 2.5% per annum.

The fiscal year 2021 results reflect changes in the actuarial assumptions and methods from the prior year. These changes reflect refinements and improvements to the actuarial assumptions and methods under the judgement of the Chief Actuary.

The fiscal year 2022 results reflect a change in the plan provisions from the prior year. This change reflects the enactment of Chapter 56 of the Laws of 2022.

Pursuant to Section 96 of the New York City Charter, studies of the actuarial assumptions used to value liabilities of the five actuarially-funded NYCRS are conducted every two years. The most recent of these studies was performed by Bolton, Inc. and included experience through June 30, 2017. Milliman is performing the current experience study that covers the period through June 30, 2021.

On January 17, 2019, the Actuary Issued a Report titled “Proposed Changes in Actuarial Assumptions and Methods for Determining Employer Contributions for fiscal years beginning on and after July 1, 2018 for the New York City Teachers’ Retirement System.” The actuarial assumptions and methods described in that report are referred to as the “2019 A&M.”

On July 23, 2021, the Actuary issued a memorandum titled “Proposed Changes to Actuarial Assumptions and Methods.” The actuarial assumptions and methods described in that memorandum amend certain assumptions and methods from the 2019 A&M. This revised set of actuarial assumptions and methods are referred to as the “Revised 2021 A&M.”

The June 30, 2021 total pension liability was calculated from the Updated Preliminary June 30, 2020 actuarial valuation, which was based on the Revised 2021 A&M.

The June 30, 2022 total pension liability was calculated from the Preliminary June 30, 2021 actuarial valuation (adjusted for Chapter 56 of the Laws of 2022 and certain other post-valuation refinements), which was based on the Revised 2021 A&M.

The Entry Age Normal (“EAN”) cost method of funding is utilized by the System’s Actuary to calculate the contribution required of the Employer.

Under this method, the Present Value (“PV”) of Future Benefits (“PVFB”) of each individual included in the actuarial valuation is allocated on a level basis over the earnings (or service) of the individual between entry age and assumed exit age(s). The Employer portion of this PVFB allocated to a valuation year is the Normal Cost. The portion of this PVFB not provided for at a valuation date by the PV of Future Normal Costs or future member contributions is the Accrued Liability (“AL”).

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK

## Teachers' Retirement System of the City of New York

### NOTES TO COMBINING FINANCIAL STATEMENTS – CONTINUED

June 30, 2022 and 2021

The excess, if any, of the AL over the Actuarial Value of Asset ("AVA") is the Unfunded Accrued Liability ("UAL").

Under this method, actuarial gains and losses, as they occur, reduce and increase the UAL and are explicitly identified and amortized.

Increases or decreases in obligations due to benefit changes, actuarial assumption changes, and actuarial method changes are also explicitly identified and amortized.

#### ***Expected Rate of Return on Investments***

The long-term expected rate of return on QPP investments was determined using a building-block method in which best-estimate ranges of expected real rates of return (*i.e.*, expected returns, net of QPP 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 real rates of return by the target asset allocation percentage and by adding expected inflation. The target asset allocations and best estimates of arithmetic real rates of return for each major asset class are summarized in the following table as of June 30, 2022 and 2021:

Asset Class	As of June 30, 2022		As of June 30, 2021	
	Target Asset Allocation	Long-Term Expected Real Rate of Return	Target Asset Allocation	Long-Term Expected Real Rate of Return
<b>Public Markets</b>				
U.S. public market equities	25.0%	5.3%	25.0%	4.9%
Developed public market equities	10.0	5.7%	10.0	6.6%
Emerging public market equities	9.5	7.1%	9.5	9.1%
Fixed income	32.5	1.4%	32.5	1.5%
<b>Private Markets (Alternative Investments)</b>				
Private equity	7.0	10.8%	7.0	9.5%
Private real estate	7.0	8.0%	7.0	6.7%
Infrastructure	4.0	7.7%	4.0	5.0%
Opportunistic-fixed income	5.0	6.0%	5.0	6.0%
Total	<u><u>100.0%</u></u>		<u><u>100.0%</u></u>	

#### ***Discount Rate***

The discount rate used to measure the total pension liability was 7.0%. The projections of cash flows used to determine the discount rate assumed that employee contributions will be made at the rates applicable to the current Tier for each member and that Employer contributions will be made at rates as determined by the Actuary. Based on those assumptions, the QPP's fiduciary net position was projected to be available to make all projected future benefit payments of current active and non-active QPP members. Therefore, the long-term expected rate of return on QPP investments was applied to all periods of projected benefit payments to determine the total pension liability. The following presents the net pension liability of the Employers, calculated using the discount rate of 7.0%, as well as what the Employers' net pension liability

## Teachers' Retirement System of the City of New York

## NOTES TO COMBINING FINANCIAL STATEMENTS – CONTINUED

June 30, 2022 and 2021

would be if it were calculated using a discount rate that is one-percentage point lower (6.0%) or one-percentage point higher (8.0%) than the current rate as of June 30, 2022 and 2021:

	1% Decrease (6.0%)	Discount Rate (7.0%)	1% Increase (8.0%)
	(In thousands)		
Employers' net pension liability -			
June 30, 2022	\$ 23,662,403	\$ 14,711,335	\$ 7,192,331
June 30, 2021	\$ 8,727,197	\$ 71,173	\$ (7,201,879)

**NOTE 6 – MEMBER LOANS**

The balance of member loans receivable for the QPP at June 30, 2022 and June 30, 2021 was \$302.0 million and \$310.4 million, respectively. QPP members are permitted to borrow up to 75% of their own contributions, including accumulated interest. Outstanding loan balances are insured in order to protect members' balances in case of death. In return for insurance coverage, Tiers III, IV, and VI members supplement their loan interest payments of 6.0% APR with a 0.1% insurance fee. Tiers I and II members pay loan interest payments of 6.0% APR and are not subject to the insurance fee. Upon termination of employment before retirement, certain QPP members are entitled to refunds of their own contributions, including accumulated interest, less any loans outstanding.

The balance of member loans receivable for the TDA Program at June 30, 2022 and June 30, 2021 was \$418.2 million and \$410.2 million, respectively. Members of the TDA Program are permitted to borrow up to 75% of their own contributions, including accumulated interest. TDA Program members supplement their member loans' interest payments (7.0% for UFT, 8.25% for all other members) with a 0.3% ("APR") insurance fee. This fee funds a reserve, which is used to repay members' loan balances outstanding in case of death. Upon termination of employment before retirement, members are entitled to refunds of their own contributions, including accumulated interest, less any loans outstanding.

**NOTE 7 – RELATED PARTIES**

The Comptroller has been appointed by law as custodian for assets of the QPP and TDA Program with discretionary authority. Securities are held by certain banks under custodial agreements with the Comptroller. The Comptroller, and the NYC Financial Information Services Agency and Office of Payroll Administration ("FISA-OPA"), provide cash receipt and cash disbursement services and financial services; the Office of Actuary ("OA") provides actuarial services; the Office of Management and Budget ("OMB") provides budget review services; and The City's Corporation Counsel provides legal services to TRS. The cost of providing such services amounted to \$12.8 million and \$12.6 million in Fiscal Years 2022 and 2021, respectively. The City also provides other administrative services.

**NOTE 8 – ADMINISTRATIVE EXPENSES**

Chapter 593 of the Laws of 1996 ("Chapter 593/96"), effective July 1, 1996, authorized the Board of Trustees to draw upon its assets to pay the administrative expenses incurred by TRS. Prior to Fiscal Year 1997, The City and Variable Annuity Programs had paid all administrative expenses. After Chapter 593/96, administrative expenses incurred by the System are attributed to the QPP and the Variable-Return Funds of the TDA Program. The cost sharing is weighted and depends on an assessment of the prior year's administrative activities. Total TRS administrative expenses, attributable to the QPP and TDA Program, amounted to \$91.4 million and \$86.4 million for Fiscal Years 2022 and 2021, respectively. In addition to TRS' administrative expenses, other City agencies attribute the cost for services rendered by them during

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK

## Teachers' Retirement System of the City of New York

### NOTES TO COMBINING FINANCIAL STATEMENTS – CONTINUED

June 30, 2022 and 2021

the fiscal year; see Note 7 above. Fiscal Year 2022 Administrative expense includes \$5.3 million due to recognition of interest and amortization expenses as required by GASB No. 87.

In accordance with GASB Statement No. 87, *Leases*, beginning July 1, 2021, the System recognized lease assets and liabilities for office space and mailing system. These lease agreements began in 2015 and 2019, respectively.

In November 2015, the System amended and extended its lease agreement for office space. The agreement will expire on May 31, 2039.

At June 30, 2022, the right to use the office space (asset) amounted to \$161.6 million, net of annual amortization in the amount of \$9.5 million. The office space interest expense under the lease agreement for the year ended June 30, 2022 amounted to \$3.6 million.

At June 30, 2022, the future minimum principal and interest payments required under the lease contracts are as follows (in thousands):

	Beginning Balance	Annual Year-end Interest Accrual	Total Annual Payment	Ending Balance
<b>2023</b>	\$ 166,047	\$ 3,509	\$ (9,540)	\$ 160,016
<b>2024</b>	160,016	3,378	(9,579)	153,815
<b>2025</b>	153,815	3,224	(11,156)	145,883
<b>2026</b>	145,883	3,051	(11,156)	137,778
<b>2027</b>	137,778	2,874	(11,155)	129,497
<b>2028-2032</b>	129,497	11,478	(58,727)	82,248
<b>2033-2037</b>	82,248	5,823	(63,511)	24,560
<b>2037-2039</b>	24,560	489	(25,049)	-

### NOTE 9 – CONTINGENT LIABILITIES AND OTHER MATTERS

**Contingent Liabilities** – The QPP and TDA Program have certain contingent liabilities. TRS management, on advice from legal counsel, believes that such proceedings and contingencies will not have a material effect on the fiduciary net position of the QPP or cause changes in its fiduciary net position. Under the State statutes and City laws that govern the functioning of the QPP, increases in the obligation of the QPP to members and beneficiaries ordinarily result in increases in the obligations of the Employers to the QPP.

**DOE Class Action** – In 1996, a class action was brought against The City Board of Education and the State under Title VII of the Civil Rights Act of 1964 alleging that the use by the Board of Education of two teacher certification examinations mandated by the State had a disparate impact on minority candidates. In 2006, the United States Court of Appeals for the Second Circuit dismissed the claims against the State. In December 2012, the District Court decided a controlling legal question against The City. On February 4, 2013, the Second Circuit affirmed the District Court's decision. The District Court has appointed a Special Master to oversee claimants' individualized hearings both as to damages and eligibility for Board of Education employment. The hearings relate to members of the class that took the Liberal Arts and Science Test ("LAST") from 1996 to 2004. On June 5, 2015, the Court ruled that a second version of LAST, LAST-2, that was administered from 2004 to 2014, violated Title VII because it did not measure skills necessary to do the job. In August 2015, the Court found that the State's new teacher certification test, the Academic Literacy Skills Test ("ALST"), administered since Spring 2014, was not discriminatory and evaluated skills necessary to do the job. Hearings to determine each claimant's damages, including pension damages, are ongoing. Currently, approximately 5,300 LAST and LAST-2 class members have submitted

**Teachers' Retirement System of the City of New York****NOTES TO COMBINING FINANCIAL STATEMENTS – CONTINUED****June 30, 2022 and 2021**

claim forms and may be eligible for damages. While some final judgments have been entered, it is too early to permit an accurate estimation of the ultimate potential cost to The City.

**Actuarial Audit** – Pursuant to Section 96 of the New York City Charter, studies of the actuarial assumptions used to value liabilities of the five actuarially-funded New York City Retirement Systems (“NYCRS”) are conducted every two years. Refer to Note 5 (QPP Net Pension Liability) for the results of the most recent actuarial audits for the QPP.

**Revised Actuarial Assumptions and Methods** – In accordance with the ACNY and with appropriate practice, the Boards of Trustees of the five actuarially-funded NYCRS are to periodically review and adopt actuarial assumptions as proposed by the Actuary for use in the determination of Employer Contributions.

The most recently completed study was published by Bolton, Inc., dated June 2019. Bolton analyzed experience for the 4- and 10-year periods ended June 30, 2017 and made recommendations with respect to the actuarial assumptions and methods based on their analysis. Based, in part, on these recommendations, the Actuary proposed new assumptions and methods for use in determining Employer Contributions for Fiscal Years beginning on and after July 1, 2018. These assumptions and methods were adopted by the Board of Trustees during Fiscal Year 2019 (See Note 5 for more information).

**New York State Legislation (only significant laws since Fiscal Year 2012 included)**

Chapter 18 of the Laws of 2012 (“Chapter 18/12”) placed certain limitations on the Tier III and Tier IV benefits available to participants hired on and after April 1, 2012 in most New York State PERS, including TRS. These changes are sometimes referred to as Tier VI.

Chapter 3 of the Laws of 2013 implemented changes in the actuarial procedures for determining Employer Contributions beginning Fiscal Year 2012. In particular, Chapter 3/13 continued the One-Year Lag Methodology (“OYLM”), employed the Entry Age Actuarial Cost Method (“EAACM”), established an Actuarial Interest Rate (“AIR”) assumption of 7.0% per annum, net of expenses, continued it and other interest rates until June 30, 2016, and defined the amortization of Unfunded Actuarial Accrued Liabilities (“UAAL”).

Chapter 489 of the Laws of 2013 (“Chapter 489/13”) extended the Notice of Participation filing deadline to September 11, 2014 for vested members to file a sworn statement indicating participation in the World Trade Center Rescue, Recovery, and Clean-up Operations.

Chapter 427 of the Laws of 2014 (“Chapter 427/14”) provides non-contributory retirement service credit for members called to active military duty on or after September 11, 2001 and prior to January 1, 2006, who did not receive their full salary from a participating employer and who are otherwise eligible to receive retirement service credit for such service. Such members would not be required to make member contributions to receive such credit.

Chapter 510 of the Laws of 2015 clarifies for Tier VI the definition of multiple employers for the purpose of exclusion of wages, and changes the plan year for contributions from plan year April 1 to March 31 to plan year January 1 to December 31. Chapter 41 of the Laws of 2016 was enacted on May 31, 2016. This amendment removes the specified periods of time, medal requirements, and theaters of operation in which military service would had to have been rendered for a service purchase pursuant to RSSL § 1000. Accordingly, for a member to be eligible to purchase service credit pursuant to RSSL § 1000 for pre-membership military service, the member need only have been honorably discharged from the military; all other requirements of RSSL § 1000 remain the same. This law is not retroactive and does not permit retired members to purchase service credit.

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK

## Teachers' Retirement System of the City of New York

### NOTES TO COMBINING FINANCIAL STATEMENTS – CONTINUED

June 30, 2022 and 2021

Chapter 326 of the Laws of 2016, enacted on September 11, 2016, extends the deadline to file a Notice of Participation in the World Trade Center Rescue, Recovery, and Clean-up Operations to September 11, 2018. Proper filing of a Notice of Participation is a requirement for a member to be eligible for a World Trade Center disability or death benefit.

Chapter 266 of the Laws of 2018 extends the time for members or eligible beneficiaries to file a Notice of Participation in World Trade Center Rescue, Recovery, and Cleanup Operations to September 11, 2022. This law was signed on September 7, 2018, and shall be deemed to have been in full force and effect on and after September 11, 2001.

Chapter 89 of the Laws of 2020 provides death benefits to statutory beneficiaries of members whose death was a result of or was contributed to by Coronavirus Disease ("COVID-19"). This law provides an Accidental Death Benefit to the eligible beneficiaries of a member or a retiree who retired after March 1, 2020, where such member reported for work outside their home and contracted COVID-19 within 45 days after reporting for work, and whose death was caused by COVID-19 or where COVID-19 contributed to such member's death and where such death occurred before January 1, 2021. Amounts payable are reduced by payments of any ordinary death benefits or option benefit paid to another statutory beneficiary. Chapter 78 of 2021 extended the deadline for statutory beneficiaries of members who die prior to January 1, 2023.

Chapter 357 of the Laws of 2021 eliminated TDA beneficiary accounts for beneficiaries of members who die on or after July 1, 2021.

Chapter 391 of the Laws of 2021 extended for a 2-year period the 7% Actuarial Interest Rate assumption.

Chapter 56 of the Laws of 2022, signed on April 9, 2022, was passed as part of the budget and provided for the following three relevant parts:

- **Part HH** waives RSSL 211 and 212 approval and income limitations on retirees as a result of earnings from employment in public schools in the state. It is deemed repealed June 30, 2023.
- **Part SS** excludes certain forms of overtime and extracurricular compensation from the salary used to determine Tier 6 BMC Contribution Rates during the specified period of 2022 through 2024.
- **Part TT** reduces the vesting requirement from 10 years to 5 years for Tier 6 and certain Tier 4 members and allows for retirement with 5 years of service.

#### ***Other Legislation***

The SECURE Act of December 2019 increased the age at which Required Minimum Distributions must commence from 70.5 to 72. It also required that certain inherited retirement plan accounts be more rapidly distributed to their owners.

The CARES Act of March 2020 suspended Required Minimum Distributions due in 2020. It also authorized more advantageous loans and distributions to members who certify that COVID-19 adversely affected themselves or their households. These special rules sunset on or before December 31, 2020.

**Teachers' Retirement System of the City of New York****NOTES TO COMBINING FINANCIAL STATEMENTS – CONTINUED****June 30, 2022 and 2021*****COVID-19***

The outbreak of the COVID-19 has been declared a pandemic by the World Health Organization. The Governor declared a state of emergency in the state on March 7, 2020 and the Mayor declared a state of emergency in The City on March 12, 2020. The Governor declared an end to the state of emergency due to the COVID-19 pandemic in the State on June 24, 2021, effective June 25, 2021. The state of emergency in The City remains in effect. The ultimate impact of the COVID-19 pandemic on the plans cannot be determined at this time.

## Teachers' Retirement System of the City of New York

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)  
QUALIFIED PENSION PLAN

## SCHEDULE OF CHANGES IN THE EMPLOYER'S NET PENSION LIABILITY AND RELATED RATIOS

June 30,  
(In thousands)

	2022	2021	2020	2019	2018	2017	2016	2015	2014
Total pension liability:									
Service cost	\$ 1,626,586	\$ 1,588,162	\$ 1,555,755	\$ 1,691,144	\$ 1,436,617	\$ 1,386,674	\$ 1,274,308	\$ 1,223,158	\$ 1,205,662
Interest	3,868,974	7,145,949	4,838,801	4,914,552	5,071,481	5,147,042	4,131,177	4,027,139	4,407,702
Changes of benefit terms	14,121	-	-	-	-	-	-	-	-
Differences between expected and actual experience	(297,901)	(393,805)	(34,324)	(1,188,247)	(2,235,673)	1,008,249	1,229,501	1,507,964	-
Changes of assumptions	-	(338,383)	-	(826,850)	-	-	2,432,878	-	-
Benefit payments/withdrawals	(4,909,488)	(4,699,448)	(4,591,086)	(4,487,680)	(4,351,924)	(4,219,312)	(4,107,455)	(4,024,272)	(3,818,248)
Net change in total pension liability	302,292	3,302,475	1,769,146	102,919	(79,499)	3,322,653	4,960,409	2,733,989	1,795,116
Total pension liability - beginning	78,418,471	75,115,996	73,346,850	73,243,931	73,323,430	70,000,777	65,040,368	62,306,379	60,511,262
Total pension liability - ending (a)	78,720,763	78,418,471	75,115,996	73,346,850	73,243,931	73,323,430	70,000,777	65,040,368	62,306,378
Plan fiduciary net position:									
Contributions - employer	3,303,798	3,131,607	3,590,822	3,696,686	3,889,710	3,888,399	3,760,714	3,325,528	3,054,424
Contributions - other employer*	60,581	61,663	61,748	62,513	59,979	57,369	n/a	n/a	n/a
Contributions - employee	273,686	247,751	226,920	217,205	195,241	180,076	173,696	158,590	154,962
Net investment income	(10,853,862)	22,362,988	3,911,187	5,721,310	6,275,115	8,133,280	960,267	1,611,929	9,435,906
Benefit payments/withdrawals	(4,909,488)	(4,699,448)	(4,591,086)	(4,487,680)	(4,351,924)	(4,219,312)	(4,107,455)	(4,024,272)	(3,818,248)
Payment of interest on TDA fixed funds	(2,140,639)	(1,998,388)	(1,846,173)	(1,716,679)	(1,595,462)	(1,466,615)	(1,354,207)	(1,248,988)	(1,147,923)
Administrative expenses	(71,490)	(68,100)	(64,532)	(64,291)	(65,076)	(60,790)	(59,367)	(58,391)	(46,042)
Other changes	(456)	(9,725)	39,853	28,671	29,170	(46,229)	1,233	329	404
Net change in plan fiduciary net position	(14,337,870)	19,028,348	1,328,739	3,457,735	4,436,753	6,466,178	(625,119)	(235,275)	7,633,483
Plan fiduciary net position - beginning	78,347,298	59,318,950	57,990,211	54,532,476	50,095,723	43,629,545	44,254,664	44,489,939	36,856,456
Plan fiduciary net position - ending (b) **	64,009,428	78,347,298	59,318,950	57,990,211	54,532,476	50,095,723	43,629,545	44,254,664	44,489,939
Employer's net pension liability - ending (a)-(b)	\$ 14,711,335	\$ 71,173	\$ 15,797,046	\$ 15,356,639	\$ 18,711,455	\$ 23,227,707	\$ 26,371,232	\$ 20,785,704	\$ 17,816,440
Plan fiduciary net position as a percentage of the total pension liability	81.30%	99.91%	78.97%	79.06%	74.45%	68.32%	62.33%	68.04%	71.41%
Covered payroll	\$ 11,469,453	\$ 11,203,878	\$ 10,903,755	\$ 10,404,404	\$ 9,200,180	\$ 8,818,537	\$ 8,256,100	\$ 8,074,522	\$ 7,964,149
TRS net pension liability as a percentage of covered payroll	128.27%	0.64%	144.88%	147.60%	203.38%	263.40%	319.42%	257.42%	223.71%

Additionally, in accordance with paragraph 50 of GASB No. 67, this schedule should present information for 10 years, if available. The information presented here pertains to periods beginning with the June 30, 2014 fiscal year, the plan's adoption year of GASB No. 67. Additional years will be added until the 10-year requirement is met.

\*Includes amounts for Employer's portion of Additional Member Contributions and supplemental contributions for the ASA and ASF Funds.

\*\*Such amounts represent the preliminary Systems' fiduciary net position and may differ from the Systems' final fiduciary net position.

See Report of Independent Certified Public Accountants.

## Teachers' Retirement System of the City of New York

**REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)**  
**QUALIFIED PENSION PLAN**  
**SCHEDULES OF EMPLOYER CONTRIBUTIONS**

**Fiscal years ended June 30,  
 (In thousands)**

	<b>2022</b>	<b>2021</b>	<b>2020</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>	<b>2016</b>	<b>2015</b>	<b>2014</b>	<b>2013</b>
Actuarially determined contribution	\$ 3,303,798	\$ 3,131,607	\$ 3,590,822	\$ 3,696,686	\$ 3,889,710	\$ 3,888,399	\$ 3,702,569	\$ 3,270,007	\$ 2,998,694	\$ 2,855,640
Contributions in relation to the actuarially determined contribution	<u>3,303,798</u>	<u>3,131,607</u>	<u>3,590,822</u>	<u>3,696,686</u>	<u>3,889,710</u>	<u>3,888,399</u>	<u>3,702,569</u>	<u>3,270,007</u>	<u>2,998,694</u>	<u>2,855,640</u>
Contribution deficiency (excess)	<u>\$ -</u>									
Covered payroll <sup>1</sup>	\$ 11,469,453	\$ 11,203,878	\$ 10,903,755	\$ 10,404,404	\$ 9,200,180	\$ 8,818,537	\$ 8,256,100	\$ 8,074,522	\$ 7,964,149	\$ 7,833,329
Contributions as a percentage of covered payroll	28.805%	27.951%	32.932%	35.530%	42.279%	44.093%	44.846%	40.498%	37.652%	36.455%

<sup>1</sup> Projected employee payroll at time 1.0 under previous roll-forward methodology through 2018. Actual employee payroll at valuation date (time = 0) beginning in 2019.

## Teachers' Retirement System of the City of New York

**REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)**  
**QUALIFIED PENSION PLAN**  
**SCHEDULES OF EMPLOYER CONTRIBUTIONS**

**Note to Schedule:**

The above actuarially determined contributions were developed using a One-Year Lag Methodology, under which the actuarial valuation determines the Employer contribution for the second following fiscal year (e.g., fiscal year 2022 contributions were determined using an actuarial valuation as of June 30, 2020). The methods and assumptions used to determine the actuarially determined contributions are as follows:

Valuation Dates	June 30, 2020	June 30, 2019	June 30, 2018	June 30, 2017	June 30, 2016
Actuarial cost method	Entry age	Entry age	Entry age	Entry age	Entry age
Amortization method for unfunded actuarial accrued liabilities:					
Initial unfunded	Increasing dollar	Increasing dollar	Increasing dollar	Increasing dollar	Increasing dollar
Post-2010 unfundeds	Level dollar	Level dollar	Level dollar	Level dollar	Level dollar
Remaining amortization period:					
Initial unfunded	12 years (closed)	13 years (closed)	14 years (closed)	15 years (closed)	16 years (closed)
2010 ERI	-	-	-	-	-
2011 Actuarial gain/loss	6 years (closed)	7 years (closed)	8 years (closed)	9 years (closed)	10 years (closed)
2012 Actuarial gain/loss	7 years (closed)	8 years (closed)	9 years (closed)	10 years (closed)	11 years (closed)
2013 Actuarial gain/loss	8 years (closed)	9 years (closed)	10 years (closed)	11 years (closed)	12 years (closed)
2014 Actuarial gain/loss	9 years (closed)	10 years (closed)	11 years (closed)	12 years (closed)	13 years (closed)
2014 Assumption change	14 years (closed)	15 years (closed)	16 years (closed)	17 years (closed)	18 years (closed)
2015 Actuarial gain/loss	10 years (closed)	11 years (closed)	12 years (closed)	13 years (closed)	14 years (closed)
2016 Actuarial gain/loss	11 years (closed)	12 years (closed)	13 years (closed)	14 years (closed)	15 years (closed)
2017 Actuarial gain/loss	12 years (closed)	13 years (closed)	14 years (closed)	15 years (closed)	NA
2017 ASAFA method change	17 years (closed)	18 years (closed)	19 years (closed)	20 years (closed)	NA
2017 Method change	17 years (closed)	18 years (closed)	19 years (closed)	20 years (closed)	NA
2017 Assumption change	17 years (closed)	18 years (closed)	19 years (closed)	20 years (closed)	NA
2018 Actuarial gain/loss	13 years (closed)	14 years (closed)	15 years (closed)	NA	NA
2018 Method change	18 years (closed)	19 years (closed)	20 years (closed)	NA	NA
2019 Actuarial gain/loss	14 years (closed)	15 years (closed)	NA	NA	NA
2019 Assumption change	19 years (closed)	20 years (closed)	NA	NA	NA
2019 Method change	19 years (closed)	20 years (closed)	NA	NA	NA
2020 Actuarial gain/loss	15 years (closed)	NA	NA	NA	NA
2020 Method Change	20 years (closed)	NA	NA	NA	NA
2020 OWBPA	8 years (closed)	NA	NA	NA	NA
Actuarial value of assets method <sup>1</sup>	Five-year moving average of market values with a "Market Value Restart" as of June 30, 2020.	Five-year moving average of market values with a "Market Value Restart" as of June 30, 2019.	Modified six-year moving average of market values with a "Market Value Restart" as of June 30, 2011. The June 30, 2010 AVA is defined to recognize Fiscal Year 2011 investment performance.	Modified six-year moving average of market values with a "Market Value Restart" as of June 30, 2011. The June 30, 2010 AVA is defined to recognize Fiscal Year 2011 investment performance.	Modified six-year moving average of market values with a "Market Value Restart" as of June 30, 2011. The June 30, 2010 AVA is defined to recognize Fiscal Year 2011 investment performance.

<sup>1</sup> As of the June 30, 2014 (Lag) valuation, the AVA is constrained to be no more than 20% from Fair Value. As of the June 30, 2018 (Lag) valuation, the AVA is determined by re-characterizing the interest credited on TDA Fixed Fund account balances as investment income instead of as a cash disbursement.

See Report of Independent Certified Public Accountants.

## SCHEDULE 2 - CONTINUED

## Teachers' Retirement System of the City of New York

**REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)**  
**QUALIFIED PENSION PLAN**  
**SCHEDULES OF EMPLOYER CONTRIBUTIONS**

**Note to Schedule:**

The above actuarially determined contributions were developed using a One-Year Lag Methodology, under which the actuarial valuation determines the Employer contribution for the second following fiscal year (e.g., fiscal year 2022 contributions were determined using an actuarial valuation as of June 30, 2020). The methods and assumptions used to determine the actuarially determined contributions are as follows:

Valuation Dates	June 30, 2015	June 30, 2014	June 30, 2013	June 30, 2012	June 30, 2011
Actuarial cost method	Entry age				
Amortization method for unfunded actuarial accrued liabilities:					
Initial unfunded	Increasing dollar				
Post-2010 unfunded	Level dollar				
Remaining amortization period:					
Initial unfunded	17 years (closed)	18 years (closed)	19 years (closed)	20 years (closed)	21 years (closed)
2010 ERI	1 years (closed)	2 years (closed)	3 years (closed)	4 years (closed)	5 years (closed)
2011 Actuarial gain/loss	11 years (closed)	12 years (closed)	13 years (closed)	14 years (closed)	15 years (closed)
2012 Actuarial gain/loss	12 years (closed)	13 years (closed)	14 years (closed)	15 years (closed)	NA
2013 Actuarial gain/loss	13 years (closed)	14 years (closed)	15 years (closed)	NA	NA
2014 Actuarial gain/loss	14 years (closed)	15 years (closed)	NA	NA	NA
2014 Assumption change	19 years (closed)	20 years (closed)	NA	NA	NA
2015 Actuarial gain/loss	15 years (closed)	NA	NA	NA	NA
2016 Actuarial gain/loss	NA	NA	NA	NA	NA
2017 Actuarial gain/loss	NA	NA	NA	NA	NA
2017 ASAFA method change	NA	NA	NA	NA	NA
2017 Method change	NA	NA	NA	NA	NA
2017 Assumption change	NA	NA	NA	NA	NA
2018 Actuarial gain/loss	NA	NA	NA	NA	NA
2018 Method change	NA	NA	NA	NA	NA
2019 Actuarial gain/loss	NA	NA	NA	NA	NA
2019 Assumption change	NA	NA	NA	NA	NA
2019 Method change	NA	NA	NA	NA	NA
2020 Actuarial gain/loss	NA	NA	NA	NA	NA
2020 Method Change	NA	NA	NA	NA	NA
2020 OWBPA	NA	NA	NA	NA	NA
Actuarial value of assets method <sup>1</sup>	Modified six-year moving average of market values with a "Market Value Restart" as of June 30, 2011. The June 30, 2010 AVA is defined to recognize Fiscal Year 2011 investment performance.	Modified six-year moving average of market values with a "Market Value Restart" as of June 30, 2011. The June 30, 2010 AVA is defined to recognize Fiscal Year 2011 investment performance.	Modified six-year moving average of market values with a "Market Value Restart" as of June 30, 2011. The June 30, 2010 AVA is defined to recognize Fiscal Year 2011 investment performance.	Modified six-year moving average of market values with a "Market Value Restart" as of June 30, 2011. The June 30, 2010 AVA is defined to recognize Fiscal Year 2011 investment performance.	Modified six-year moving average of market values with a "Market Value Restart" as of June 30, 2011. The June 30, 2010 AVA is defined to recognize Fiscal Year 2011 investment performance.

<sup>1</sup> As of the June 30, 2014 (Lag) valuation, the AVA is constrained to be no more than 20% from Fair Value. As of the June 30, 2018 (Lag) valuation, the AVA is determined by re-characterizing the interest credited on TDA Fixed Fund account balances as investment income instead of as a cash disbursement.

See Report of Independent Certified Public Accountants.

## Teachers' Retirement System of the City of New York

**REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)**  
**QUALIFIED PENSION PLAN**  
**SCHEDULES OF EMPLOYER CONTRIBUTIONS**

Valuation Dates	June 30, 2020	June 30, 2019	June 30, 2018	June 30, 2017	June 30, 2016
<b>Actuarial assumptions:</b>					
Assumed rate of return <sup>2</sup>	7.0% per annum, net of investment expenses.				
Post-retirement mortality <sup>3</sup>	Tables adopted by Retirement Board during Fiscal Year 2019	Tables adopted by Retirement Board during Fiscal Year 2019	Tables adopted by Retirement Board during Fiscal Year 2019	Tables adopted by Retirement Board during Fiscal Year 2019	Tables adopted by Retirement Board during Fiscal Year 2016
Active service: withdrawal, death, disability, service retirement <sup>3</sup>	Tables adopted by Retirement Board during Fiscal Year 2019	Tables adopted by Retirement Board during Fiscal Year 2019	Tables adopted by Retirement Board during Fiscal Year 2019	Tables adopted by Retirement Board during Fiscal Year 2019	Tables adopted by Retirement Board during Fiscal Year 2012
Salary increases <sup>2</sup>	In general, merit and promotion increases plus assumed General Wage Increases of 3.0% per year.	In general, merit and promotion increases plus assumed General Wage Increases of 3.0% per year.	In general, merit and promotion increases plus assumed General Wage Increases of 3.0% per year.	In general, merit and promotion increases plus assumed General Wage Increases of 3.0% per year.	In general, merit and promotion increases plus assumed General Wage Increases of 3.0% per year.
Cost-of-living adjustments <sup>2</sup>	1.5% per annum for Auto COLA. 2.5% per annum for Escalation.	1.5% per annum for Auto COLA. 2.5% per annum for Escalation.	1.5% per annum for Auto COLA. 2.5% per annum for Escalation.	1.5% per annum for Auto COLA. 2.5% per annum for Escalation.	1.5% per annum for Auto COLA. 2.5% per annum for Escalation.

<sup>2</sup> Developed using a long-term Consumer Price Inflation assumption of 2.5% per year.

<sup>3</sup> As of June 30, 2019, applies mortality improvement scale MP-2020 published by the Society of Actuaries to post-retirement mortality, active ordinary death mortality rates, and pre-commencement mortality rates for terminated vesteds. Prior to June 30, 2019, MP-2018 was applied to post-retirement mortality. Prior to June 30, 2017, MP-2015 was applied to post-retirement mortality. Prior to June 30, 2014, Scale AA was applied to post-retirement mortality.

See Report of Independent Certified Public Accountants.

## SCHEDULE 2 - CONTINUED

## Teachers' Retirement System of the City of New York

**REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)**  
**QUALIFIED PENSION PLAN**  
**SCHEDULES OF EMPLOYER CONTRIBUTIONS**

Valuation Dates	June 30, 2015	June 30, 2014	June 30, 2013	June 30, 2012	June 30, 2011
<b>Actuarial assumptions:</b>					
Assumed rate of return <sup>2</sup>	7.0% per annum, net of investment expenses.				
Post-retirement mortality <sup>3</sup>	Tables adopted by Retirement Board during Fiscal Year 2016	Tables adopted by Retirement Board during Fiscal Year 2016	Tables adopted by Retirement Board during Fiscal Year 2012	Tables adopted by Retirement Board during Fiscal Year 2012	Tables adopted by Retirement Board during Fiscal Year 2012
Active service: withdrawal, death, disability, service retirement <sup>3</sup>	Tables adopted by Retirement Board during Fiscal Year 2012	Tables adopted by Retirement Board during Fiscal Year 2012	Tables adopted by Retirement Board during Fiscal Year 2012	Tables adopted by Retirement Board during Fiscal Year 2012	Tables adopted by Retirement Board during Fiscal Year 2012
Salary increases <sup>2</sup>	In general, merit and promotion increases plus assumed General Wage Increases of 3.0% per year.	In general, merit and promotion increases plus assumed General Wage Increases of 3.0% per year.	In general, merit and promotion increases plus assumed General Wage Increases of 3.0% per year.	In general, merit and promotion increases plus assumed General Wage Increases of 3.0% per year.	In general, merit and promotion increases plus assumed General Wage Increases of 3.0% per year.
Cost-of-living adjustments <sup>2</sup>	1.5% per annum for Auto COLA. 2.5% per annum for Escalation.	1.5% per annum for Auto COLA. 2.5% per annum for Escalation.	1.5% per annum for Auto COLA. 2.5% per annum for Escalation.	1.5% per annum for Auto COLA. 2.5% per annum for Escalation.	1.5% per annum for Auto COLA. 2.5% per annum for Escalation.

<sup>2</sup> Developed using a long-term Consumer Price Inflation assumption of 2.5% per year.

<sup>3</sup> As of June 30, 2019, applies mortality improvement scale MP-2020 published by the Society of Actuaries to post-retirement mortality, active ordinary death mortality rates, and pre-commencement mortality rates for terminated vesteds. Prior to June 30, 2019, MP-2018 was applied to post-retirement mortality. Prior to June 30, 2017, MP-2015 was applied to post-retirement mortality. Prior to June 30, 2014, Scale AA was applied to post-retirement mortality.

See Report of Independent Certified Public Accountants.

## Teachers' Retirement System of the City of New York

**REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)**  
**QUALIFIED PENSION PLAN**  
**SCHEDULE OF INVESTMENT RETURNS**

The following table displays the annual money-weighted rate of return, net of investment expense, for TRSNYC Pension Fund investments for each of the past nine fiscal years:

<u>Fiscal Year Ended</u>	<u>Money-Weighted Rate of Return</u>
June 30, 2022	(-9.72)%
June 30, 2021	24.80%
June 30, 2020	4.92%
June 30, 2019	7.50%
June 30, 2018	8.14%
June 30, 2017	12.50%
June 30, 2016	1.66%
June 30, 2015	2.81%
June 30, 2014	17.60%

Note: In accordance with paragraph 50 of GASB Statement No. 67, *Financial Reporting for Pension Plans* ("GASB 67"), this schedule should present information for 10 years, if available. The information presented here pertains to periods beginning with the June 30, 2014 fiscal year, the System's adoption year of GASB 67. Additional years will be added until the 10-year requirement is met.

See Report of Independent Certified Public Accountants.

**ADDITIONAL SUPPLEMENTARY INFORMATION**  
**SCHEDULE OF ADMINISTRATIVE EXPENSES**  
**Year Ended June 30, 2022**

SCHEDULE 4

	Total	QPP	TDA
<b>PERSONNEL SERVICES</b>			
Staff Salaries	\$31,521,439	\$24,948,904	\$6,572,535
Social Security	1,881,975	1,489,564	392,411
Insurance (Health)	5,936,713	4,698,849	1,237,864
Welfare Benefit Fund	1,285,152	1,017,185	267,967
TOTAL PERSONNEL SERVICES	40,625,279	32,154,502	8,470,777
<b>PROFESSIONAL SERVICES</b>			
Data Processing Support and Licenses	6,832,372	5,407,754	1,424,618
Temporary and Consultant Staffing	5,584,062	4,419,729	1,164,333
Outside Professional Services	1,102,163	872,351	229,812
TOTAL PROFESSIONAL SERVICES	13,518,597	10,699,834	2,818,763
<b>MODERNIZATION INITIATION</b>			
Consultants and Temporary Costs	7,134,965	5,490,384	1,644,581
IT Vendor Development Costs	3,729,678	2,870,002	859,676
QA Vendor Non-IT Costs	3,416,329	2,628,879	787,450
Equipment Costs	40,516	31,177	9,339
Other Expenses	9,784	7,529	2,255
TOTAL MODERNIZATION INITIATION ***	14,331,272	11,027,971	3,303,301
<b>DOE CLASS ACTION EXPENSE</b>			
Consultants and Temporary Costs	3,339,759	2,777,089	562,670
IT Vendor Development Costs	106,038	88,173	17,865
QA Vendor Non-IT Costs	2,079,479	1,729,137	350,342
Mandated Legislative Enhancements	209,910	174,545	35,365
TOTAL DOE CLASS ACTION EXPENSES	5,735,186	4,768,944	966,242
<b>RENTALS</b>			
Office Space Lease	8,576,080	6,787,882	1,788,198
GASB 87 Lease adjustment	5,341,982	3,491,363	1,850,619
Real Estate Taxes & Operating Expenses	484,928	383,816	101,112
Equipment Leasing	87,671	69,391	18,280
TOTAL RENTALS	14,490,661	10,732,452	3,758,209
<b>COMMUNICATION</b>			
Telephone	413,916	327,610	86,306
Postage	618,626	489,636	128,990
Local Travel Expense *	17,875	14,148	3,727
Non-Local Travel Expense **	41,771	33,061	8,710
TOTAL COMMUNICATION	1,092,188	864,455	227,733
<b>OTHER OPERATING EXPENSES</b>			
Utilities	280,402	221,935	58,467
Supplies and Materials	27,175	21,509	5,666
Maintenance, Repairs, and Services	676,423	535,382	141,041
Office Equipment and Furniture	27,539	21,797	5,742
Storage	50,983	40,351	10,632
Printing	134,788	106,684	28,104
Training Programs	326,170	258,160	68,010
Dues and Subscriptions	46,071	36,465	9,606
TOTAL OTHER OPERATING EXPENSES	1,569,551	1,242,283	327,268
<b>TOTAL ADMINISTRATIVE EXPENSES ***</b>	<b>\$91,362,734</b>	<b>\$71,490,441</b>	<b>\$19,872,293</b>

\* Total TRS Local Travel Expense includes Courier \$12,298, Meals & Refreshments \$4,142, and Conferences \$1,435.

\*\* Total TRS Non-Local Travel Expense includes Hotels & Meals \$18,542, Travel Fare \$7,372, and Conferences \$15,857.

\*\*\* The QPP Fixed Return Fund's administrative expense amounted to \$48,779,817, of which the modernization portion was \$4,011,323 and DOE class action expense was \$2,194,996. The Variable Return Fund's administrative expense amounted to \$34,044,131, of which the modernization portions attributable to the QPP and TDA were \$7,016,648 and \$3,303,301, respectively, and the DOE class action expense portions attributable to the QPP and TDA were \$2,573,948 and \$966,242, respectively. Administrative expenses offset by loan service charge revenues amounted to \$3,196,804; portion attributable to the QPP and TDA were \$1,850,017 and \$1,346,787, respectively. In addition, total administrative expenses include the \$5,341,982 GASB 87 lease adjustment.

The schedule shows total expenses paid by TRS. Other administrative expenses of \$ 12,821,092 were paid on TRS' behalf by other City agencies under Regulation 85 of the New York State Superintendent of Insurance Regulations.

See Note 8 of the Financial Statements for Administrative Expenses.

See Report of Independent Certified Public Accountants.

**ADDITIONAL SUPPLEMENTARY INFORMATION**  
**SCHEDULE OF INVESTMENT EXPENSES AND SERVICES (QPP & TDA)**  
**Year Ended June 30, 2022**

INVESTMENT CATEGORY	ASSETS UNDER MANAGEMENT	INVESTMENT EXPENSES AND SERVICES
Pension Fund	\$90,770,686,147	\$521,175,675
Diversified Equity Fund	14,538,692,794	36,369,105
Balanced Fund	539,349,275	1,101
International Equity Fund	202,228,311	972,250
Sustainable Equity Fund	449,313,231	1,779,975
U.S. Equity Index Fund	89,677,227	656
International Equity Index Fund	15,033,984	264
 <b>OTHER INVESTMENT SERVICES</b>		
NYC Office of Comptroller (Fixed-Return Fund)		6,156,641
Consultant		3,163,650
Legal		953,496
Other Services		1,307,881
 <b>Provision for Expense Reduction</b>		(12,403,368)
	<hr/> <b>\$106,604,980,969*</b>	<hr/> <b>\$559,477,326</b>

\* Excludes \$1,357,902,386 in securities lending

See Report of Independent Certified Public Accountants.



## Investment Section

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## REPORT ON INVESTMENT ACTIVITY

The below report on investment activity was prepared by Rocaton Investment Advisors. Fund summaries of the System's Investment Options follow it. After the reports are disclosures of sector returns, asset class allocation, investment management and other service fees, and bond and equity holdings. The disclosures supplement the investment information of the Financial Section

**Prepared by Rocaton Investment Advisors, LLC,**

**Investment Consultant to the Teachers' Retirement System of the City of New York**

As of June 30, 2022, TRS offered seven investment program options to its membership: the Fixed Return Fund, the Diversified Equity Fund, the Balanced Fund, the International Equity Fund, the Sustainable Equity Fund, the U.S. Equity Index Fund, and the International Equity Index Fund. State Street and JP Morgan Chase are the custodians of the assets of these investment programs. The custodian calculates the return information using time-weighted compound return. The structure of each of these programs differs depending upon its investment objective. These seven programs and their objectives are described below.

The pooled New York City Pension Fund includes a) all funds that Tier I/II members invested in the Fixed Return Fund and b) Employer Contribution assets for Tier I/II members; c) all Tier III/IV/VI QPP funds; and d) all TDA funds invested in the Fixed Return Fund. The Fixed Return Fund currently provides Tier I/II participants with an 8.25% return. Tier III/IV/VI members are credited 5% in their QPP accounts. UFT members and non-UFT members with TDA funds invested in the Fixed Return Fund are provided with 7.0% and 8.25% returns, respectively. The combined QPP and TDA Fixed Return Fund assets totaled \$90.8 billion as of June 30, 2022. The overall Pension Fund had a net-of-fee return of 9.77% for the fiscal year ending June 30, 2022. As of June 30, 2022, the Fund had 26% U.S. equity investments, 17% non-U.S. equity investments, 20% in alternative investments, and 37% fixed income investments and short-term investments. The Fund's long-term asset allocation policy is based on its long-term investment horizon of more than 20 years. The investment structure has a significant emphasis on risk control. For example, as of June 30, 2022, approximately 91% of U.S. equity assets were invested in indexed or risk-controlled strategies. This emphasis on indexed and risk-controlled strategies also enables the program to control costs more effectively. The Fund's fixed income holdings are primarily high-quality U.S. securities with smaller allocations to sectors such as enhanced yield.

The Diversified Equity Fund's objective is to achieve a rate of return comparable to the broad equity market. As of June 30, 2022, the Diversified Equity Fund, including both QPP and TDA assets, had \$14.5 billion in assets and had a net of fee return of -17.12% for the fiscal year ending June 30, 2022. As of June 30, 2022, this portfolio's target structure is a mixture of U.S. equities (77%) and non-U.S. equities (23%). The diversification of this portfolio beyond U.S. equities is intended to broaden diversification. Again, risk control and cost-effectiveness are a very important focus of the investment structure. For example, as of June 30, 2022, approximately 72% of the assets within the Diversified Equity Fund were invested in indexed strategies.

The Balanced Fund's objective is to seek current income and some capital appreciation. The Balanced Fund invests in both stocks and bonds and targets a conservative mix of approximately 70% bonds and 30% stocks. The Fund's bond allocation is passively managed and includes allocations to short-term U.S. Treasuries, Agencies, short-term investment-grade Corporate Bonds, and some foreign securities. The Fund's stock allocation is passively managed and is composed of U.S. and non-U.S. companies located in developed and emerging markets, traded on a variety of stock exchanges, and denominated in a variety of currencies around the world. As of June 30, 2022, the combined QPP and TDA Balanced Funds' assets totaled \$539.3 million, and the Fund earned a net-of-fee return of -9.05% for the fiscal year ending June 30, 2022.

The International Equity Fund invests primarily in the stocks of non-U.S. companies located in both developed and emerging markets. The objective of this fund is to provide a return comparable to the return of the non-U.S. developed equity markets over a full market cycle. As of June 30, 2022, the combined QPP and TDA International Equity Funds' assets totaled \$202.2 million. For the fiscal year ending June 30, 2022, the International Equity Fund returned -20.73%, net of fees.

The Sustainable Equity Fund invests primarily in stocks of large- and mid-cap U.S. and non-U.S. companies that, in the manager's view, effectively implement sustainable business strategies to drive their prospects for future earnings growth. The objective of this fund is to provide a rate of return comparable to the broad equity market while focusing on sustainability characteristics including environmental, social, and governance (ESG) factors. As of June 30, 2022, the combined QPP and TDA Sustainable Equity Funds' assets totaled \$449.3 million. For the fiscal year ending June 30, 2022, the Sustainable Equity Fund returned -18.81%, net of fees.

The U.S. Equity Index Fund invests primarily in stocks of large-, mid-, and small-cap companies in the U.S. The objective of

## TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK

this fund is to closely track the returns and characteristics of the Dow Jones U.S. Total Stock Market Index. As of June 30, 2022, the combined QPP and TDA U.S. Equity Index Funds' assets totaled \$89.7 million. For the fiscal year ending June 30, 2022, the U.S. Equity Index returned -13.03%, net of fees.

The International Equity Index Fund invests primarily in stocks of large-, mid-, and small-cap companies located in both developed and emerging markets. The objective of this fund is to closely track the returns and characteristics of the MSCI ACWI ex U.S. IMI Net Index. As of June 30, 2022, the combined QPP and TDA International Equity Index Funds' assets totaled \$15.0 million. For the fiscal year ending June 30, 2022, the International Equity Index returned -18.28%, net of fees.

The investment strategies of these investment managers are monitored periodically for consistency with TRS' overall investment objectives.

### **ECONOMIC REVIEW**

Market volatility was especially elevated during the second half of the fiscal year ending June 30, 2022, as numerous threats to economic growth continued to cloud the macroeconomic outlook, driven by sustained inflationary pressure, hawkish central banks, China's "zero-covid" policy, and the conflict in Ukraine. Both global equity and fixed income markets posted notable declines.

The Bloomberg Aggregate posted sharp declines as higher-than-expected inflation continued to weigh negatively on fixed income markets. The index returned -10.29% during the one-year period ending June 30, 2022.

Negative consumer sentiment and the deteriorating growth-inflation outlook continued to weigh on equity markets. The S&P 500 entered bear market territory during the fiscal year, returning -10.62% for the one-year period ending June 30, 2022. The broad U.S. equity market, as measured by the Russell 3000 Index, returned -13.87% over the same one-year period.

Outside of the U.S., developed international markets were also negative, with the MSCI EAFE Index returning -17.33% and Emerging Markets equities following the trend, with the MSCI EM Index returning -25.00% during the one-year period ending June 30, 2022.

### **U.S. MARKETS REVIEW**

All major domestic equity indices delivered negative returns across all styles and sectors during the one-year period ending June 30, 2022. The S&P 500 Index, the broad measure of the large-cap U.S. equity market, was down -10.62% for the one-year period ending June 30, 2022.

The Russell 1000 Growth Index – comprised of large- and mid-capitalization U.S. equities that exhibit growth characteristics – fell by -18.77%, while its counterpart, the Russell 1000 Value Index, fared better, returning a loss of -6.82% during the one-year period ending June 30, 2022.

The broader Russell 2000 index – comprised of small-capitalization U.S. equities that exhibit growth characteristics – was down -33.43%, while its counterpart, the Russell 2000 Value Index, fared better, returning -16.28% during the one-year period ending June 30, 2022.

The Russell 1000 Index (top 1000 companies by market capitalization in the U.S.) was down -13.04%, while the Russell 2000 Index (comprised of 2,000 small-cap companies) was down -25.20% for the one-year period ending June 30, 2022.

For the year ending June 30, 2022, the Bloomberg U.S. Aggregate Bond Index, a broad index of U.S. investment grade bonds, returned -10.29%.

### **INTERNATIONAL MARKETS REVIEW**

The return for the MSCI EAFE Index, a broad measure of non-U.S. developed equity markets, was down -17.33% in U.S. dollar terms for the one-year period ending June 30, 2022.

Similarly, other non-U.S. developed equity market regions also posted negative returns across the board: MSCI Europe ex-U.K. returned -20.68%, MSCI Japan returned -19.64%, MSCI Pacific ex-Japan returned -14.77%, and MSCI U.K. returned -3.98%. International small-cap stocks underperformed the broader international large- and mid-cap companies for the 12-month period ending June 30, 2022, with the MSCI EAFE Small Cap Index's return of -23.64%.

The MSCI Emerging Markets Index returned -25.00% for the one-year period ending June 30, 2022. All of the performance information regarding non-U.S. markets is provided from the perspective of U.S.-based investors and, as such, were translated at fiscal year-end and reviewed as U.S. dollar denominations.

### ***Rocaton Investment Advisors, LLC***

20 Glover Avenue  
Norwalk, Connecticut 06850

*Performance information for MSCI non-U.S. equity indices represents Total Return Net Dividends in U.S. Dollar Terms.*

## INVESTMENT OPTIONS

Below is a depiction of the investment programs in the QPP and the TDA Program available to members. The programs' portfolios are structured differently to allow members to diversify their investments. Please see pages 93-97 for detailed descriptions of the investment programs.

PENSION FUND	DIVERSIFIED EQUITY FUND	BALANCED FUND	
(Member Contributions, Pension Reserve Funds & ITHP Contributions)	(Member Contributions & ITHP Contributions)	(Member Contributions & ITHP Contributions)	
Tiers I/II QPP funds in the Fixed Return Fund	Tiers I/II QPP funds in the Diversified Equity Fund	Tiers I/II QPP funds in the Balanced Fund	
+ All Tiers III/IV/VI QPP Funds	+ All Tiers' TDA funds in the Diversified Equity Fund	+ All Tiers' TDA funds in the Balanced Fund	
INTERNATIONAL EQUITY FUND	SUSTAINABLE EQUITY FUND	U.S. EQUITY INDEX FUND	INTERNATIONAL EQUITY INDEX FUND
(Member Contributions & ITHP Contributions)	(Member Contributions & ITHP Contributions)	(Member Contributions & ITHP Contributions)	(Member Contributions & ITHP Contributions)
Tiers I/II QPP funds in the International Equity Fund	Tiers I/II QPP funds in the Sustainable Equity Fund	Tiers I/II QPP funds in the U.S. Equity Index Fund	Tiers I/II QPP funds in the International Equity Index Fund
+ All Tiers' TDA funds in the International Equity Fund	+ All Tiers' TDA funds in the Sustainable Equity Fund	+ All Tiers' TDA funds in the U.S. Equity Index Fund	+ All Tiers' TDA funds in the International Equity Index Fund

Note: Members' QPP accounts receive additional contributions from their employer: "Pension Reserve" funds, which are invested in the Pension Fund, are provided to all members on a statutory basis consistent with generally accepted actuarial principles; actuarial variations are performed annually as of June 30. "Increased-Take-Home Pay" (ITHP) funds, provided by the City of New York to Tier I and Tier II members only, are invested according to member designation in any combination of the seven investment programs.

The table below compares accumulations as of June 30, 2022, based on assumed contributions of \$100.00 per month into each of the Fixed Return, Diversified Equity, Balanced, International Equity, Sustainable Equity, U.S. Equity Index, and International Equity Index Funds.

**10-YEAR COMPARISON OF ACCUMULATIONS  
IN TRS' INVESTMENT PROGRAMS**  
*As of June 30, 2022*

MONTHS OF PARTICIPATION	12	24	36	48	60	72	84	96	108	120
Fixed Return Fund (TDA/UFT) <sup>1</sup>	\$1,239	\$2,564	\$3,982	\$5,499	\$7,122	\$8,859	\$10,718	\$12,707	\$14,835	\$17,112
Fixed Return Fund (All others) <sup>1</sup>	\$1,245	\$2,594	\$4,053	\$5,633	\$7,343	\$9,194	\$11,198	\$13,367	\$15,715	\$18,257
Diversified Equity Fund <sup>2</sup>	\$1,001	\$2,195	\$3,654	\$5,201	\$6,827	\$8,741	\$10,864	12,970	\$15,358	\$18,280
Balanced Fund <sup>3</sup>	\$1,107	\$2,262	\$3,522	\$4,851	N/A	N/A	N/A	N/A	N/A	N/A
International Equity Fund <sup>4</sup>	\$997	\$2,107	\$3,415	\$4,751	\$6,044	\$7,600	\$9,270	\$10,847	\$12,485	\$14,419
Sustainable Equity Fund <sup>5</sup>	\$954	\$2,125	\$3,721	\$5,454	\$7,295	\$9,425	\$11,808	\$14,206	\$16,945	\$20,427
U.S. Equity Index Fund <sup>6</sup>	\$1,025	\$2,292	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
International Equity Index Fund <sup>7</sup>	\$1,026	\$2,167	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

<sup>1</sup> Fixed Return Fund

QPP: Tiers I/II members are credited with 8.25% annually on QPP investments in the Fixed Return Fund; this rate has been in effect since July 1, 1988.

TDA: Members who are represented by the United Federation of Teachers (UFT) are credited with 7% annually on TDA investments. This rate has been in effect since December 11, 2009; the previous rate was 8.25%. Members who are not represented by the UFT are credited with 8.25% annually on TDA investments in the Fund; this rate has been in effect since July 1, 1988. The numbers in the chart represent the accumulation for a UFT member.

<sup>2</sup> Based on July 2022 unit value of \$106.266

<sup>3</sup> Based on July 2022 unit value of \$15.368

<sup>4</sup> Based on July 2022 unit value of \$10.121

<sup>5</sup> Based on July 2022 unit value of \$21.882

<sup>6</sup> Based on July 2022 unit value of \$12.800

<sup>7</sup> Based on July 2022 unit value of \$10.478

## PENSION FUND Fund Summary Fiscal Year 2022

**Return: -9.77 %**

**Total Investments: \$90.771 Billion**

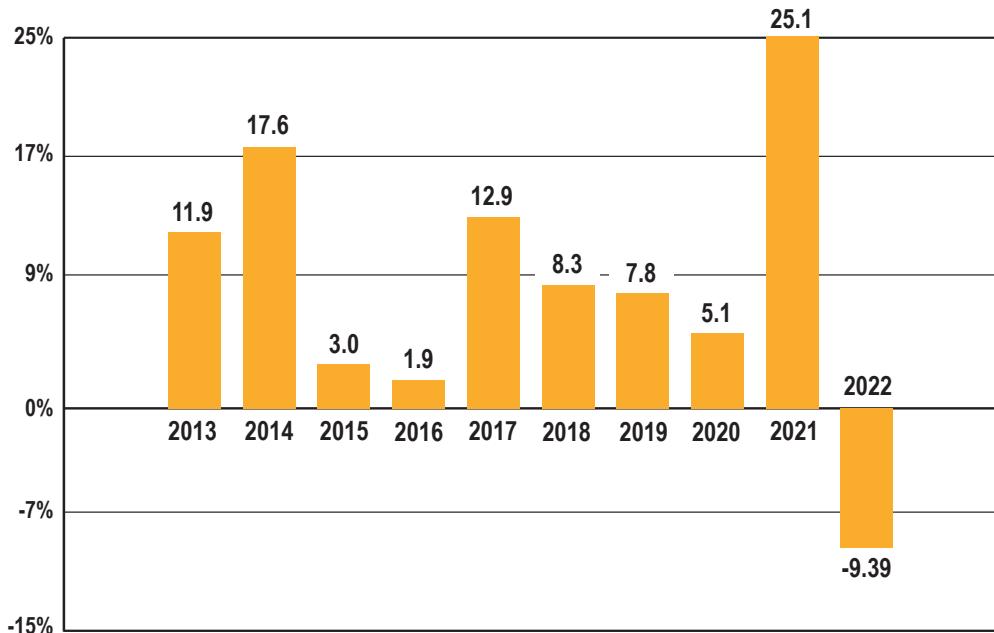
During Fiscal Year 2022, the Pension Fund's portfolio, consisting primarily of equities and fixed-income investments, yielded a net return of -9.77% and a gross return of -9.39%. The -9.39% gross return was a decrease from the 25.13% return for Fiscal Year 2021.

The Pension Fund includes a) all funds that Tier I/II members invested in the Fixed Return Fund; b) Employer Contribution assets for Tier I/II members; c) all Tier III/IV/VI Qualified Pension Plan (QPP) funds; and d) all Tax-Deferred Annuity (TDA) Program funds invested in the Fixed Return Fund. The Fixed Return Fund provides

an annual rate of return that is set by the New York State Legislature in accordance with applicable laws. The combined QPP and TDA Fixed Return Fund assets totaled \$90.771 billion as of June 30, 2022.

The Comptroller of the City of New York invests the Pension Fund's holdings in a diversified portfolio, as authorized by the Teachers' Retirement Board. This portfolio consists of U.S. and international equities and fixed-income instruments, with smaller allocations to private equity and real estate investments.

### 2013-2022 PENSION FUND ANNUAL RATE OF RETURN\*



\* Reflects Gross Returns (Annualized Net Return for Pension Fund available beginning Fiscal Year 2015)

**DIVERSIFIED EQUITY FUND**  
**Fund Summary**  
**Fiscal Year 2022**

**Return: -17.12%**

**Total Investments: \$14.539 Billion**

For the 12-month period ending June 30, 2022, the Global Market Composite Benchmark, which represents a passive implementation of the underlying U.S. and Non-U.S. equity market opportunity set of the Diversified Equity Fund, returned -14.99%. As of January 1, 2022, the Global Market Composite Benchmark is comprised of 77% Russell 3000 Index and 23% MSCI ACWI ex-US IMI Index and includes no fees. Between July 1, 2021 and January 1, 2022, the Global Market Composite Benchmark was comprised of 80% Russell 3000 Index and 20% MSCI ACWI ex-US IMI Index. Prior to July 2021, the Global Market Composite Benchmark performance history reflects the Russell 3000 Index. For the same 12-month period ending June 30, 2022, the Diversified Equity Fund returned -17.12%, after fees. The Fund invests in a diversified blend of investment strategies that historically have made the Diversified Equity Fund less volatile over long time periods than the overall U.S. equity market. The Hybrid Benchmark, which includes no fees, is constructed based upon a passive reflection of the Diversified Equity Fund's target asset allocation among domestic stocks and international equities. As of June 30, 2022, the Hybrid Benchmark was 65% Russell 3000 Index, 23% International Composite Benchmark and 12% Active US Equity Composite benchmark. Over the 12-month period ending June 30, 2022, the Diversified Equity Fund underperformed the Hybrid Benchmark's return of -15.85%.

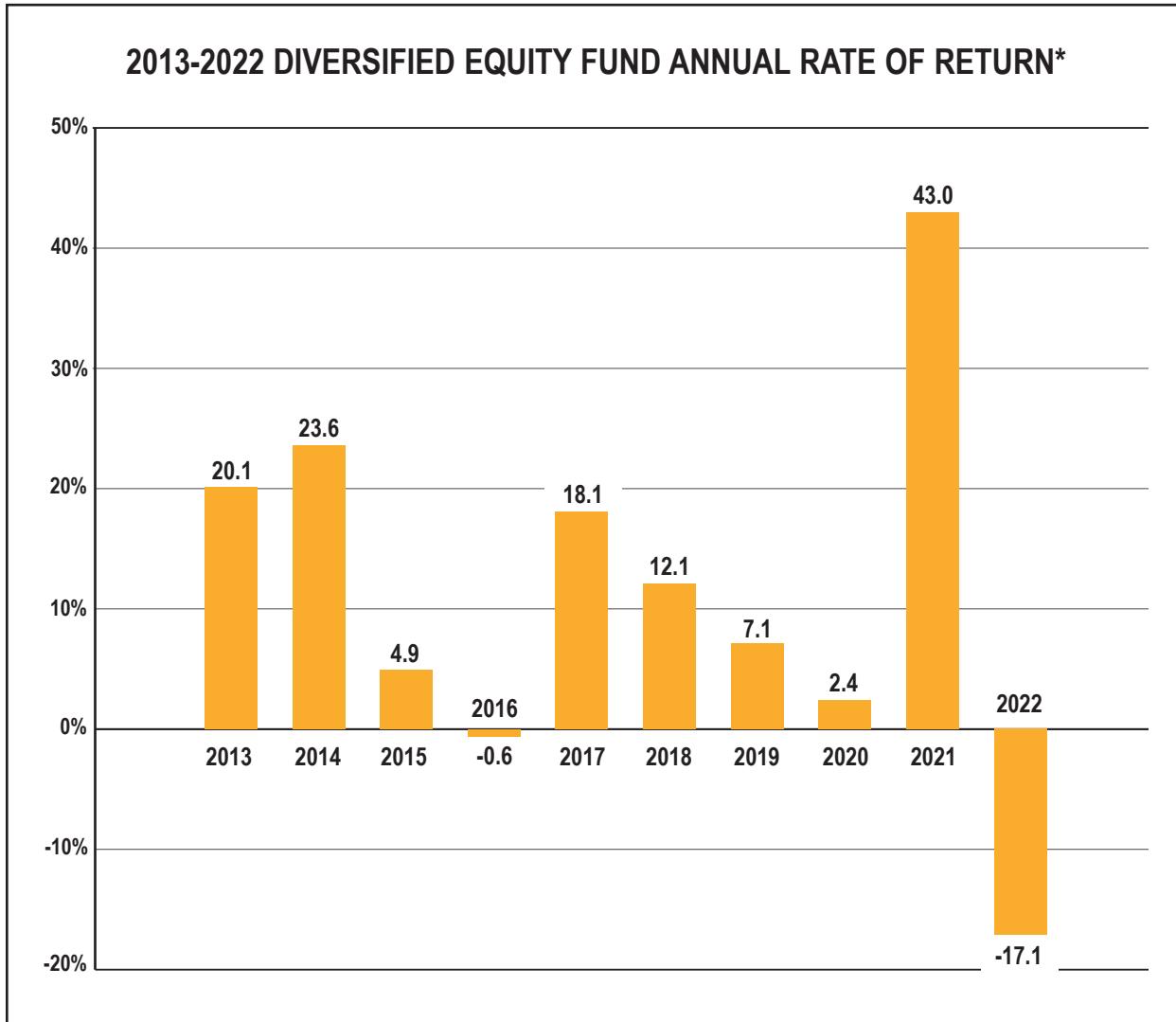
For the three-year period ending June 30, 2022, the Diversified Equity Fund returned 6.68% on an annualized basis after fees, trailing the Global Market Composite Benchmark's annualized return of 9.29% and the Hybrid Benchmark's annualized returns of 7.62% over the same period. For the five-year period ending June 30, 2022, the Diversified Equity Fund returned 7.83%, annualized after fees, behind the Global Market Composite

Benchmark's annualized return of 10.31% and the Hybrid Benchmark's annualized returns of 8.61%.

As of June 30, 2022, approximately 77% of the Diversified Equity Fund's portfolio was invested in the U.S. common stock market. The Diversified Equity Fund's portfolio also contained approximately 23% in international stocks as of the fiscal year-end. The international stock allocations contribute to portfolio diversification.

The Diversified Equity Fund utilizes several different investment strategies managed by professional money management firms. These strategies are classified into the component sectors described here:

- The Passive Core (or index) sector is comprised of one index mandate.
- The Active Domestic Equity sector is comprised of strategies focused on particular market capitalization ranges and investment styles.
- The International Equity sector is comprised of strategies focused on particular market capitalization ranges and investment styles across developed and emerging markets.



\* After expenses

**BALANCED FUND**

**Fund Summary**

**Fiscal Year 2022**

**Return: -9.05%**

**Total Investments: \$539.349 Million**

The Balanced Fund has targets of 70% U.S. short-term fixed income and 30% passive world equity. The fund aims to passively track its benchmark, which is 70% Bloomberg Barclays U.S. Govt/Credit 1-5 Year Float Adjusted Index and 30% FTSE Global All Cap Index. For the one-year period ending June 30, 2022,

the Fund returned -9.05%, underperforming the Balanced Fund Composite Benchmark return of -8.33%. For the three-year period ending June 30, 2022, the Balanced Fund returned 2.08% versus its benchmark return of 2.34%.

**INTERNATIONAL EQUITY FUND**

**Fund Summary**

**Fiscal Year 2022**

**Return: -20.73%**

**Total Investments: \$202.229 Million**

As of June 30, 2022, the International Equity Fund was primarily comprised of a mix of active and passive management, implemented by 1 passive and 10 active non-U.S. equity managers, which invest primarily in the stocks of non-U.S. companies located in developed and emerging markets. For the one-year period ending June 30, 2022, the International Equity Fund returned -20.73% after fees, underperforming the International Composite Benchmark, which

returned -20.17%. For the three-year period ending June 30, 2022, the International Equity Fund returned 1.91%, outperforming the benchmark return of 1.27%. Over the longer five-year period ending June 30, 2022, the International Equity Fund has returned 3.02%, outperforming the benchmark return of 2.44%. The total return of this option reflects performance of the underlying managers as well as the impact of cash flows into and out of the fund.

**SUSTAINABLE EQUITY FUND****Fund Summary****Fiscal Year 2022****Return: -18.81%****Total Investments: \$449.313 Million**

The Sustainable Equity Fund invests in the common stock of large- and mid-cap U.S. companies that, in the manager's view, effectively implement sustainable business strategies to drive their prospects for future earnings growth. For the one-year period ending June 30, 2022, the Sustainable Equity Fund returned -18.81% after fees, versus the Sustainable Fund Composite Benchmark's return of -18.77%. The Sustainable Fund Composite Benchmark is comprised of the S&P 500 Index through September 30, 2019, and the Russell 1000 Growth Index thereafter.

For the three-year period ending June 30, 2022, the Sustainable Equity Fund returned 11.81%, underperforming the Sustainable Fund Composite Benchmark return of 12.66% for the same period. Over the longer five-year period ending June 30, 2022, the Sustainable Equity Fund has also trailed the benchmark, returning 10.30% against the benchmark return of 12.55%. The total return of this option reflects performance of the underlying manager as well as the impact of cash flows into and out of the fund.

**U.S. EQUITY INDEX FUND****Fund Summary****Fiscal Year 2022****Return: -13.03%****Total Investments: \$89.677 Million**

The U.S. Equity Index Fund was added to the Passport Funds in January 2020. The fund tracks the Dow Jones U.S. Total Stock Market Index, which represents the broad U.S. equity market excluding the smallest and least liquid stocks. For the one-year period ending June 30, 2022, the U.S. Equity Index

Fund returned -13.03%, versus the benchmark return of -14.24% for the same time period. The total return of this option reflects performance of the underlying manager as well as the impact of cash flows into and out of the fund.

**INTERNATIONAL EQUITY INDEX FUND****Fund Summary****Fiscal Year 2022****Return: -18.28%****Total Investments: \$15.034 Million**

The International Equity Index Fund was added to the Passport Funds in January 2020. The objective of the fund is to track the MSCI ACWI ex-US IMI Net Index, which includes both non-U.S. developed and emerging markets. For the one-year period ending June 30, 2022, the International Equity Index Fund

returned -18.28%, versus the index return of -19.86% for the same time period. The total return of this option reflects performance of the underlying manager as well as the impact of cash flows into and out of the fund.

**ANNUALIZED INVESTMENT RESULTS<sup>1</sup>**

As of June 30, 2022

	Current Year 2022	3 Year	Annualized 5 Year	10 Year
<b>TRS Pension Fund<sup>2</sup></b>	-9.39%	6.02%	6.82%	8.06%
Benchmark: Policy Index <sup>3</sup>	-9.54%	5.67%	6.53%	7.97%
<b>TRS Diversified Equity Fund</b>	-17.12%	6.68%	7.83%	10.28%
Hybrid Benchmark <sup>4</sup>	-15.85%	7.62%	8.61%	10.97%
Global Market Composite Benchmark <sup>5</sup>	-14.99%	9.29%	10.31%	12.43%
<b>TRS Balanced Fund</b>	-9.05%	2.08%	N/A	N/A
Benchmark: Custom Benchmark <sup>6</sup>	-8.33%	2.34%	3.18%	3.75%
<b>TRS International Equity Fund</b>	-20.73%	1.91%	3.02%	6.00%
Benchmark: International Equity Composite Benchmark <sup>7</sup>	-20.17%	1.27%	2.44%	6.06%
<b>TRS Sustainable Equity Fund</b>	-18.81%	11.81%	10.30%	12.34%
Benchmark: Sustainable Fund Composite Benchmark <sup>8</sup>	-18.77%	12.66%	12.55%	13.58%
<b>TRS U.S. Equity Index Fund<sup>9</sup></b>	-13.03%	N/A	N/A	N/A
Benchmark: Dow Jones U.S. Total Stock Market Index	-14.24%	9.61%	10.48%	12.47%
<b>TRS International Equity Index Fund<sup>10</sup></b>	-18.28%	N/A	N/A	N/A
Benchmark: MSCI ACWI ex-US IMI Net Index	-19.86%	1.55%	2.50%	5.01%

<sup>1</sup> Performance calculations reflect time-weighted compound returns. Chart reflects TRS Pension Fund's gross returns. Investment results of variable-return funds are net of operational fees (advisory and custody) and administrative expenses.

<sup>2</sup> Average crediting rates for the Fixed Annuity Program for the specified period. These rates are set by the New York State Legislature. QPP: Tier I/II members are credited with 8.25% annually on QPP investments. TDA: Members who are represented by the United Federation of Teachers (UFT) are credited with 7% annually on TDA investments. Members who are not represented by the UFT are credited with 8.25% annually on TDA investments in the Fund.

<sup>3</sup> The "Policy Index" is a custom benchmark representing the weighted average return of the weighted benchmark indexes for each major investment program within the TRS Pension Fund. For the weights of the benchmark indexes, see the MD&A of the Financial Section.

<sup>4</sup> The Hybrid Benchmark is rebalanced monthly to the Fund's target weights of its underlying composites, which are 65% Russell 3000/23% International Composite Benchmark/12% Active US Equity Composite Benchmark.

<sup>5</sup> The Global Market Composite Benchmark is 77% Russell 3000 Index and 23% MSCI ACWI ex-US IMI Index as of January 1, 2022. Prior to July 1, 2021, the performance history reflects the Russell 3000 Index.

<sup>6</sup> The Balanced Fund Composite Benchmark return is composed of 70% Bloomberg Barclays U.S. Government/Credit 1-5 Year Float Adjusted Index and 30% FTSE Global All Cap Index.

<sup>7</sup> The International Equity Composite Benchmark reflects the underlying strategy benchmarks at target and is currently composed of 70% MSCI EAFE/15% MSCI Emerging Markets Index/11% MSCI ACWI ex USA Small Cap Index/4% S&P Developed ex US Small Cap Index. These weights have changed periodically over time with the strategy targets. Prior to January 2022, the weights were 63% MSCI EAFE/22% MSCI Emerging markets Index/11% MSCI.

<sup>8</sup> The Sustainable Fund Composite Benchmark was the S&P 500 Index through September 30, 2019, and the Russell 1000 Growth Index thereafter.

<sup>9</sup> The U.S. Equity Index Fund has existed since January 1, 2020. Performance of the Fund's benchmark is representative of how the Fund would have performed prior to Fund inception; this is because the Fund is passively managed. Any difference between the returns of the Fund and that of its underlying mutual fund is due to the timing of cash flows.

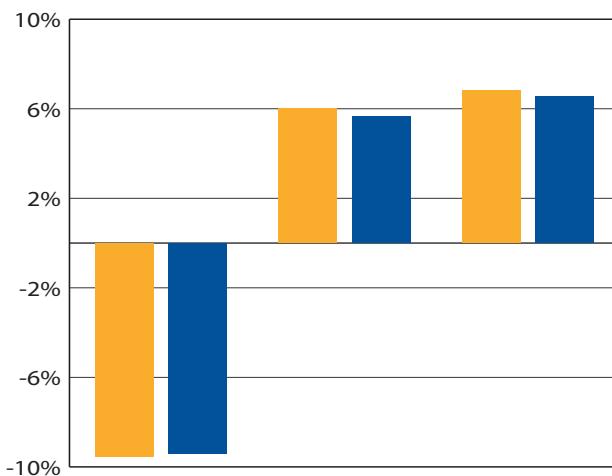
<sup>10</sup> The International Equity Index Fund has existed since January 1, 2020. Performance of the Fund's benchmark is representative of how the Fund would have performed prior to Fund inception; this is because the Fund is passively managed. Any difference between the returns of the Fund and that of its underlying mutual fund is due to the timing of cash flows.

The above information has been gathered from reliable sources, but TRS can only take responsibility for the accuracy of the information concerning its own investment programs.

## ANNUALIZED INVESTMENT RESULTS

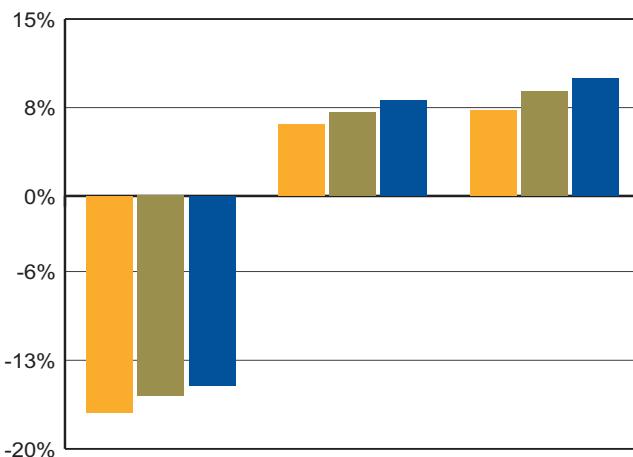
As of June 30, 2022

## TRS Pension Fund\*



\* Reflects TRS Pension Fund's Gross Return.

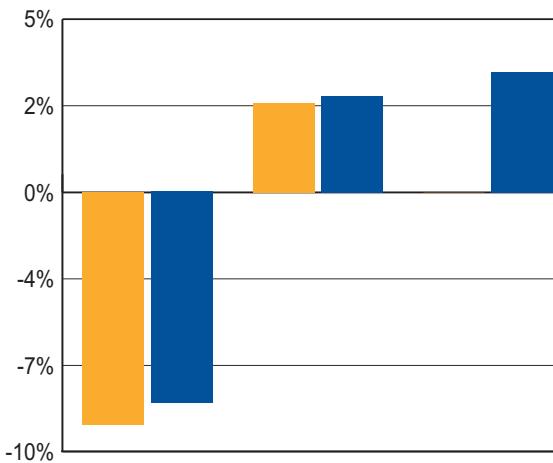
## TRS Diversified Equity Fund



ANNUALIZED INVESTMENT RESULTS (*Continued*)

As of June 30, 2022

## TRS Balanced Fund



NUMBER OF YEARS

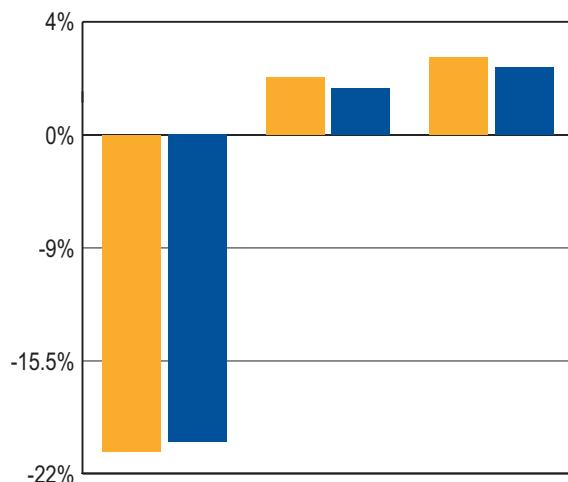
1

3

5

TRS Balanced Fund	-9.05%	2.08%	N/A
Custom Benchmark	-8.33%	2.34%	3.18%

## TRS International Equity Fund



NUMBER OF YEARS

1

3

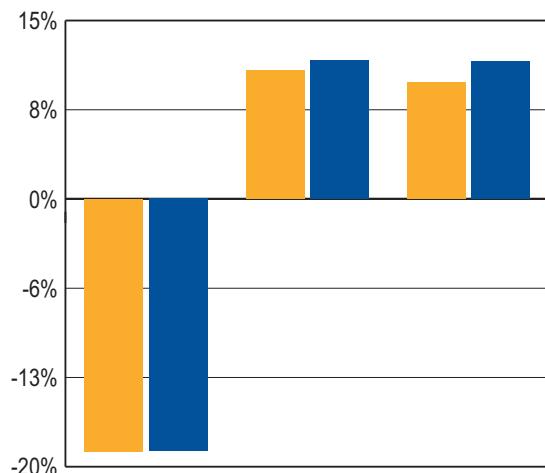
5

TRS International Equity Fund	-20.73%	1.91%	3.02%
Benchmark: International Equity Composite	-20.17%	1.27%	2.44%

## ANNUALIZED INVESTMENT RESULTS

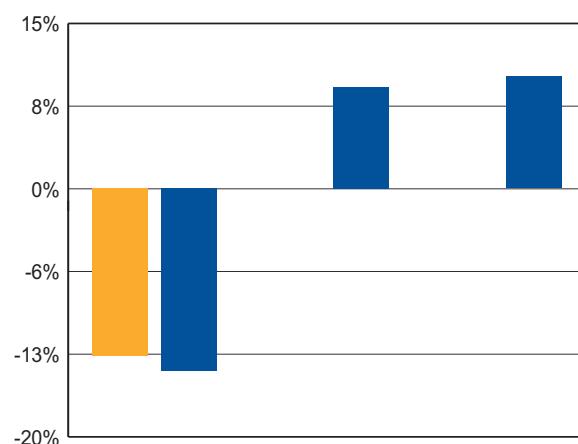
As of June 30, 2022

## TRS Sustainable Equity Fund



NUMBER OF YEARS	1	3	5
TRS Sustainable Equity Fund	-18.81%	11.81%	10.30%
Benchmark: Sustainable Fund Composite	-18.77%	12.66%	12.55%

## TRS U.S. Equity Index Fund

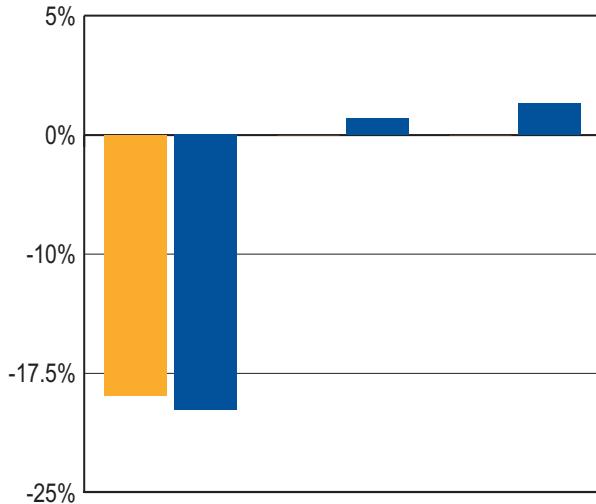


NUMBER OF YEARS	1	3	5
TRS U.S. Equity Index Fund	-13.03%	N/A	N/A
Benchmark: Dow Jones U.S. Total Stock Market Index	-14.24%	9.61%	10.48%

ANNUALIZED INVESTMENT RESULTS

As of June 30, 2022

TRS International Equity Index Fund



NUMBER OF YEARS

1

3

5

TRS International Equity Index Fund	-18.28%	N/A	N/A
Benchmark: MSCI ACWI ex-US IMI Net Index	-19.86%	1.55%	2.50%

## INVESTMENT SUMMARY (QPP & TDA)

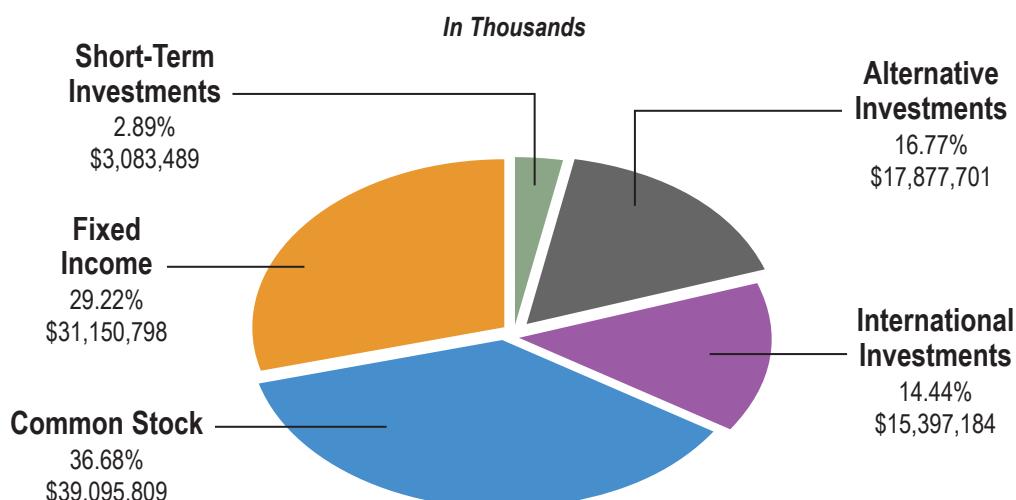
As of June 30, 2022

Type of Investment	Fair Value In Thousands	Percent of Total Fair Value
Fixed Income:		
Government Bonds	\$13,757,296	12.91%
Corporate and Other	\$13,989,550	13.12%
TIPS	\$3,403,952	3.19%
<b>Total Fixed Income</b>	<b>\$31,150,798</b>	<b>29.22%</b>
Common Stock:		
Financial & Utility	\$6,923,564	6.50%
Basic Industry	\$8,201,387	7.69%
Consumer & Service	\$14,178,791	13.30%
Technological	\$6,147,569	5.77%
Miscellaneous	\$3,644,498	3.42%
<b>Total Common Stock</b>	<b>\$39,095,809</b>	<b>36.68%</b>
<b>International Investments</b>	<b>\$15,397,184</b>	<b>14.44%</b>
<b>Alternative/Private-Equity Investments</b>	<b>\$17,877,701</b>	<b>16.77%</b>
<b>Short-Term Investments</b>	<b>\$3,083,489</b>	<b>2.89%</b>
<b>Total Investments</b>	<b>\$106,604,981*</b>	<b>100.00%</b>

\* Excludes \$1,357,902 in securities lending

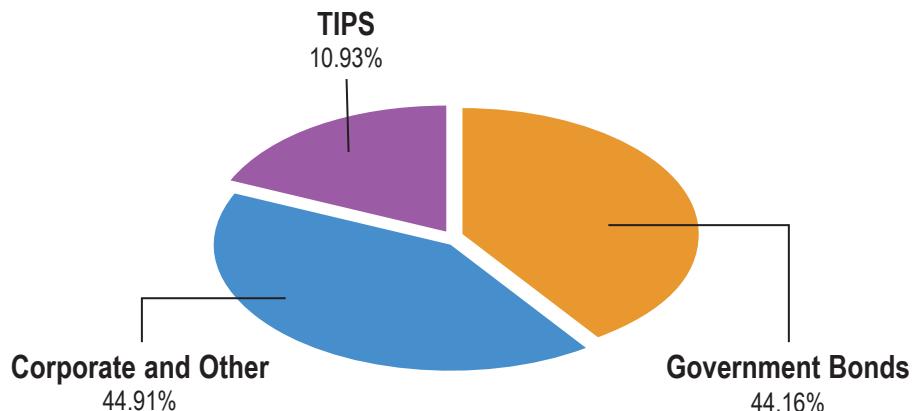
## TOTAL INVESTMENTS ASSET ALLOCATION

As of June 30, 2022



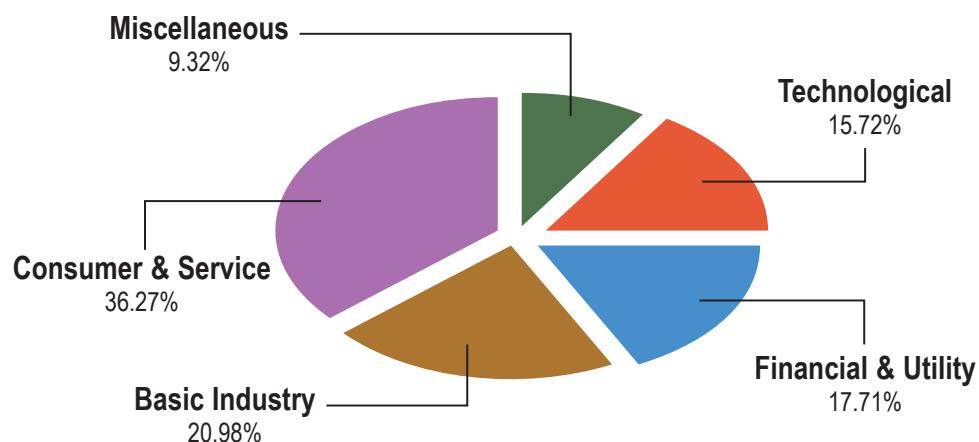
### FIXED-INCOME INVESTMENTS ASSET ALLOCATION

As of June 30, 2022



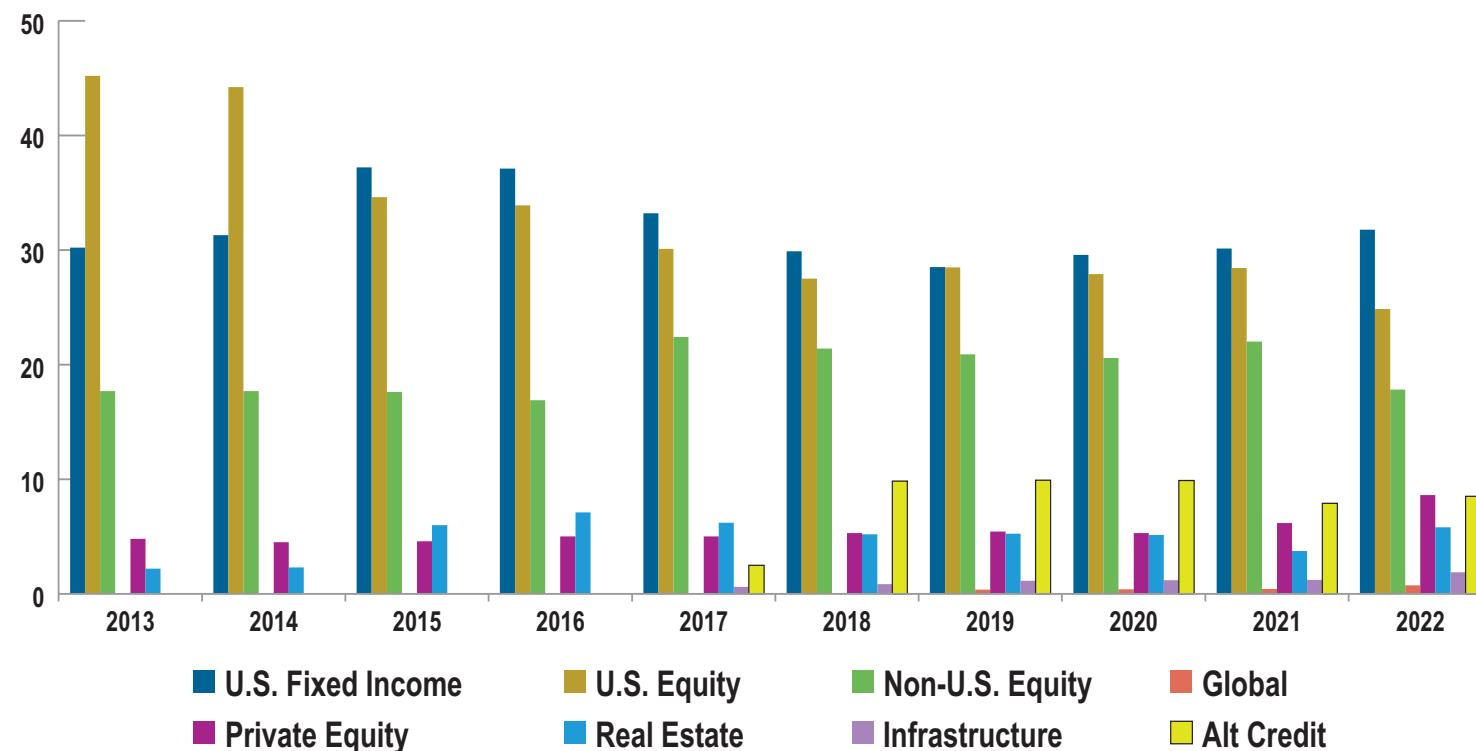
### EQUITY INVESTMENTS ASSET ALLOCATION

As of June 30, 2022



**CHANGES IN ASSET ALLOCATION BY PERCENTAGE  
FOR TRS PENSION FUND OVER 10-YEAR PERIOD**

June 30, 2013 – June 30, 2022



**LIST OF LARGEST BOND ASSETS HELD  
(BY FAIR VALUE)**

As of June 30, 2022

<b>Par Value</b>		<b>Interest Rate</b>	<b>Due Date</b>	<b>Fair Value</b>
\$241,060,000	United States Treasury Notes	0.250%	03/15/24	\$230,166,499
230,535,000	United States Treasury Notes	1.125	02/15/31	198,098,726
219,000,000	United States Treasury Notes	0.375	04/15/24	209,059,590
200,000,000	United States Treasury Notes	0.250	05/15/24	190,086,000
186,000,000	United States Treasury Notes	0.250	11/15/23	179,242,620
184,596,000	United States Treasury Notes	1.375	11/15/31	160,107,495
183,650,000	United States Treasury Notes	1.875	02/15/32	166,375,881
175,115,000	United States Treasury Notes	0.125	02/15/24	167,310,124
175,085,000	United States Treasury Notes	0.125	01/15/24	167,596,615
171,170,100	Govt Nat Mtg Assn TBA 30 YRS	2.500	07/21/52	156,620,642
170,000,000	United States Treasury Notes	1.375	01/31/25	163,047,000
170,000,000	United States Treasury Notes	0.250	06/15/24	161,207,600
167,500,000	United States Treasury Notes	0.750	11/15/24	158,823,500
166,000,000	United States Treasury Notes	0.625	10/15/24	157,278,360
159,000,000	United States Treasury Notes	0.500	03/31/25	148,391,520

**LIST OF LARGEST EQUITY ASSETS HELD  
(BY FAIR VALUE)**

As of June 30, 2022

<b>Company Name</b>	<b>Shares</b>	<b>Fair Value</b>
Apple Inc	13,008,097	\$1,778,467,061
Microsoft Corp	6,664,983	1,711,767,607
Alphabet Inc	539,936	1,178,661,210
Amazon.com Inc	7,921,535	841,346,234
Tesla Inc	728,286	490,442,623
Unitedhealth Group Inc	893,577	458,967,699
Berkshire Hathaway Inc	1,653,735	451,502,845
Johnson & Johnson	2,355,164	418,065,192
Nvidia Corp	2,216,256	335,962,317
Visa Inc	1,702,958	335,295,352
Meta Platforms Inc	2,053,812	331,177,179
Pfizer Inc	5,199,662	272,618,276
JPMorgan Chase & Co	2,401,133	270,391,573
The Procter & Gamble Co	1,864,930	268,158,250
Home Depot Inc	969,080	265,789,639
Mastercard Inc	814,532	256,968,589
Abbvie Inc	1,650,936	252,857,427
Eli Lilly & Co	752,765	244,068,857
Pepsico Inc	1,300,522	216,745,066
Bank of America Corp	6,724,214	209,324,793
Thermo Fisher Scientific Inc	380,046	206,471,634
Merck & Co Inc	2,262,018	206,228,156
The Coca Cola Co	3,148,085	198,046,044
Verizon Communications Inc	3,721,477	188,864,935
Costco Wholesale Corp	376,273	180,340,158

**Note:** The above tables reflect assets of both the Qualified Pension Plan (QPP) and the Tax-Deferred Annuity (TDA) Program. The complete list of assets held by TRS' six investment programs is included in the publication Investment Portfolios.

**SUMMARY OF INVESTMENT MANAGERS AND FEES (QPP & TDA)**  
**YEAR ENDED JUNE 30, 2022**

INVESTMENT MANAGERS		QPP	TOTAL
<b>FIXED ANNUITY PROGRAM</b>			
<b>Fixed Income</b>			
AFL-CIO Housing Investment	Investment Manager	\$996,458	\$ 996,458
Barings	Investment Manager	4,694	4,694
BlackRock	Investment Manager	1,761,231	1,761,231
Brigade Capital Management	Investment Manager	2,400,083	2,400,083
Credit Suisse Asset Management	Investment Manager	1,304	1,304
Eaton Vance Management	Investment Manager	2,357,818	2,357,818
GIA Partners	Investment Manager	211,670	211,670
LM Capital Group	Investment Manager	182,814	182,814
Mackay Shields	Investment Manager	2,234,837	2,234,837
Neuberger Berman Group	Investment Manager	4,147,519	4,147,519
Nomura Corp Research and Asset Mgmt.	Investment Manager	2,081,096	2,081,096
Oaktree Capital Management	Investment Manager	1,709,399	1,709,399
Pacific Investment Management Company	Investment Manager	1,475,575	1,475,575
Pinebridge Investments	Investment Manager	145,745	145,745
Prudential Financial	Investment Manager	75,537	75,537
Pugh Capital Management	Investment Manager	121,063	121,063
RBC Global Asset Management	Investment Manager	280,770	280,770
State Street Global Advisors	Investment Manager	1,628,700	1,628,700
T Rowe Price Associates	Investment Manager	3,678,205	3,678,205
Voya Investment Management	Investment Manager	135,408	135,408
Wellington Management Company*	Investment Manager	1,337,649	1,337,649
<b>Domestic Equity</b>			
Altravue Capital	Investment Manager	199,219	199,219
Ballast Equity Management	Investment Manager	108,427	108,427
BlackRock	Investment Manager	523,200	523,200
Bridge City Capital	Investment Manager	126,980	126,980
Brown Asset Management	Investment Manager	6,399,164	6,399,164
Cooke and Bieler	Investment Manager	526,733	526,733
Dean Capital Management	Investment Manager	256,815	256,815
Earnest Partners	Investment Manager	7,650	7,650
Essex Investment Management Company	Investment Manager	154,460	154,460
Legato Capital Management	Investment Manager	11	11
Lisanti Capital Growth	Investment Manager	173,907	173,907
MFS Institutional Advisors	Investment Manager	90,351	90,351
Morgan Stanley Investment Management	Investment Manager	2,455	2,455
Nicholas Investment Partners	Investment Manager	59,614	59,614
PanAgora Asset Management	Investment Manager	2,299,113	2,299,113
State Street Global Advisors	Investment Manager	25,691	25,691
T Rowe Price Associates	Investment Manager	859,273	859,273
Victory Capital Management	Investment Manager	420,012	420,012
Wellington Management Company	Investment Manager	551,194	551,194
Westfield Capital Management	Investment Manager	288,929	288,929

\* Includes an additional \$513,008 accrual adjustment.

Continued on page 108

**SUMMARY OF INVESTMENT MANAGERS AND FEES (QPP & TDA)**  
**YEAR ENDED JUNE 30, 2022 (Continued)**

INVESTMENT MANAGERS		QPP	TOTAL
<b>International Fund and Emerging Markets</b>			
Acadian Asset Management	Investment Manager	\$6,785,697	\$6,785,697
Algert Global	Investment Manager	563,723	563,723
Applied Research Investments	Investment Manager	132,125	132,125
AQR Capital Management	Investment Manager	3,231,345	3,231,345
ARGA Investment Management	Investment Manager	431,288	431,288
Ativo Capital Management	Investment Manager	362,080	362,080
Aubrey Capital Management	Investment Manager	831,466	831,466
Bailard Institutional	Investment Manager	3,747	3,747
Baillie Gifford	Investment Manager	18,107,511	18,107,511
Bivium Capital Partners	Investment Manager	194	194
Blackcrane Capital	Investment Manager	223,506	223,506
BlackRock	Investment Manager	400,576	400,576
Causeway Capital Management	Investment Manager	5,501,781	5,501,781
Change Global Investments	Investment Manager	246	246
Dimensional Fund Advisors	Investment Manager	6,509,599	6,509,599
Dundas Global Investors	Investment Manager	397,910	397,910
Fidelity Institutional Asset Management	Investment Manager	1,975,645	1,975,645
Fiera Capital Corporation	Investment Manager	2,430,101	2,430,101
Foresight Global Investors	Investment Manager	111,998	111,998
Global Alpha Capital Management	Investment Manager	73,415	73,415
Haven Global Partners	Investment Manager	299,407	299,407
Henry James International Management	Investment Manager	283,582	283,582
Leading Edge Investment Advisors	Investment Manager	11,098	11,098
Martin Investment Management	Investment Manager	103,802	103,802
Morgan Stanley Investment Management	Investment Manager	614,255	614,255
Nordea Investment Management	Investment Manager	81,766	81,766
North of South Capital	Investment Manager	98,144	98,144
Osmosis Investment Management	Investment Manager	112,966	112,966
Parametric Portfolio Associates	Investment Manager	1,056	1,056
Promethos Capital	Investment Manager	336,605	336,605
Radin Capital Partners	Investment Manager	66,579	66,579
RBC Global Asset Management	Investment Manager	1,747,809	1,747,809
Redwood Investments	Investment Manager	457,698	457,698
RVX Asset Management	Investment Manager	102,921	102,921
Sands Capital	Investment Manager	4,479,640	4,479,640
Smith Asset Management Group	Investment Manager	268,315	268,315
Solstein Capital	Investment Manager	15,269	15,269
Sprucegrove Investment Management	Investment Manager	3,487,085	3,487,085
State Street Global Advisors	Investment Manager	434,168	434,168
UBS Asset Management	Investment Manager	3,600,704	3,600,704
Walter Scott & Partners	Investment Manager	5,987,198	5,987,198
Xponance	Investment Manager	2,006	2,006
<b>Alternative Investment</b>			
400 Capital Management	Investment Manager	354,656	354,656
ACON Investments	Investment Manager	839	839
Actis	Investment Manager	5,072,073	5,072,073
Aermont Capital	Investment Manager	1,453,451	1,453,451
Aisling Capital	Investment Manager	7,642	7,642

Continued on page 109

**SUMMARY OF INVESTMENT MANAGERS AND FEES (QPP & TDA)**  
**YEAR ENDED JUNE 30, 2022 (Continued)**

INVESTMENT MANAGERS		QPP	TOTAL
Almanac Realty Investors	Investment Manager	\$1,560,434	\$1,560,434
Altaris Capital Partners	Investment Manager	1,127,153	1,127,153
American Security Partners	Investment Manager	252,023	252,023
American Value Partners	Investment Manager	18,625	18,625
Ampersand Capital	Investment Manager	5,793	5,793
Angelo Gordon	Investment Manager	1,844,942	1,844,942
Apax Partners	Investment Manager	4,528,961	4,528,961
Apollo Global Management	Investment Manager	15,356,092	15,356,092
Ardian	Investment Manager	9,976,446	9,976,446
Ares Management	Investment Manager	12,714,441	12,714,441
Arsenal Capital Partners	Investment Manager	7,470	7,470
Artemis Real Estate Partners	Investment Manager	1,868,641	1,868,641
Avanath Capital	Investment Manager	48,788	48,788
Avista Capital Partners	Investment Manager	26,967	26,967
Axium Infrastructure	Investment Manager	761,139	761,139
Basalt Infrastructure Partners	Investment Manager	1,079,167	1,079,167
Basis Management Group	Investment Manager	840,981	840,981
BC Partners	Investment Manager	7,574,103	7,574,103
Bentall GreenOak	Investment Manager	497,436	497,436
Black Diamond Capital Partners	Investment Manager	21,944	21,944
BlackRock	Investment Manager	2,644,986	2,644,986
Blue Wolf Capital	Investment Manager	20,465	20,465
Bridgepoint Capital	Investment Manager	2,713,190	2,713,190
Brightwood Capital Advisers	Investment Manager	2,188,150	2,188,150
Brookfield Asset Management	Investment Manager	19,535,642	19,535,642
Canyon Johnson	Investment Manager	912	912
Capri Capital Partners	Investment Manager	528,527	528,527
Carlyle Group	Investment Manager	23,670,615	23,670,615
Catterton Partners	Investment Manager	39,823	39,823
Centerbridge Partners	Investment Manager	6,186,518	6,186,518
Cerberus Capital Management	Investment Manager	1,752,234	1,752,234
City Investment Fund Associates	Investment Manager	825	825
Clarion Partners	Investment Manager	13,380,034	13,380,034
Clearlake Capital Group	Investment Manager	3,104,485	3,104,485
Constellation Growth Capital	Investment Manager	63,969	63,969
Contrarian Capital Management	Investment Manager	1,050,256	1,050,256
Cortland Partners	Investment Manager	1,201,148	1,201,148
Crestview Partners	Investment Manager	3,041,937	3,041,937
CVC Capital Partners	Investment Manager	24,494,154	24,494,154
DivcoWest Real Estate Investments	Investment Manager	942,015	942,015
DRA Advisors	Investment Manager	2,325,825	2,325,825
EIG Credit Management	Investment Manager	426,312	426,312
Elmtree Funds	Investment Manager	1,855,344	1,855,344
EQT Partners	Investment Manager	10,347,842	10,347,842
Exeter Property Group	Investment Manager	9,302,183	9,302,183
Fairview Capital Partners	Investment Manager	353,100	353,100
Fortress Investment Group	Investment Manager	3,439,768	3,439,768
Freeman Spogli	Investment Manager	1,731	1,731
FTV Capital	Investment Manager	3,982,382	3,982,382
GCM Grosvenor	Investment Manager	2,754,438	2,754,438
GF Capital Management	Investment Manager	20,069	20,069

Continued on page 110

**SUMMARY OF INVESTMENT MANAGERS AND FEES (QPP & TDA)**  
**YEAR ENDED JUNE 30, 2022 (Continued)**

INVESTMENT MANAGERS		QPP	TOTAL
Global Infrastructure Management	Investment Manager	\$3,338,943	\$3,338,943
Goldentree Asset Management	Investment Manager	1,367,198	1,367,198
Grain Management	Investment Manager	850,850	850,850
Grey Mountain Partners	Investment Manager	695,819	695,819
GSO Capital Partners	Investment Manager	8,560	8,560
H/2 Capital Partners	Investment Manager	1,942,034	1,942,034
Halyard Capital	Investment Manager	34,637	34,637
HarbourVest Partners	Investment Manager	269,006	269,006
Harrison Street Real Estate Capital	Investment Manager	988,992	988,992
Heartwood Partners	Investment Manager	603,677	603,677
Heitman Capital Management	Investment Manager	1,249,329	1,249,329
Hg Capital	Investment Manager	1,144,436	1,144,436
ICG Strategic Equity	Investment Manager	1,316,501	1,316,501
ICV Partners	Investment Manager	1,993,534	1,993,534
Incline Equity Partners	Investment Manager	255,587	255,587
Industry Funds Management	Investment Manager	3,722,214	3,722,214
Infravia Capital Partners	Investment Manager	246,977	246,977
Insight Partners	Investment Manager	1,333,236	1,333,236
Intermedia	Investment Manager	45	45
Intermediate Capital Group	Investment Manager	1,336,859	1,336,859
Jamestown	Investment Manager	393,763	393,763
JP Morgan Chase Bank	Investment Manager	1,573,481	1,573,481
KKR	Investment Manager	16,050,094	16,050,094
Landmark Partners	Investment Manager	1,727,201	1,727,201
Lasalle Investment Management	Investment Manager	1,202,935	1,202,935
Leeds Equity Partners	Investment Manager	21,679	21,679
Leonard Green & Partners	Investment Manager	18,458,088	18,458,088
Levine Leichtman Capital Partners	Investment Manager	2,446	2,446
Lexington Partners	Investment Manager	2,737,713	2,737,713
Lincolnshire Management	Investment Manager	168,324	168,324
Lindsay Goldberg	Investment Manager	1,790,488	1,790,488
Maranon Capital	Investment Manager	902,172	902,172
Marathon Asset Management Limited	Investment Manager	3,676,469	3,676,469
Mesirow Financial	Investment Manager	509,098	509,098
Metlife	Investment Manager	703,596	703,596
MidOcean Partners	Investment Manager	1,424,773	1,424,773
Mill City Capital	Investment Manager	81,995	81,995
Montreux Equity Partners	Investment Manager	233,575	233,575
Nautic Partners	Investment Manager	2,407	2,407
Neuberger Berman Group	Investment Manager	531,852	531,852
New Mainstream Capital	Investment Manager	497,614	497,614
New Mountain Capital	Investment Manager	3,228,228	3,228,228
NGN	Investment Manager	42,174	42,174
Oak Hill Advisors	Investment Manager	6,276,594	6,276,594
Oaktree Capital Management	Investment Manager	1,089,581	1,089,581
Olympus Growth	Investment Manager	3,136,958	3,136,958
One Rock Capital Partners	Investment Manager	622,513	622,513
Onex Credit Partners	Investment Manager	492,441	492,441
Paladin	Investment Manager	230,408	230,408
Palladium Equity Partners	Investment Manager	651,565	651,565
Patriot Financial Partners	Investment Manager	433,065	433,065

*Continued on page 111*

**SUMMARY OF INVESTMENT MANAGERS AND FEES (QPP & TDA)**  
**YEAR ENDED JUNE 30, 2022 (Continued)**

INVESTMENT MANAGERS		QPP	TOTAL
Pegasus Capital Advisors	Investment Manager	\$376,354	\$376,354
Phoenix Realty Group	Investment Manager	2,426	2,426
Pine Brook Capital Partners	Investment Manager	3,364	3,364
Platinum Equity	Investment Manager	17,913,506	17,913,506
Prologis	Investment Manager	107,637	107,637
Prudential Financial	Investment Manager	2,243,915	2,243,915
Quaker Bioventures	Investment Manager	45,320	45,320
Related Fund Management	Investment Manager	677,009	677,009
Reverence Capital Partners	Investment Manager	935,036	935,036
Rialto Capital Management	Investment Manager	2,710,884	2,710,884
Riverstone Carlyle Global Ener	Investment Manager	25,600	25,600
RLJ Equity Partners	Investment Manager	48,823	48,823
RRE Ventures	Investment Manager	20,874	20,874
RREEF America	Investment Manager	433,665	433,665
SCP Partners	Investment Manager	115,988	115,988
Silverpeak Legacy Partners	Investment Manager	23,636	23,636
Siris Capital Group	Investment Manager	1,870,058	1,870,058
Snow Phipps	Investment Manager	11,451	11,451
Starvest Partners	Investment Manager	134,279	134,279
Stellex Capital Management	Investment Manager	1,960,956	1,960,956
Stockbridge Capital Group	Investment Manager	46,539	46,539
Stone Point Capital	Investment Manager	754,740	754,740
Stonepeak Infrastructure Partners	Investment Manager	2,774,006	2,774,006
Taconic Investment Partners	Investment Manager	37,796	37,796
Terra Firma Investments	Investment Manager	5,688	5,688
The Blackstone Group	Investment Manager	19,320,003	19,320,003
The Hudson Companies	Investment Manager	1,006,120	1,006,120
The Jordan Company	Investment Manager	1,623,394	1,623,394
The Raine Group	Investment Manager	5,381,651	5,381,651
The Vistria Group	Investment Manager	603,889	603,889
The Yucaipa Group	Investment Manager	199,044	199,044
Thoma Bravo	Investment Manager	502,133	502,133
Thomas McNerney & Partners	Investment Manager	79,293	79,293
Thor Equities Group	Investment Manager	4,698	4,698
Tikehau Investment Management	Investment Manager	67,515	67,515
Torchlight Investors	Investment Manager	2,493,811	2,493,811
TPG Capital	Investment Manager	874,270	874,270
Trilantic Capital Partners	Investment Manager	3,177,734	3,177,734
Tristan Capital Partners	Investment Manager	982,190	982,190
UBS Asset Management	Investment Manager	526,394	526,394
USAA Real Estate	Investment Manager	1,152,462	1,152,462
Valor Equity Partners	Investment Manager	2,221,411	2,221,411
Vanbarton Group	Investment Manager	2,689,049	2,689,049
Vista Equity Partners	Investment Manager	22,485,494	22,485,494
Warburg Pincus	Investment Manager	3,195,860	3,195,860
Webster Capital	Investment Manager	123,212	123,212
Welsh Carson Anderson & Stowe	Investment Manager	8,726,483	8,726,483
Westbrook Partners	Investment Manager	3,755,146	3,755,146
NYC Office of Comptroller - BAM	Investment Support	6,156,641	6,156,641
Lone Star**	Fee Refund	(4,079,043)	(4,079,043)

\*\* Lone Star fee refund was due to performance or reallocation holdbacks.

Continued on page 112

**SUMMARY OF INVESTMENT MANAGERS AND FEES (QPP & TDA)**  
**YEAR ENDED JUNE 30, 2022 (Continued)**

INVESTMENT MANAGERS		QPP	TDA	TOTAL
Cox Castle Nicholson	Legal Fees	\$84,397		\$84,397
Day Pitney	Legal Fees	79,125		79,125
Foley & Lardner	Legal Fees	63,051		63,051
Foster Garvey	Legal Fees	106,172		106,172
Morgan Lewis Bockius	Legal Fees	77,946		77,946
Pillsbury Winthrop Shaw Pittman	Legal Fees	234,079		234,079
Reinhart Boerner Van Duren	Legal Fees	166,135		166,135
Seward Kissel	Legal Fees	60,599		60,599
Hamilton Lane Advisors	Consultant Fees	900,000		900,000
MSCI	Consultant Fees	378		378
MSCI Barra	Consultant Fees	256,829		256,829
MSCI ESG Research	Consultant Fees	108,221		108,221
MSCI Investment Property Databank	Consultant Fees	62,626		62,626
Rocaton Investment	Consultant Fees	462,917		462,917
Shareholder Research Services	Consultant Fees	119,917		119,917
Stepstone Group	Consultant Fees	698,956		698,956
The Burgiss Group	Consultant Fees	64,102		64,102
State Street	Custodian Bank	116,303		116,303
<b>DIVERSIFIED EQUITY FUND</b>				
Acadian Asset Management	Investment Manager	367,677	641,783	1,009,460
Advent Capital Management	Investment Manager	378,250	660,238	1,038,488
Amalgamated Bank	Investment Manager	17,860	31,174	49,034
Analytic Investors	Investment Manager	79,688	139,096	218,784
Baillie Gifford	Investment Manager	584,533	1,020,307	1,604,840
BlackRock	Investment Manager	113,180	197,556	310,736
Brown Advisory	Investment Manager	161,168	281,319	442,487
Brown Capital	Investment Manager	741,493	1,294,282	2,035,775
Cardinal	Investment Manager	124,848	217,924	342,772
Diamond Hill Management	Investment Manager	4,158,388	7,258,498	11,416,886
Franklin Templeton	Investment Manager	631,097	1,101,584	1,732,681
Invesco	Investment Manager	215,916	376,883	592,799
Jennison	Investment Manager	171,631	299,582	471,213
Mellon Investments	Investment Manager	135,200	235,993	371,193
MFS Investment Advisors Intl Equity	Investment Manager	461,375	805,334	1,266,709
New South Capital Management	Investment Manager	278,301	485,777	764,078
Pyramis Global	Investment Manager	343,271	599,183	942,454
Sands Capital	Investment Manager	177,521	309,863	487,384
Shapiro Capital Management	Investment Manager	796,526	1,390,342	2,186,868
Sound Shore Management	Investment Manager	301,483	526,240	827,723
Sprucegrove Investment Management	Investment Manager	131,227	229,057	360,284
T Rowe Price Associates	Investment Manager	131,069	228,782	359,851
Walter Scott & Partners	Investment Manager	213,163	372,077	585,240
Wasatch Advisors	Investment Manager	743,076	1,297,047	2,040,123
Wellington Management Company	Investment Manager	420,281	733,603	1,153,884
Westwood Global Investments	Investment Manager	787,315	1,374,264	2,161,579
NYC TRS	Investment Support	365,522	641,309	1,006,831
Groom Law Group	Legal Fees	28,225	50,111	78,336
Principals for Responsible Investment	Consultant Fees	4,008	6,706	10,714

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**SUMMARY OF INVESTMENT MANAGERS AND FEES (QPP & TDA)**  
**YEAR ENDED JUNE 30, 2022 (Continued)**

INVESTMENT MANAGERS		QPP	TDA	TOTAL
Rocaton Investment Advisors	Consultant Fees	\$161,276	\$284,081	\$445,357
Broadridge Financial Solutions	Data Services	86,597	112,668	199,265
eVestment Alliance	Data Services	7,732	12,937	20,669
JP Morgan Chase Bank	Custodian Bank	581,233	1,014,547	1,595,780
<b>BALANCED FUND</b>				
Vanguard Mutual Fund	Mutual Fund			
NYC TRS	Investment Support	3,338	26,921	30,259
Groom Law Group	Legal Fees	301	625	926
Principals for Responsible Investment	Consultant Fees	0	1,876	1,876
Rocaton Investment Advisors	Consultant Fees	1,601	12,816	14,417
Broadridge Financial Solutions	Data Services	678	5,067	5,745
eVestment Alliance	Data Services	57	554	611
JP Morgan Chase Bank	Custodian Bank	91	1,010	1,101
<b>INTERNATIONAL EQUITY FUND</b>				
Acadian Asset Management	Investment Manager	2,458	58,006	60,464
Baillie Gifford	Investment Manager	3,881	91,587	95,468
BlackRock	Investment Manager	759	17,920	18,679
Brown Capital	Investment Manager	5,379	126,950	132,329
Franklin Templeton	Investment Manager	4,371	103,152	107,523
MFS Investment Advisors Intl Equity	Investment Manager	3,320	78,343	81,663
Pyramis Global	Investment Manager	1,968	46,435	48,403
Sprucegrove Investment Management	Investment Manager	978	23,081	24,059
Walter Scott & Partners	Investment Manager	1,524	35,974	37,498
Wellington Management Company	Investment Manager	3,142	74,141	77,283
Westwood Global Investments	Investment Manager	5,248	123,849	129,097
NYC TRS	Investment Support	663	11,875	12,538
Groom Law Group	Legal Fees	55	840	895
Principals for Responsible Investment	Consultant Fees	6	127	133
Rocaton Investment Advisors	Consultant Fees	294	5,004	5,298
Broadridge Financial Solutions	Data Services	124	1,925	2,049
eVestment Alliance	Data Services	11	246	257
JP Morgan Chase Bank	Custodian Bank	6,496	153,288	159,784
<b>SUSTAINABLE EQUITY FUND</b>				
Brown Advisory	Investment Manager	52,659	1,724,942	1,777,601
NYC TRS	Investment Support	757	20,431	21,188
Groom Law Group	Legal Fees	61	1,530	1,591
Principals for Responsible Investment	Consultant Fees	9	262	271
Rocaton Investment Advisors	Consultant Fees	358	9,558	9,916
Broadridge Financial Solutions	Data Services	140	3,537	3,677
eVestment Alliance	Data Services	17	506	523
JP Morgan Chase Bank	Custodian Bank	71	2,303	2,374
<b>U.S. EQUITY INDEX FUND</b>				
Fidelity Mutual Fund	Mutual Fund			
NYC TRS	Investment Support	203	2,876	3,079
Groom Law Group	Legal Fees	15	194	209
Principals for Responsible Investment	Consultant Fees	3	35	38

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**SUMMARY OF INVESTMENT MANAGERS AND FEES (QPP & TDA)**  
**YEAR ENDED JUNE 30, 2022**

INVESTMENT MANAGERS		QPP	TDA	TOTAL
Rocaton Investment Advisors	Consultant Fees	\$95	\$1,339	\$1,434
Broadridge Financial Solutions	Data Services	36	462	498
eVestment Alliance	Data Services	5	67	72
JP Morgan Chase Bank	Custodian Bank	29	627	656
<b>INTERNATIONAL EQUITY INDEX FUND</b>				
Fidelity Mutual Fund	Mutual Fund			
NYC TRS	Investment Support	9	514	523
Groom Law Group	Legal Fees	-	35	35
Principals for Responsible Investment	Consultant Fees	-	6	6
Rocaton Investment Advisors	Consultant Fees	4	240	244
Broadridge Financial Solutions	Data Services	1	84	85
eVestment Alliance	Data Services	-	12	12
JP Morgan Chase Bank	Custodian Bank	7	257	264
<b>Investment Expenses</b>	<b>Subtotal:</b>	<b>\$544,879,118</b>	<b>\$27,001,576</b>	<b>\$571,880,694</b>
Provision for Administrative Expenses	Administrative Fees	7,773,994	14,792,078	22,566,072
Reserve Transfer to Administrative Expenses Fund Transfer		(17,369,244)	(17,600,196)	(34,969,440)
<b>Net (decrease) in variable expense provision</b>	<b>Subtotal:</b>	<b>(\$9,595,250)</b>	<b>(\$2,808,118)</b>	<b>(\$12,403,368)</b>
<b>Total Investment Expenses</b>		<b>\$535,283,868</b>	<b>\$24,193,458</b>	<b>\$559,477,326</b>

**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (PENSION FUND)**  
**FISCAL YEAR ENDED JUNE 30, 2022**

BROKERAGE FIRM	NO. OF SHARES TRADED	COMMISSION PER SHARE	COMMISSION PAID
Abel Noser	131,386	\$0.04	\$5,886
ABG Securities Limited	11,728	0.00	54
ABN Amro Clearing Bank N.V.	501,955	0.02	10,811
Academy Securities Inc	9,057	0.02	181
Alex Brown Capital Advisory & Trust Co	64,571	0.02	1,301
Allen and Company LLC	10,250	0.02	226
Apex Clearing Corporation	267,508	0.04	9,929
Arqaam Capital Limited	1,402,912	0.01	7,773
Arqaam Securities LLC	12,918,177	0.00	21,591
Autrepat-Div Re	74,804	0.03	2,545
Baader Bank Ag	3,438	0.06	213
Banc of Santander - Chile	8,755,305	0.00	4,597
Banco Itau SA	1,096,712	0.01	6,171
Banco Pactual SA	15,018,854	0.00	32,637
Banco Santander Central Hispano	654,953	0.01	3,518
Bancroft Capital LLC	18,795	0.01	150
Bank of America Corporation	3,933,923	0.02	75,079
Bank of Nova Scotia - Scusa	13,400	0.01	176
Bank of Santander - Brazil	768,662	0.00	1,950
Bank of Santander - Mexico	264,799	0.01	1,798
Barclays Capital Inc	4,975,750	0.01	45,024
Barclays Capital Inc/Le	5,730,518	0.01	52,866
Barclays Capital Le	5,084,054	0.01	30,743
Barrington Research Associates	5,509	0.03	165
Berenberg Capital Markets LLC	46,057	0.04	1,613
Bernstein Autonomous LLP	12,010,048	0.01	116,937
BMO Capital Markets	302,091	0.02	4,963
BMO Nesbitt Burns Inc	454,393	0.02	10,461
BNP Paribas	1,058,650	0.00	4,220
BNP Paribas Prime Brokerage Inc	8,021,959	0.01	63,720
BNP Paribas Securities (Asia) LTD	1,987,583	0.00	1,341
BNP Paribas Securities Services	8,748,010	0.00	41,405
BNP Paribas Securities Services SA	7,984,113	0.00	21,261
BNY Mellon/HSBC Bank PLC	2,800	0.06	166
BOFA Securities Inc	97,321,244	0.01	666,268
Bradesco SA Ctvn	10,477,116	0.00	26,111
B Riley & Co, LLC	61,169	0.02	1,468
Broadcort Capital Corp	1,200	0.03	30
BTG Pactual Casa De Bolsa	24,800	0.01	338
BTG Pactual Chile SA Corredores De Bol	71,474,491	0.00	2,322
BTIG Hong Kong Limited	36,604	0.00	73
BTIG, LLC	414,924	0.03	12,557
C L King And Associates, Inc	10,689	0.03	271
Cabrera Capital Markets LLC	1,112,964	0.03	29,317
Canaccord Adams Inc	956	0.03	24
Canaccord Genuity (Australia) Limited	6,541	0.01	61
Canaccord Genuity Inc	183,965	0.05	8,614
Canaccord Genuity Limited	2,600	0.00	8
Canadian Imperial Bank of Commerce	17,480	0.01	132
Cantor Fitzgerald & Co	1,044,697	0.01	13,872

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**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (PENSION FUND)**  
**FISCAL YEAR ENDED JUNE 30, 2022 (Continued)**

BROKERAGE FIRM	NO. OF SHARES TRADED	COMMISSION PER SHARE	COMMISSION PAID
Cantor Fitzgerald Europe	354,706	\$0.00	\$556
Capital Institutional Svcs Inc Equities	510,759	0.04	17,878
Capital Securities Corp	500	0.06	30
Carnegie AS	1,729,470	0.03	49,644
Carnegie Investment Bank Ab	136,279	0.03	3,605
Carnegie Securities Finland	273,140	0.02	5,652
Castleoak Securities	13,954	0.02	292
CF Global Trading LLC	67,983	0.05	3,339
CGS-CIMB Securities (Hong Kong) LTD	3,473,559	0.00	2,313
China International Capital Co	2,290,548	0.01	13,324
China Renaissance Securities HK LTD	1,201,000	0.01	8,446
CIBC World Mkts Inc	1,051,136	0.01	7,722
CIMB Securities (Korea) LTD	3,734	0.07	265
CIMB Securities (Thailand) Co, LTD	378,700	0.00	558
CIMB-Gk Securities Pte LTD	3,519,000	0.00	4,304
Citadel Securities Institutional LLC	1,500	0.01	18
Citibank Ag	29,300	0.09	2,576
Citibank Europe Plc	17,500	0.08	1,426
Citibank Europe Plc Austria Branch	39,185	0.02	911
Citibank International	144,327	0.03	4,484
Citibank NA	6,788,436	0.00	18,797
Citibank NA Spain	6,900	0.01	64
Citibank of Colombia	452,019	0.00	1,567
Citigroup Global Markets Australia Pty	535,708	0.00	1,558
Citigroup Global Markets Europe	8,478,119	0.01	85,528
Citigroup Global Markets Inc	76,229,010	0.00	168,071
Citigroup Global Markets India	30,449,523	0.00	66,047
Citigroup Global Markets Limited	69,601,403	0.00	162,450
Citigroup Global Markets Taiwan	14,627,000	0.00	17,625
Citigroup Global Marketet Korea Secs LTD	410,915	0.01	5,540
CL Securities Taiwan Company Limited	3,717,220	0.00	12,808
CLSA Americas	76,009	0.00	379
CLSA Australia Pty LTD	5,092,668	0.00	3,524
CLSA Securities Korea LTD	3,420,340	0.02	80,541
CLSA Securities Malaysia Sdn Bhd	15,105,500	0.00	7,350
CLSA Singapore Pte LTD	32,105,493	0.00	61,620
Coast Partners Securities	27,551	0.01	138
Commercial Bank of Qatar, LTD	6,636,207	0.00	10,561
Compass Point	61,795	0.03	1,856
Convencao S/A Corretora De Valores	445,300	0.01	3,040
Cornerstone Macro LLC	18,110	0.05	847
Cowen and Company, LLC	9,449,739	0.01	94,164
Craig - Hallum	151,656	0.04	6,098
Credit Agricole Cib	58,893	0.01	297
Credit Industriel et Commercial	2,043	0.02	47
Credit Lyonnais Securities (Asia)	456,450,602	0.00	249,922
Credit Lyonnais Securities (India)	35,473,111	0.00	104,056
Credit Mutuel-Cic Banques	770	0.07	57
Credit Suisse First Boston	39,085,738	0.00	28,081
Credit Suisse First Boston (Europe)	2,095,403	0.01	13,701

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**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (PENSION FUND)**  
**FISCAL YEAR ENDED JUNE 30, 2022 (Continued)**

BROKERAGE FIRM	NO. OF SHARES TRADED	COMMISSION PER SHARE	COMMISSION PAID
Credit Suisse First Boston SA Ctvm	10,637,934	\$0.00	\$25,785
Credit Suisse International	20,868,529	0.00	38,041
Credit Suisse Secs India Private LTD	672,217	0.02	11,974
Credit Suisse Securities (Europe) LTD	2,361	0.00	2
Credit Suisse Securities (USA) LLC	991,928,302	0.00	196,134
Credit Suisse Securities Canada Inc	8,154	0.01	119
CS First Boston (Hong Kong) Limited	4,896,300	0.00	11,543
CSFB Australia Equities LTD	2,840,649	0.00	3,358
Cuttone & Co Inc	13,339	0.03	352
Daiwa Capital Markets America Inc	1,788,620	0.05	81,402
Daiwa Sbcm Europe	293,300	0.02	4,856
Daiwa Securities (HK) LTD	3,060,000	0.00	4,107
Daiwa Securities Company LTD	33,381	0.04	1,216
Daiwa Securities Sb Capital Markets	978,227	0.01	7,867
Daiwa Securities Smbc Cathy Co	3,000	0.07	206
Danske Bank AS	68,326	0.04	2,857
Davidson DA & Company Inc	40,185	0.03	1,151
Davy Stockbrokers	11,100	0.00	10
DBS Vickers Securities (Singapore)	599,900	0.02	10,193
Deutsche Bank AG	6,832	0.02	116
Dnb Bank Asa	266,189	0.00	389
DNB Markets Custody	2,595	0.09	240
DOM Inwestycyjny Bre Bank USA	195,400	0.00	377
DSP Merrill Lynch LTD	42,339,046	0.00	109,485
Euromobiliare Sim S.P.A.	18,063	0.06	1,090
Evercore Group LLC	244,913	0.02	5,120
Evercore Isi	94,091	0.03	2,632
Exane SA	3,441,174	0.02	75,245
Fidelity Capital Markets	1,305,437	0.02	22,151
Fidelity Clearing Canada ULC	22,300	0.12	2,668
Financial Brokerage Group (FBG)	10,130,561	0.00	10,448
Flow Corretora De Mercadorias LTDA	7,340,176	0.00	25,033
Fubon Securities Co LTD	27,100	0.01	305
Goldman Sachs & Co LLC	336,472,954	0.00	385,481
Goldman Sachs (Asia) LLC	44,490,161	0.00	31,006
Goldman Sachs (India)	36,226,650	0.00	66,087
Goldman Sachs Australia Pty LTD	1,299,873	0.00	2,011
Goldman Sachs Do Brasil Corretora	1,738,934	0.01	24,315
Goldman Sachs International	40,442,416	0.00	160,478
Goodbody Stockbrokers	26,650	0.00	65
Guggenheim Capital Markets LLC	992	0.03	30
Guzman And Company	562,618	0.01	6,395
Haitong Intl Secs Company LTD	5,789,880	0.00	18,351
Height Securities, LLC	2,115	0.02	42
Hilltop Securities Inc	445,540	0.04	16,491
Hongkong and Shanghai Banking Corporation	3,126,836	0.01	18,186
HSBC Bank PLC	583,700,840	0.00	79,500
HSBC Brokerage (USA) Inc	17,939	0.01	90
HSBC Securities (USA) Inc	135,733,369	0.00	62,262
HSBC Securities India Holdings	1,759,277	0.00	4,303

*Continued on page 118*

**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (PENSION FUND)**  
**FISCAL YEAR ENDED JUNE 30, 2022 (Continued)**

BROKERAGE FIRM	NO. OF SHARES TRADED	COMMISSION PER SHARE	COMMISSION PAID
Hyundai Securities	130,661	\$0.05	\$6,636
ICBCFS LLC	15,245	0.02	320
Ichiyoshi Securities Co LTD	400	0.05	20
ICICI Brokerage Services	28,235,464	0.00	48,493
IM Trust SA Corredores De Bolsa	1,631,241	0.00	1,382
Imperial Capital LLC	1,216	0.02	19
India Infoline LTD	64,052	0.03	1,706
Instinet Australia Clearing Svc Pty LTD	8,865,072	0.00	15,885
Instinet Europe LTD	11,707	0.03	373
Instinet LLC	102,211,531	0.00	172,118
Instinet Pacific Limited	730,887,387	0.00	228,565
Instinet Singapore Services Pt	4,938,072	0.00	9,312
Instinet UK LTD	122,037,370	0.00	481,009
Intesa Sanpaolo SPA	470	0.03	14
Intl Trading Inc	14,890	0.02	298
Investec Bank PLC	426,788	0.00	1,468
Investec Markets(Proprietary)Limited	2,298,489	0.00	6,015
Investment Technology Group LTD	41,656	0.03	1,377
ITG Australia LTD	53,313,945	0.00	26,529
ITG Canada	1,174,206	0.00	4,703
ITG Inc	5,024,854	0.01	34,724
Jane Street Execution Services LLC	88,861	0.02	1,684
Janney Montgomery, Scott Inc	44,394	0.03	1,456
Jas L Bush Co	2,995	0.05	150
Jb Capital Mkts Sociedad De Valores Sa	252,897	0.00	874
Jefferies Hong Kong Limited	1,171,374	0.01	10,205
Jefferies India Private Limited	6,954,514	0.01	87,009
Jefferies International LTD	98,498,355	0.00	68,677
Jefferies LLC	23,252,320	0.01	166,786
Joh Berenberg, Gossler & Co KG	3,867,944	0.01	54,120
Jonestrading Institutional Services LLC	1,201,327	0.01	17,353
JP Morgan Broking HK LTD	1,401,500	0.01	8,761
JP Morgan India Private LTD	5,560,339	0.00	19,643
JP Morgan Securities (Asia Pacific) LTD	129,063,218	0.00	92,107
JP Morgan Securities (Australia) LTD	7,762,847	0.00	7,282
JP Morgan Securities (Far East) LTD Seoul	1,004,511	0.02	20,668
JP Morgan Securities (Taiwan) LTD	9,203,882	0.00	5,792
JP Morgan Securities Inc	23,232,789	0.00	86,975
JP Morgan Securities Limited	398,180	0.02	6,797
JP Morgan Securities LLC	6,150,644	0.01	60,746
JP Morgan Securities PLC	34,639,273	0.01	248,816
JP Morgan Securities Singapore	9,339,511	0.00	6,003
Jupiter Securities Sdn Bhd	20,000	0.01	216
KB Securities N V	2,701	0.01	17
Keefe Bruyette & Woods Inc	172,648	0.03	5,835
Kempen & Co NV	7,900	0.03	235
Kepler Cheuvreux	228,570	0.05	11,486
Keybanc Capital Markets Inc	286,359	0.04	10,601
Kim Eng Securities (Hk) LTD	341,687	0.00	451
Korea Investment And Securities Co, LTD	25,070	0.03	740

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**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (PENSION FUND)**  
**FISCAL YEAR ENDED JUNE 30, 2022 (Continued)**

BROKERAGE FIRM	NO. OF SHARES TRADED	COMMISSION PER SHARE	COMMISSION PAID
Kotak Securities LTD	23,246,453	\$0.00	\$37,476
Larrain Vial	1,460,452	0.00	1,175
Leerink Partners LLC	68,635	0.03	2,297
Liquidnet Canada Inc	83,360	0.05	3,887
Liquidnet Europe LTD	11,995,861	0.01	77,380
Liquidnet Inc	891,183	0.02	17,134
Loop Capital Markets LLC	28,243,069	0.01	310,978
Luminex Trading and Analytics LLC	183,294	0.01	1,367
Macquarie Bank Limited	45,439,866	0.00	47,797
Macquarie Capital (Europe) LTD	1,360,285	0.00	1,290
Macquarie Capital (USA) Inc	190,039	0.00	757
Macquarie Capital Securities	58,165,456	0.00	64,771
Macquarie Sec Nz LTD	525,075	0.00	382
Macquarie Securities (India) Pvt LTD	184,881	0.01	1,239
Macquarie Securities Korea Limited	158,808	0.02	2,920
Macquarie Securities Limited	56,000	0.01	627
Mediobanca Spa	6,600	0.01	54
Merrill Lynch Canada Inc	11,145	0.02	272
Merrill Lynch Corredores De Bolsa	339,280	0.05	16,424
Merrill Lynch Equities (Australia)	3,662,650	0.01	32,889
Merrill Lynch International	279,093,370	0.00	315,190
Merrill Lynch Professional Clearing Corp	775	0.02	16
Merrill Lynch, Pierce Fenner Smith	1,485,059	0.05	74,250
Mirabaud Securities LLP	2,680	0.25	665
Mirae Asset Sec USA	8,345	0.03	251
Mirae Asset Securities Co Ltd	158,163	0.05	8,383
Mischler Financial Group	4,372,042	0.02	69,378
Mischler Financial Group, Inc-Equities	293,309	0.02	6,944
Mitsubishi UFJ Securities (USA)	158,257	0.03	4,009
Mizuho Securities Asia Limited	17,300	0.02	299
Mizuho Securities USA Inc	240,537	0.05	11,060
MKM Partners LLC	31,061	0.04	1,112
Morgan Stan International LTD	1,459	0.01	12
Morgan Stanley and Co International	42,130,508	0.00	98,299
Morgan Stanley Australia Securities Ltd	2,346,790	0.00	1,531
Morgan Stanley Bank	264	0.42	110
Morgan Stanley Bank Ag	35,014	0.41	14,498
Morgan Stanley Co Incorporated	151,266,205	0.00	345,842
Morgan Stanley India Company Pvt LTD	3,991,632	0.01	35,272
Morgan Stanley Securities (HK) LTD	4,364,000	0.00	145
Morgan Stanley Taiwan Limited	36,761,748	0.00	58,306
Motilal Oswal Securities Limited	12,700	0.07	938
National Financial Services Corporation	164,651	0.01	2,377
National Financial Services LLC	22,660	0.02	458
Nbc Clearing Services Incorporated	187,362	0.00	214
Needham and Company LLC	445,864	0.04	18,832
Nesbitt Burns	14,088	0.03	422
NH Investment and Securities Co LTD	27,090	0.06	1,623
Nomura Financial Advisory & Sec India	9,706,508	0.00	27,891
Nomura Financial Investment Korea Co LTD	89,200	0.03	2,911

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**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (PENSION FUND)**  
**FISCAL YEAR ENDED JUNE 30, 2022 (Continued)**

BROKERAGE FIRM	NO. OF SHARES TRADED	COMMISSION PER SHARE	COMMISSION PAID
North South Capital LLC	124,665	\$0.01	\$1,008
Northern Trust Brokerage Institution	3,697	0.03	111
Northland Securities Inc	57,071	0.02	1,142
Numis Securities Inc	37,379	0.01	292
Numis Securities Limited	517,972	0.00	490
O Neil, William And CO Inc / Bcc Clrg	4,390	0.04	176
ODDO Et Cie	13,159	0.01	193
Oppenheimer & Co Inc	80,262	0.04	2,878
Parel	1,639,044	0.01	22,369
Pavilion Global Markets LTD	620,200	0.03	16,701
Peel Hunt LLP	1,171,909	0.00	1,978
Penserra Securities LLC	3,473,309	0.00	14,559
Pershing LLC	37,826,977	0.01	319,341
Pershing Securities Canada Limited	107,230	0.02	2,576
Pershing Securities Limited	12,826,442	0.01	153,369
Pictet (Canada) LP	86,115	0.01	860
Pictet and Cie	222,801	0.01	2,067
Piper Jaffray & Co	3,323,670	0.01	32,613
Raymond James and Associates Inc	514,693	0.04	21,769
Raymond James LTD	9,573	0.02	217
RBC Capital Markets, LLC	32,384,758	0.00	21,524
RBC Dominion Securities Corporation	1,058,478	0.01	6,108
Redburn (Europe) Limited	1,977,530	0.01	27,760
Robert WBaird Co Incorporated	2,013,822	0.02	44,995
Rosenblatt Securities Inc	5,377	0.01	27
Roth Capital Partners LLC	37,445	0.05	1,872
Royal Bank Of Canada Europe LTD	6,529,070	0.01	76,982
Samsung Securities Co LTD	22,262	0.08	1,830
Sanford C Bernstein (India) Private LIM	705,009	0.02	11,611
Sanford C Bernstein LTD	6,597,544	0.01	44,889
Santander Investment Securities Inc	245,487	0.00	742
SB Equities Incorporated	189,930	0.00	423
Scotia Capital (USA) Inc	220,087	0.01	1,565
Scotia Capital Inc	875,300	0.01	4,874
SG Asia Securities (Inoia) Pvt LTD	6,959,888	0.01	35,057
SG Securities (HK) LTD	61,163,518	0.00	24,253
SG Securities (London) LTD	10,034,084	0.00	9,373
Shenyin and Wanguo Securities (HK) LTD	11,400	0.09	1,082
Sidco/Virtu Americas	562	0.04	22
Sinopac Securities Corporation	444,000	0.00	1,968
Skandinaviska Enskilda Banken	3,802	0.03	96
Skandinaviska Enskilda Banken Ab Global	61,440	0.06	3,405
Skandinaviska Enskilda Banken London	2,003	0.03	65
Skaninaviska Enskilda Banken A/S	488	0.19	94
Smbc Nikko Capital Markets Limited	171,000	0.02	2,857
Smbc Nikko Securities (Honk Kong) LTD	53,000	0.03	1,346
SMBC Securities Inc	163,540	0.01	1,957
Societe Generale	8,669,912	0.00	18,207
Spark Capital Advisors (India) Priv LTD	43,792	0.02	1,038
State Street Global Markets, LLC	869,376	0.02	17,030

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**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (PENSION FUND)**  
**FISCAL YEAR ENDED JUNE 30, 2022**

BROKERAGE FIRM	NO. OF SHARES TRADED	COMMISSION PER SHARE	COMMISSION PAID
Stephens, Inc	259,998	\$0.04	\$9,987
Stifel Nicolaus & Co Inc	527,121	0.04	18,550
Stifel Nicolaus Europe Limited	617,246	0.01	3,189
Stifel, Nicolaus And Company, Incorporated	488,258	0.01	4,203
Stonex Financial Inc	24,547	0.03	633
Strategas Securities LLC	33,860	0.04	1,186
Stuart Frankel and Co Inc	2,063	0.01	21
Suntrust Capital Markets, Inc	442,088	0.02	10,992
Svenska Handelsbanken	3,755	0.01	39
Telsey Advisory Group	617,562	0.04	26,734
The Bank of New York Mellon	245,734	0.00	1,216
The Bank Of New York Mellon Sa Nv	131	0.03	4
The Hongkong and Shanghai Bank	3,146	0.71	2,247
Tigress Financial Partners LLC	13,632	0.03	375
Toronto Dominion Securities Inc	580,101	0.01	3,202
Tullett Prebon Financial Services LLC	1,516	0.02	30
UBS Ag	101,090,845	0.00	391,446
UBS Ag London	1,398,952	0.02	28,496
UBS Securities Asia LTD	201,706,871	0.00	89,640
UBS Securities Canada Inc	1,674,164	0.01	9,610
UBS Securities Hong Kong Limited	419,000	0.00	345
UBS Securities India Private LTD	24,630,940	0.01	164,954
UBS Securities LLC	25,942,938	0.00	89,736
UBS Securities Pte LTD	1,511,031	0.01	8,634
UBS Securities Pte LTD, Seoul	1,086,636	0.03	36,452
UBS Switzerland AG	1,232,151	0.01	8,787
UBS Warburg Australia Equities	1,791,811	0.00	1,266
UOB Kay Hian Pte Limited	528,650	0.00	2,042
Vickers Ballas Tamara Pt	394,400	0.00	401
Virtu Americas LLC	1,391,681	0.03	37,614
Virtu ITG Europe LTD	5,800,184	0.00	26,280
VTB Bank Europe PLC	797,539,429	0.00	2,472
Wedbush Morgan Securities Inc	13,281	0.03	363
Wedbush Securities Inc	44,011	0.03	1,387
Wells Fargo Securities LLC	4,033,121	0.01	35,950
William Blair & Company LLC	623,924	0.05	28,337
Williams Capital Group Lp (The)	275,908	0.02	5,432
Wood and Company	378,464	0.00	778
Wood Gundy Inc	26,033	0.01	216
XP Investimentos Cctvm SA	11,664,043	0.00	36,904
Yuanta Securities Co, LTD	612,800	0.00	1,737

**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (VARIABLE-RETURN FUNDS)**  
**FISCAL YEAR ENDED JUNE 30, 2022**

BROKERAGE FIRM	NO. OF SHARES TRADED	COMMISSION PER SHARE	COMMISSION PAID
Abel Noser	7,732,285	\$0.03	\$232,014
ABG Securities, Oslo	66,109	0.02	1,164
ABN Amro Clearing Bank N.V.	282,267	0.00	1,198
Allen and Company LLC	13,359	0.03	336
Aviate Global LLP	10,321,223	0.00	48,951
Banco JPMorgan Chase SA	446,100	0.00	332
Banco Pactual SA Rio De Janeiro	1,129,330	0.00	1,524
Banco Santander SA New York	802,300	0.00	436
Bank Of America Merrill Lynch Securities	7,361,869	0.00	5,714
Bank Of Americas Securities Inc	3,101,910	0.02	52,899
Banque Nationale Du Canada Montreal	2,735,236	0.01	14,578
Barclays Bank London	3,325,830	0.00	13,718
Barclays Capital Inc/Le	241,821	0.02	5,701
Barclays Capital Le	754,097	0.02	14,806
Baypoint Trading LLC	456,727	0.02	10,060
Berenberg Bank Hamburg	1,234,984	0.02	26,271
Berenberg Capital Markets LLC	301,031	0.02	5,862
BMO Capital Markets	101,732	0.03	3,137
BNP Paribas Arbitrage	8,335	0.00	33
BNP Paribas Prime Brokerage Inc	3,304	0.01	21
BNP Paribas Securities (Asia) LTD	11,175	0.00	40
BNP Paribas Securities Services	49,849,669	0.00	102,480
BNP Paribas Securities Services SA	357,061	0.01	2,260
BNP Paribas Security Svcs London	32,041	0.01	237
BNY Convergex Execution Solutions	121,856	0.01	1,401
Bofa Securities Inc	404,825	0.00	119
Bradesco SA	9,656,101	0.00	5,103
B Riley & Co, LLC	50,288	0.03	1,656
Broad Court Cap Corp Sub Div Merrill	128,925	0.03	3,867
Broadcort Capital Corp	1,526	0.02	38
Brockhouse & Cooper Inc Montreal	81,100	0.03	2,247
BTIG Hong Kong Limited	20,758	0.00	11
Cabrera Capital Markets (Pershing)	3,700	0.03	93
Canaccord Capital Corp Vancouver	71,362	0.01	382
Canaccord Genuity Limited	2,273	0.00	7
Cantor Fitzgerald & Co Inc	122,868	0.02	2,268
Cantor Fitzgerald Europe	1,439	0.01	16
Carnegie AS	490,211	0.01	5,199
Carnegie Secs Helsinki	120,423	0.02	1,840
Celfin Capital Sa Corredores De Bolsa	3,894,549	0.00	275
China Intl Capital Corp Hk Secs LTD	186,200	0.02	3,102
CIBC New York	5,191	0.02	82
CIBC World Markets Toronto	15,327	0.01	86
CIMB-GK Securities Pte LTD	120,600	0.00	313
Citibank NA	6,763,316	0.00	4,072
Citigroup Global Markets Europe AG	1,116,229	0.01	11,295
Citigroup Global Markets Inc	20,928,085	0.00	24,221
Citigroup Global Markets Limited	7,852,075	0.00	10,700
Citigroup Global Mkt Ind Pvt LTD	4,230,283	0.00	6,174
Citigroup Global Mkt Secs LTD	12,934	0.03	342
Citigroup Global Mkts Australia Pty	237,420	0.00	683
CLKing & Associates Inc	20,265	0.04	734
CLSA Australia Pty LTD	181,753	0.00	271

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**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (VARIABLE-RETURN FUNDS)**  
**FISCAL YEAR ENDED JUNE 30, 2022 (Continued)**

BROKERAGE FIRM	NO. OF SHARES TRADED	COMMISSION PER SHARE	COMMISSION PAID
CLSA India LTD	419,760	\$0.01	\$4,483
CLSA LTD Hong Kong	24,221,434	0.00	11,307
CLSA Singapore Pte LTD	3,166,098	0.00	5,935
Collins Stewart LLC	138,500	0.02	2,774
Cornerstone Macro LLC	18,706	0.02	374
Cowen And Company LLC	2,496,610	0.03	76,680
Craig - Hallum	63,287	0.02	1,266
Craig-Hallum Capital Group LLC	30,221	0.03	1,053
Credit Lyonnais Sec (USA) Inc NY	13,000	0.03	361
Credit Lyonnais Sec Seoul	7,725	0.08	596
Credit Lyonnais Secs (Asia) Taipei	5,000	0.03	166
Credit Lyonnais Secs Singapore	814,305	0.01	8,876
Credit Mutuel-Cic Banques	3,390	0.05	172
Credit Suisse Equities (Australia)	155,737	0.01	919
Credit Suisse First Boston	4,859,984	0.00	17,096
Credit Suisse First Boston HK	206,786	0.00	451
Credit Suisse First Boston SA	134,300	0.00	102
Credit Suisse Securities (CRSUSA)	515,515	0.02	7,969
Credit Suisse Securities (Europe)	48,076	0.00	97
Credit Suisse Securities (USA) LLC	404,455	0.01	2,484
CSFB (Europe) LTD Seoul Secs Brnch	3,138	0.15	477
CSFB India (Secs) Pvt LTD Mumbai	35,306	0.02	707
CSFB Taipei	49,000	0.03	1,305
D Carnegie AB Stockholm	758,151	0.03	21,001
DADavidson & Co	28,555	0.02	643
Daiwa Capital Markets America Inc	304,781	0.05	14,328
Daiwa Capital Markets Hong Kong	2,458	0.01	33
Daiwa Secs SB Capital Markets, Singapore	64,912	0.01	443
Danske Bank A/S Copenhagen	25,215	0.01	177
Davy Stockbrokers	28,827	0.00	94
DBS Vickers Secs (Sing) Pte LTD	157,400	0.02	3,254
Den Norske Bank ASA	98,059	0.01	861
Deutsche Bank London	2,231	0.02	55
Deutsche Bank Securities Inc NY	4,695	0.02	116
Direct Trading Institutional Inc	1,875,192	0.01	17,978
Dowling and Partners	2,382	0.04	89
DSP Merrill Lynch LTD Mumbai	83,827	0.04	3,009
Exane SA	1,447,275	0.01	11,481
Fidelity Capital Markets	212,285	0.02	3,527
Financial Brokerage Group	3,225,091	0.00	2,034
First New York Securities LLC	1,282	0.01	19
First Union Capital Markets	357,366	0.03	9,201
Flow Corretora De Mercadorias LTDa	156,300	0.00	160
French American Banking Corporation	39,610	0.01	398
Friedman Billings & Remsey	51,204	0.02	915
Goldman Sachs	2,860,120	0.02	46,157
Goldman Sachs (Asia) LLC Seoul	85,654	0.01	455
Goldman Sachs (Asia) Taipei	3,758,707	0.00	1,081
Goldman Sachs (India) Securities	560,605	0.00	1,080
Goldman Sachs Australia Pty LTD	222,906	0.00	634
Goldman Sachs Bank London	5,226,399	0.00	23,522
Goldman Sachs Bank USA	8,180	0.03	266
Goldman Sachs Do Brasil Corretora	403,100	0.00	111
Goldman Sachs New York	33,052,982	0.00	28,484

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**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (VARIABLE-RETURN FUNDS)**  
**FISCAL YEAR ENDED JUNE 30, 2022 (Continued)**

BROKERAGE FIRM	NO. OF SHARES TRADED	COMMISSION PER SHARE	COMMISSION PAID
Goodbody Stockbrokers Dublin	225,210	\$0.00	\$516
Guggenheim Capital Markets LLC	831	0.04	31
Haitong Intl Securities Co Limited	124,061	0.00	410
Hongkong & Shanghai Bnking Corp LTD	788	0.13	102
HSBC Bank PLC	98,127	0.00	272
HSBC Bank PLC London	17,745,700	0.00	10,732
HSBC Brokerage (USA) Inc	1,594	0.02	32
HSBC Secs & Cap Mkts India Privt LTD	2,869,176	0.00	6,368
HSBC Securities Brokers (Asia) LTD	331,371	0.00	1,624
HSBC Securities USA	77,339,548	0.00	20,367
Hyundai Securities	17,844	0.06	1,041
ICICI Brokerage Services Mumbai	2,304,201	0.01	12,961
IM Trust SA Corredores De Bolsa	3,293	0.01	27
Instinet	1,292,426	0.02	20,992
Instinet Australia Clearing Svcs	620,462	0.00	1,954
Instinet Clearing Services Inc	21,072	0.03	687
Instinet Corp New York	127,779	0.00	555
Instinet Europe Limited	1,481,187	0.01	16,917
Instinet Pacific LTD Hong Kong	65,793,435	0.00	21,830
Instinet Singapore Services Pte LTD	6,300	0.07	455
Intermonte Sim S.P.A.	353,308	0.00	564
International Advisory Services Group	145,500	0.01	1,067
International Central Bank	289,185	0.02	4,416
International Trading Inc	5,049	0.02	126
Investec Henderson Crosthwaite Secs	581,546	0.00	2,084
ISI Group Inc	1,244,108	0.02	27,254
ITG Australia Limited Melbourne	632,726	0.00	1,015
ITG Canada Corp Toronto	295,800	0.01	2,401
ITG Inc New York	1,891,155	0.00	737
ITG London	2,843,957	0.00	8,832
Jane Street Execution Services LLC	20,500	0.02	410
Janney Montgomery Scott Inc	20,971	0.04	839
Jefferies & Company	2,459,314	0.03	71,216
Jefferies & Company Inc NY	708,835	0.01	6,293
Jefferies Australia pty LTD	7,566	0.00	16
Jefferies Hong Kong Limited	26,700	0.00	100
Jefferies India Private Limited	329,837	0.01	4,204
Jefferies International	4,663,737	0.00	7,185
JM Morgan Stanley Secs Pvt LTD	1,186,661	0.00	1,830
JMP Securities	66,128	0.02	1,320
Jones Trading Institutional Services	227,625	0.02	4,905
JP Morgan Broking HK LTD	56,100	0.02	914
JP Morgan Chase Bank	1,876,296	0.03	49,656
JP Morgan Chase Bank, London	18,700	0.05	930
JP Morgan India Private LTD	1,639,392	0.00	2,631
JP Morgan Secs Inc NY	3,043,023	0.00	5,173
JP Morgan Secs London	403,895	0.01	5,910
JP Morgan Securities	8,010	0.02	199
JP Morgan Securities (Asia Pacific)	16,880,691	0.00	6,490
JP Morgan Securities (Far East) LTD	68,035	0.04	2,440
JP Morgan Securities Australia Limited	1,127,871	0.00	1,992
JP Morgan Securities Limited	3,001,476	0.01	26,473
JP Morgan Securities Singapore	6,327,200	0.00	980
JP Morgan Chase / CustJPMCC	579,091	0.02	13,014

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**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (VARIABLE-RETURN FUNDS)**  
**FISCAL YEAR ENDED JUNE 30, 2022 (Continued)**

BROKERAGE FIRM	NO. OF SHARES TRADED	COMMISSION PER SHARE	COMMISSION PAID
JPM Securities	12,612	\$0.02	\$252
KBC Peel Hunt	301,980	0.00	975
Keefe Bruyette & Woods Inc	1,503	0.04	56
Kempen And Co	9,867	0.03	265
Kepler Capital Markets	79,902	0.03	2,377
Keybanc Capital Markets Inc	101,169	0.03	2,860
KM Partners LLC	205	0.04	8
Knight Equity Markets Lp	9,557	0.01	72
Knight Securities LP, Jersey City	57	0.04	2
Korea Investment And Securities Co	6,599	0.02	116
Kotak Securities Mumbai	49,211	0.04	1,979
Landenburg Brothers & Co	2,098	0.03	53
Landenburg Thalman & Co	44	0.05	2
Larraín Vial Chile	264,910	0.00	52
Leerink Swann And Company	8,059	0.02	189
Liquidnet Canada Inc	4,000	0.02	71
Liquidnet Europe LTD London	389,030	0.01	2,962
Liquidnet Inc	426,418	0.03	11,132
Loop Capital Markets	15,721	0.02	311
Luminex Trading And Analytics LLC	13,652	0.00	67
Macquarie Bank Limited	19,143,221	0.00	9,122
Macquarie Capital (Aust) LTD	5,841,910	0.00	10,153
Macquarie Securities (USA) Inc	71,481	0.01	764
Macquarie Securities Indian Pvt LTD	2,866,824	0.01	18,648
Macquarie Securities Limited,Taiwan	6,774,000	0.00	9,909
Macquarie Securities LTD Seoul	1,056,193	0.01	15,703
Macquarie Securities New Zealand	11,586	0.00	49
Mediobanca Spa Milano Italy	6,263	0.01	51
Merrill Lynch & Co Inc (Atlas Gbl) NY	492,117	0.00	1,168
Merrill Lynch And Co Inc	39,657	0.01	363
Merrill Lynch Equities (Australia)	16,600	0.03	438
Merrill Lynch International London	12,251,721	0.00	39,423
Merrill Lynch Pierce Fenner & Smith	14,825	0.03	499
Mirae Asset Securities	4,510	0.03	157
Mirae Asset Securities (USA) Inc	10,880	0.04	435
Mischler Finl Group Inc	5,701	0.02	114
Mitsubishi UFJ Securities (USA)	15,126	0.02	244
Mizuho Securities Asia LTD	25,411	0.01	267
Mizuho Securities Inc	84,014	0.02	1,888
Mizuho Securities USA Inc	12,273	0.03	327
Monness, Crespi, Hardt & Co	1,108	0.04	41
Morgan Stanley & Co	34,827,452	0.00	74,240
Morgan Stanley And Co Intl Taipei	974,498	0.00	938
Morgan Stanley Dean Witter Sydney	195,558	0.00	293
Morgan Stanley Intl Seoul	181,646	0.01	2,097
National Finl Svcs Corp	403,602,071	0.00	476,949
NBC Clearing Services Inc	71,123	0.02	1,186
Needham And Company LLC	132,957	0.02	2,400
Nesbitt Burns Toronto	590,094	0.01	5,588
Nomura Financial Advisory And Securities	166,848	0.00	455
Nordea Bank Finland PLC	3,555	0.02	70
Numis Securities London	63,153	0.00	177
Numis Securities, New York	17,433	0.03	439

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**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (VARIABLE-RETURN FUNDS)**  
**FISCAL YEAR ENDED JUNE 30, 2022 (Continued)**

BROKERAGE FIRM	NO. OF SHARES TRADED	COMMISSION PER SHARE	COMMISSION PAID
Oddo Et Cie Paris	22,384	\$0.04	\$894
Oppenheimer & Co Inc	64,928	0.03	2,059
Panmure Gordon And Co	8,551	0.01	52
Parel	53,792	0.02	1,068
Parel Paris	51,843	0.05	2,685
Penserra Securities	160,036	0.03	4,312
Pershing LLC	1,310,832	0.02	28,820
Pershing Securities	2,106,067	0.01	17,142
Pershing Securities Australia Pty	231	0.03	8
Piper Jaffray & Co	1,552,399	0.02	26,762
Raymond James & Associates Inc	337,662	0.03	8,544
Raymond James LTD Toronto	413,600	0.01	2,601
RBC Capital Markets Corporation	203,048	0.02	3,707
RBC Capital Markets, LLC	12,162	0.02	227
RBC Dominion Secs Toronto	147,574	0.02	2,517
Redburn (Usa) LLC	1,698	0.04	63
Redburn Partners LLP London	42,524	0.02	791
Renaissance Secs (Cyprus) LTD	500,240	0.00	376
Robert W Baird & Co	90,108	0.03	2,340
Roth Capital Partners, LLC	36,867	0.02	738
Royal Bank Of Canada	733,093	0.00	3,508
Royal Bank Of Canada Europe Limited	819,701	0.01	9,070
Salomon Smith Barney Taipei Brch	111,499	0.00	479
Samsung Securities	50,869	0.02	963
Sanford C Bernstein & Co Inc	3,523,006	0.01	38,067
Sanford C Bernstein LTD London	659,233	0.01	9,474
Santander Investment Securities Inc	434,986	0.00	887
Scotia Capital (USA) Inc	12,536	0.01	94
Scotia Capital Mkts Toronto	59,257	0.01	345
Scotia Capital USA Inc	11,001,045	0.00	577
Scotiabank Brasil Sa Corretora	25,100	0.00	109
SG Americas Securities LLC (Sgas)	79,439	0.00	198
SG Securities (Hk) LTD Hong Kong	293,327	0.00	637
Sidoti & Company LLC	11,055	0.02	221
Skandinaviska Enskilda Banken	4,147	0.10	418
Skandinaviska Enskilda Banken Ab	10,309	0.06	570
SMBC Nikko Securities (Hong Kong)	22,287	0.02	344
SMBC Securities Inc	26,786	0.01	313
Societe Generale	957,647	0.00	2,496
Southwest Securities Inc	42,855	0.04	1,714
State Street Global Markets, LLC	26,205	0.01	262
Stephens Inc	82,372	0.03	2,473
Stifel Nicolaus & Co Inc	802,454	0.02	17,522
Suntrust Capital Markets Inc	472,165	0.03	14,260
Toronto Dominion Bank	115,200	0.02	2,658
Toronto Dominion Secs Toronto	43,950	0.02	731
UBS AG	237,067	0.00	931
UBS AG London	13,520,189	0.00	35,204
UBS AG London Branch	154,423	0.01	953
UBS AG Stamford CT	7,222,779	0.00	8,744
UBS Securities Asia LTD	38,700,486	0.00	14,850
UBS Securities Australia LTD	66,974	0.00	215
UBS Securities Canada Inc	1,716	0.01	10

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**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (VARIABLE-RETURN FUNDS)**  
**FISCAL YEAR ENDED JUNE 30, 2022**

BROKERAGE FIRM	NO. OF SHARES TRADED	COMMISSION PER SHARE	COMMISSION PAID
UBS Securities LLC (Warburg)	382,666	\$0.01	\$3,657
UBS Warburg LLC	85,854	0.00	229
UBS Warburg Secs India Pvt Mumbai	3,256,851	0.00	6,737
UBS Warburg Securities LTD Seoul	470,819	0.01	6,873
UBS Warburg Securities Taiwan	1,309,992	0.00	1,547
UBS-AG Zurich	30,948	0.01	298
Unpublished	10,915,756	0.00	14,889
Wedbush Morgan Securities Inc	32,174	0.02	643
Wells Fargo Securities LLC	68,677	0.02	1,349
William Blair & Company	301,076	0.03	8,323
Winterflood Securities Limited	83,813	0.00	193
Woori Investment And Securities	15,487	0.02	246
XP Investments Cctvm SA	253,200	0.00	955
Yuanta Securities Co, LTD	98,501	0.00	448

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# Actuarial Section

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## OFFICE OF THE ACTUARY



255 GREENWICH STREET • 9<sup>TH</sup> FLOOR  
NEW YORK, NY 10007  
(212) 442-5775 • FAX: (212) 442-5777

MAREK TYSZKIEWICZ  
CHIEF ACTUARY

December 1, 2022

Board of Trustees  
Teachers' Retirement System of the City of New York  
55 Water Street, 16<sup>th</sup> Floor  
New York, NY 10041

Re: Actuarial Information for the Annual Comprehensive Financial Report (ACFR) for the  
Fiscal Year Ended June 30, 2022

Dear Members of the Board of Trustees:

The financial objective of the Teachers' Retirement System of the City of New York - Qualified Pension Plan (TRS-QPP or the Plan) is to fund members' retirement benefits during their active service by establishing employer normal contribution rates that, expressed as a percentage of active member annualized covered payroll, would remain approximately level over the future working lifetimes of those active members and, together with member contributions and investment income, are intended to ultimately be sufficient to accumulate assets to pay benefits when due.

An actuarial valuation of the Plan is performed annually as of the second June 30 preceding each fiscal year to determine the Employer Contributions to be paid for that fiscal year (i.e., the June 30, 2020 actuarial valuation is used to determine Fiscal Year 2022 Employer Contributions (Actuarial Contributions)).

The funding policy of the City of New York (the City) is to contribute statutorily-required contributions (Statutory Contributions) and these contributions are generally funded by the City within the appropriate fiscal year.

For Fiscal Year 2022, the Actuarial Contributions to TRS, are equal to those recommended by the Actuary of the New York City Retirement Systems and Pension Funds (the Actuary) and represent the Statutory Contributions.

Pursuant to the Governmental Accounting Standards Board (GASB) Statement No. 67 (GASB67) and Statement No. 68 (GASB68), on September 23, 2022, the Office of the Actuary published the "Fiscal Year 2022 GASB 67/68 Report for the City of New York and the New York City Retirement Systems" (the Fiscal Year 2022 GASB67/68 Report). Appendix B of the Fiscal Year 2022 GASB67/68 Report contains information developed in accordance with GASB67 for TRS.

Board of Trustees  
Teachers' Retirement System of the City of New York  
December 1, 2022  
Page 2

### **Actuarial Assumptions and Methods**

The assumptions and methods used for the June 30, 2020 valuation were presented in the memorandum titled "Proposed Changes to Actuarial Assumptions and Methods (Revised 2021 A&M)" dated July 23, 2021 and were adopted by the Retirement Board at the September 20, 2021 Board meeting. These actuarial assumptions and methods used for funding purposes meet the parameters set forth by the Actuarial Standards of Practice (ASOPs).

### **Benefits, Financial Information, and Census Data**

The June 30, 2020 and June 30, 2019 actuarial valuations are based upon the census data as of those dates submitted by the Plan's administrative staff and the employer's payroll facilities. A summary of the census data used in the June 30, 2020 actuarial valuation is included in this ACFR. A summary of the census data used in the June 30, 2019 actuarial valuation of the Plan is available in the Fiscal Year 2021 Annual Comprehensive Financial Report.

Consistent with the Actuarial Standards of Practice, the Office of the Actuary has reviewed the census data and financial information for consistency and reasonability but has not audited it. The accuracy of the results and calculations presented are dependent on the accuracy of this census data and financial information. To the extent any such data or information provided is materially inaccurate or incomplete, the results contained herein will require revision.

A summary of the benefits available under the terms of the Plan is shown in the Introductory Section of this ACFR. The benefits under the Plan are unchanged from the prior valuation.

### **Funded Status**

The funded status of the Plan is usually expressed by the relationship of assets to liabilities.

With respect to the funded status of the Plan, included in the Actuarial Section of the ACFR is a schedule of funded status based on the Entry Age Normal cost method (Table 11).

Also included in the Actuarial Section of the ACFR is a Solvency Test (i.e., Comparative Summary of Accrued Liabilities Funded by Actuarial Value of Assets) (Table 12), as prescribed by the Government Finance Officers Association (GFOA). This Solvency Test represents an alternative approach to describing progress toward funding objectives.

Board of Trustees  
Teachers' Retirement System of the City of New York  
December 1, 2022  
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### **Presentation Style and Sources of Information**

The actuarial information herein is believed to be presented in a manner consistent with the requirements of the GFOA and, where applicable, with GASB67.

The following items in the Actuarial Section of the ACFR were prepared by the OA:

- Summary of Actuarial Assumptions and Methods in Effect for the June 30, 2020 Actuarial Valuation.
- Summary of Active Member Valuation Data.
- Summary of Plan Membership Data.
- Schedule of Retirees and Beneficiaries Added to and Removed from Rolls.
- Actuarial and Statutory Contribution History.
- Funded Status Based on Entry Age Normal Cost Method.
- Comparative Summary of Accrued Liabilities Funded by Actuarial Value of Assets - Solvency Test.
- Contributions.

The following items in the Financial Section of the ACFR were also prepared by the OA:

- Membership Data.
- Net Pension Liability.
- Actuarial Assumptions and Methods.
- Schedule of Changes in Employers' Net Pension Liability and Related Ratios.
- Schedule of Employer Contributions.

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Teachers' Retirement System of the City of New York  
December 1, 2022  
Page 4

If you have any questions about the information in this Actuarial Section or the actuarial information presented elsewhere in this ACFR, please do not hesitate to contact Dolores Capone, Edward Hue, or me.

### Acknowledgement of Qualification

I, Marek Tyszkiewicz, am the Chief Actuary for, and independent of, the New York City Retirement Systems and Pension Funds. I am an Associate of the Society of Actuaries and a Member of the American Academy of Actuaries. I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. To the best of my knowledge, the results contained herein have been prepared in accordance with generally accepted actuarial principles and procedures and with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

Respectfully submitted,



Marek Tyszkiewicz, ASA, MAAA  
Chief Actuary

MT/eh

Att.

cc: Dolores Capone, ASA, EA – New York City Office of the Actuary  
Edward Hue, EA – New York City Office of the Actuary  
Thad McTigue – New York City Teachers' Retirement System  
Paul Raucci - New York City Teachers' Retirement System  
Patricia Reilly – New York City Teachers' Retirement System  
Keith Snow, Esq. – New York City Office of the Actuary

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK QUALIFIED PENSION PLAN

## SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS IN EFFECT FOR THE JUNE 30, 2020 ACTUARIAL VALUATION

1. Pursuant to Section 96 of the New York City Charter, studies of the actuarial assumptions used to value liabilities of the five actuarially-funded New York City Retirement Systems (NYCRS) are conducted every two years.

Also, in accordance with the Administrative Code of the City of New York (ACCNY), the Boards of Trustees of the five actuarially-funded NYCRS are to periodically review and adopt actuarial assumptions as proposed by the Actuary for use in the determination of Employer Contributions.

The Actuary issued a memorandum titled, "Proposed Changes to Actuarial Assumptions and Methods (Revised 2021 A&M)" dated July 23, 2021. The actuarial assumptions and methods described in that memorandum were adopted by the Board of Trustees at the September 20, 2021 Board meeting and are referred to as the "Revised 2021 A&M." These actuarial assumptions and methods are effective beginning with Fiscal Year 2021.

2. The Actuarial Interest Rate (AIR) assumption is 7.0% per annum, net of investment expenses (4.0% per annum for benefits payable under the Variable Annuity Program).
3. Active service tables are used to estimate various withdrawals from active service. Probabilities are shown in Table 1 for members withdrawing from active service for service retirement, Table 2 for members terminating from active service, and Tables 3 and 4 for members withdrawing from active service due to disability or death, respectively. Mortality improvement scale MP-2020, published by the Society of Actuaries, is applied to probabilities of ordinary death for actives and pre-commencement mortality for deferred vesteds.
4. The service retiree mortality, disabled retiree mortality, and beneficiary mortality base tables are projected from 2012 using mortality improvement scale MP-2020. The base tables are also multiplied by adjustment factors to convert from lives-weighted to amounts-weighted tables to reflect socioeconomic effects on mortality. Base table probabilities for service and disability pensioners are shown in Tables 5a and 5b respectively, and for beneficiaries in Table 5c.
5. A salary scale is used to estimate salaries at termination, retirement, or death. Percentage increases are shown in Table 6. The salary scale includes a General Wage Increase (GWI) assumption of 3.0% per annum.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK  
QUALIFIED PENSION PLAN**

**SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS  
IN EFFECT FOR THE JUNE 30, 2020 ACTUARIAL VALUATION (Cont'd)**

6. The economic assumptions (i.e., the assumed investment return rate, GWI rate, and Cost-of-Living Adjustments (COLA)) were developed assuming a long-term Consumer Price Inflation (CPI) assumption of 2.5% per annum. The assumption is 1.5% per annum for AutoCOLA and 2.5% per annum for escalation.
7. The valuation assumes a closed group of members.
8. The Actuary reset the Actuarial Value of Assets (AVA) to market value as of June 30, 2019.

Beginning with the June 30, 2020 actuarial valuation, the Actuarial Asset Valuation Method (AAVM) recognizes investment returns greater or less than expected over a period of five years. In accordance with this AAVM, the Unexpected Investment Returns are phased into the AVA over a five-year period at 20% per year.

The AVA is further constrained to be within a corridor of 80% to 120% of the Market Value of Assets.

Beginning with the June 30, 2018 actuarial valuation, the Actuarial Value of Assets is determined by re-characterizing the interest credited on TDA Fixed Fund account balances as investment income instead of as a cash disbursement.

9. The Entry Age Normal (EAN) cost method of funding is used by the Actuary to calculate Employer Contributions.

Under this method, the Present Value (PV) of Future Benefits (PVFB) of each individual included in the actuarial valuation is allocated on a level basis over the expected earnings (or service) of the individual between entry age and the assumed exit age(s). The employer portion of this PVFB allocated to a valuation year is the Normal Cost. The portion of this PVFB not provided for at a valuation date by the PV of Future Normal Costs or future member contributions is the Accrued Liability (AL).

The excess, if any, of the AL over the AVA is the Unfunded Accrued Liability (UAL).

Under this method, actuarial gains and losses, as they occur, reduce and increase the UAL, respectively, and are explicitly identified and amortized. Increases or decreases in obligations due to benefit changes, actuarial assumption changes, and actuarial method changes are also explicitly identified and amortized.

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK QUALIFIED PENSION PLAN

## SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS IN EFFECT FOR THE JUNE 30, 2020 ACTUARIAL VALUATION (Cont'd)

The explicit UALs that are developed under EAN each year are financed over fixed periods.

Under EAN, the Normal Cost as a percentage of pay remains constant by individual and changes gradually over time for the entire plan as the characteristics of the group changes (e.g., more Tier 6 active members decrease the average Normal Cost as a percentage of pay).

10. The Employer Contribution for a fiscal year is increased by the interest-adjusted amount of administrative expenses paid from TRS during the second prior fiscal year.
11. Obligations attributable to the World Trade Center (WTC) Disability Benefits Law and to the WTC Death Benefits Law are determined through estimation techniques for post-retirement reclassifications.
12. One-Year Lag Methodology (OYLM) uses a June 30, XX-2 valuation date to determine Fiscal Year XX employer contributions.

This methodology requires adjustments to certain components used to determine the Fiscal Year XX employer contributions as follows:

- a. Normal Cost

The normal cost as of June 30, XX-2 is rolled forward with the assumed AIR of 7.0% to derive the normal cost as of December 31, XX-1.

- b. UAL Payments

For determining the UAL payments for Fiscal Year XX, and to be consistent with the OYLM, the UAL as of June 30, XX-2 is adjusted by the discounted value of the employer normal cost and UAL payments paid during Fiscal Year XX-1 and the discounted value of Administrative Expenses reimbursed during Fiscal Years XX-1 and XX.

13. Excess Benefit Plan: The valuation includes liabilities and costs, if any, associated with benefits in excess of the Internal Revenue Code Section 415 limitation.
14. TDA Fixed Fund Normal Cost: A cost is added to each year's Normal Cost for providing a guaranteed 8.25% return on the TDA Fixed Fund for non-UFT members.

TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK  
QUALIFIED PENSION PLAN

SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS  
IN EFFECT FOR THE JUNE 30, 2020 ACTUARIAL VALUATION (Cont'd)

15. Additional Assumptions used for the TDA fixed fund:

- a. Active TDA members would contribute 8.0% of compensation to the TDA fixed fund and 3.5% of compensation to the TDA variable fund.
- b. TDA members would transfer 25% of their TDA variable fund to the TDA fixed fund.
- c. Active members in the QPP who have not joined the TDA would join and contribute 2.0% of pay to the TDA fixed fund and approximately 0.9% to the variable fund.
- d. The probability that a member elects 4% per year withdrawals from the TDA fixed fund starting from the later of age 60 and the age at termination is 25%.
- e. The probability that a member elects required minimum distributions from the TDA fixed fund starting from the later of age 72 and the age at termination is 75%.
- f. Estimate techniques have been used to account for the difference in liabilities due to future annuitization of TDA funds.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK  
QUALIFIED PENSION PLAN**

**SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS  
IN EFFECT FOR THE JUNE 30, 2020 ACTUARIAL VALUATION (Cont'd)**

**Table 1**

PROBABILITIES OF SERVICE RETIREMENT

Age	Reduced Service Retirement	Unreduced Service Retirement Probabilities For Members Who Did Not Elect an Improved Retirement Program		Unreduced Service Retirement Probabilities For Members Who Elected an Improved Retirement Program	
		Year 1	Ultimate	Year 1	Ultimate
55	2.50%	18.00%	0.00%	37.50%	0.00%
56	2.50%	18.00%	20.00%	37.50%	22.00%
57	2.50%	18.00%	20.00%	37.50%	22.00%
58	2.50%	18.00%	20.00%	37.50%	22.00%
59	3.75%	18.00%	20.00%	37.50%	22.00%
60	5.00%	18.00%	20.00%	37.50%	22.00%
61	6.25%	18.00%	20.00%	37.50%	22.00%
62	7.50% <sup>1</sup>	27.00%/18.00% <sup>2</sup>	20.00%	50.00%	33.00%
63	0.00%	18.00%/27.00% <sup>3</sup>	20.00%	37.50%	22.00%
64	0.00%	18.00%	20.00%	37.50%	22.00%
65	0.00%	27.00%	20.00%	50.00%	33.00%
66	0.00%	18.00%	20.00%	37.50%	22.00%
67	0.00%	18.00%	20.00%	37.50%	22.00%
68	0.00%	18.00%	20.00%	37.50%	22.00%
69	0.00%	18.00%	20.00%	37.50%	22.00%
70	0.00%	20.00%	20.00%	37.50%	22.00%
71	0.00%	20.00%	20.00%	37.50%	22.00%
72	0.00%	20.00%	20.00%	37.50%	22.00%
73	0.00%	20.00%	20.00%	37.50%	22.00%
74	0.00%	20.00%	20.00%	37.50%	22.00%
75	0.00%	20.00%	20.00%	37.50%	22.00%
76	0.00%	20.00%	20.00%	37.50%	22.00%
77	0.00%	20.00%	20.00%	37.50%	22.00%
78	0.00%	20.00%	20.00%	37.50%	22.00%
79	0.00%	20.00%	20.00%	37.50%	22.00%
80+	N/A	100.00%	100.00%	100.00%	100.00%

<sup>1</sup> 7.50% only applies to Tier 6 members; 0.00% otherwise.

<sup>2</sup> 27.00% for Tier 1, 2, & 4 members and 18.00% for Tier 6 members.

<sup>3</sup> 18.00% for Tier 1, 2, & 4 members and 27.00% for Tier 6 members.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**  
**QUALIFIED PENSION PLAN**

**SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS  
 IN EFFECT FOR THE JUNE 30, 2020 ACTUARIAL VALUATION (Cont'd)**

Table 2	
PROBABILITIES OF TERMINATION	
Years of Service	Probability of Termination
0	9.00%
1	8.00%
2	7.00%
3	6.00%
4	5.00%
5	4.00%
6	3.50%
7	3.05%
8	2.65%
9	2.30%
10	2.00%
11	1.75%
12	1.55%
13	1.40%
14	1.30%
15	1.25%
16	1.20%
17	1.15%
18	1.10%
19	1.05%
20	1.00%
21	0.90%
22	0.80%
23	0.70%
24	0.60%
25+	0.50%

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK  
QUALIFIED PENSION PLAN**

**SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS  
IN EFFECT FOR THE JUNE 30, 2020 ACTUARIAL VALUATION (Cont'd)**

Table 3				
PROBABILITIES OF DISABILITY RETIREMENT				
Age	Ordinary Disability		Accidental Disability	
	Males	Females	Males	Females
15	0.01%	0.01%	0.00%	0.00%
16	0.01%	0.01%	0.00%	0.00%
17	0.01%	0.01%	0.00%	0.00%
18	0.01%	0.01%	0.00%	0.00%
19	0.01%	0.01%	0.00%	0.00%
20	0.01%	0.01%	0.00%	0.00%
21	0.01%	0.01%	0.00%	0.00%
22	0.01%	0.01%	0.00%	0.00%
23	0.01%	0.01%	0.00%	0.00%
24	0.01%	0.01%	0.00%	0.00%
25	0.01%	0.01%	0.00%	0.00%
26	0.01%	0.01%	0.00%	0.00%
27	0.01%	0.01%	0.00%	0.00%
28	0.01%	0.01%	0.00%	0.00%
29	0.01%	0.01%	0.00%	0.00%
30	0.01%	0.01%	0.00%	0.00%
31	0.02%	0.01%	0.00%	0.00%
32	0.03%	0.02%	0.00%	0.00%
33	0.04%	0.03%	0.01%	0.00%
34	0.05%	0.04%	0.01%	0.00%
35	0.06%	0.05%	0.01%	0.01%
36	0.07%	0.06%	0.01%	0.01%
37	0.08%	0.07%	0.01%	0.01%
38	0.08%	0.08%	0.02%	0.01%
39	0.09%	0.09%	0.02%	0.01%
40	0.10%	0.10%	0.02%	0.01%
41	0.11%	0.11%	0.02%	0.01%
42	0.12%	0.12%	0.02%	0.01%
43	0.13%	0.13%	0.02%	0.02%
44	0.14%	0.14%	0.02%	0.02%
45	0.15%	0.15%	0.03%	0.02%
46	0.15%	0.16%	0.03%	0.02%
47	0.15%	0.17%	0.03%	0.02%
48	0.15%	0.18%	0.03%	0.03%
49	0.15%	0.19%	0.03%	0.03%
50	0.15%	0.20%	0.03%	0.03%
51	0.15%	0.20%	0.03%	0.03%
52	0.15%	0.20%	0.03%	0.03%
53	0.15%	0.20%	0.03%	0.03%
54	0.15%	0.20%	0.03%	0.03%
55	0.15%	0.20%	0.04%	0.04%
56	0.15%	0.20%	0.04%	0.04%
57	0.15%	0.20%	0.04%	0.04%
58	0.15%	0.20%	0.04%	0.04%
59	0.15%	0.20%	0.04%	0.04%
60	0.15%	0.20%	0.04%	0.04%
61	0.15%	0.20%	0.04%	0.04%
62	0.15%	0.20%	0.04%	0.04%
63	0.15%	0.20%	0.04%	0.04%
64	0.15%	0.20%	0.04%	0.04%
65	0.15%	0.20%	0.04%	0.04%
66	0.15%	0.20%	0.04%	0.04%
67	0.15%	0.20%	0.04%	0.04%
68	0.15%	0.20%	0.04%	0.04%
69	0.15%	0.20%	0.04%	0.04%
70	0.15%	0.20%	0.04%	0.04%
71	0.15%	0.20%	0.04%	0.04%
72	0.15%	0.20%	0.04%	0.04%
73	0.15%	0.20%	0.04%	0.04%
74	0.15%	0.20%	0.04%	0.04%
75	0.15%	0.20%	0.04%	0.04%
76	0.15%	0.20%	0.04%	0.04%
77	0.15%	0.20%	0.04%	0.04%
78	0.15%	0.20%	0.04%	0.04%
79	0.15%	0.20%	0.04%	0.04%
80+	N/A	N/A	N/A	N/A

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**  
**QUALIFIED PENSION PLAN**

**SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS  
 IN EFFECT FOR THE JUNE 30, 2020 ACTUARIAL VALUATION (Cont'd)**

Table 4			
PROBABILITIES OF MORTALITY FOR ACTIVE MEMBERS BASE RATES			
Age	Ordinary Death		Accidental Death
	Males	Females	
15	0.040%	0.025%	0.000%
16	0.040%	0.025%	0.000%
17	0.040%	0.025%	0.000%
18	0.040%	0.025%	0.000%
19	0.040%	0.025%	0.000%
20	0.040%	0.025%	0.000%
21	0.040%	0.025%	0.000%
22	0.040%	0.025%	0.000%
23	0.040%	0.025%	0.000%
24	0.040%	0.025%	0.000%
25	0.040%	0.025%	0.000%
26	0.040%	0.025%	0.000%
27	0.040%	0.025%	0.000%
28	0.040%	0.025%	0.000%
29	0.040%	0.025%	0.000%
30	0.040%	0.025%	0.000%
31	0.042%	0.026%	0.000%
32	0.044%	0.028%	0.000%
33	0.046%	0.029%	0.000%
34	0.048%	0.030%	0.000%
35	0.050%	0.031%	0.000%
36	0.052%	0.033%	0.000%
37	0.054%	0.034%	0.000%
38	0.056%	0.035%	0.000%
39	0.058%	0.036%	0.000%
40	0.060%	0.038%	0.000%
41	0.070%	0.044%	0.000%
42	0.080%	0.050%	0.000%
43	0.090%	0.056%	0.000%
44	0.100%	0.063%	0.000%
45	0.110%	0.069%	0.000%
46	0.120%	0.075%	0.000%
47	0.130%	0.081%	0.000%
48	0.140%	0.088%	0.000%
49	0.150%	0.094%	0.000%
50	0.160%	0.100%	0.000%
51	0.170%	0.106%	0.000%
52	0.180%	0.113%	0.000%
53	0.190%	0.119%	0.000%
54	0.200%	0.125%	0.000%
55	0.210%	0.131%	0.000%
56	0.220%	0.138%	0.000%
57	0.230%	0.144%	0.000%
58	0.240%	0.150%	0.000%
59	0.250%	0.156%	0.000%
60	0.260%	0.163%	0.000%
61	0.270%	0.169%	0.000%
62	0.280%	0.175%	0.000%
63	0.290%	0.181%	0.000%
64	0.300%	0.188%	0.000%
65	0.320%	0.200%	0.000%
66	0.350%	0.219%	0.000%
67	0.390%	0.244%	0.000%
68	0.440%	0.275%	0.000%
69	0.500%	0.313%	0.000%
70	0.540%	0.350%	0.000%
71	0.600%	0.388%	0.000%
72	0.650%	0.425%	0.000%
73	0.700%	0.463%	0.000%
74	0.750%	0.525%	0.000%
75	0.800%	0.588%	0.000%
76	0.890%	0.650%	0.000%
77	0.980%	0.713%	0.000%
78	1.070%	0.775%	0.000%
79	1.160%	0.925%	0.000%
80+	N/A	N/A	N/A

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK  
QUALIFIED PENSION PLAN**

**SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS  
IN EFFECT FOR THE JUNE 30, 2020 ACTUARIAL VALUATION (Cont'd)**

Table 5a					
PROBABILITIES OF MORTALITY FOR SERVICE RETIREES BASE RATES					
Age	Males	Females	Age	Males	Females
15	0.0108%	0.0105%	68	1.3827%	0.8399%
16	0.0146%	0.0128%	69	1.5070%	0.8992%
17	0.0197%	0.0140%	70	1.6306%	0.9855%
18	0.0222%	0.0145%	71	1.7953%	1.1072%
19	0.0235%	0.0151%	72	1.9579%	1.2311%
20	0.0246%	0.0153%	73	2.1191%	1.3549%
21	0.0263%	0.0162%	74	2.2784%	1.4775%
22	0.0278%	0.0171%	75	2.4370%	1.5961%
23	0.0295%	0.0181%	76	2.7233%	1.8356%
24	0.0309%	0.0193%	77	3.0074%	2.0765%
25	0.0320%	0.0206%	78	3.2885%	2.3162%
26	0.0335%	0.0220%	79	3.5677%	2.5533%
27	0.0347%	0.0234%	80	3.8824%	2.7842%
28	0.0364%	0.0249%	81	4.4474%	3.3221%
29	0.0386%	0.0267%	82	5.0193%	3.8708%
30	0.0418%	0.0286%	83	5.5977%	4.4089%
31	0.0476%	0.0348%	84	6.1798%	5.0027%
32	0.0532%	0.0401%	85	6.7676%	5.5878%
33	0.0583%	0.0449%	86	7.7139%	6.2981%
34	0.0629%	0.0489%	87	8.6843%	6.9333%
35	0.0673%	0.0527%	88	9.6857%	7.5758%
36	0.0698%	0.0557%	89	10.7135%	8.5620%
37	0.0720%	0.0591%	90	11.7744%	9.6778%
38	0.0745%	0.0626%	91	13.6049%	10.8390%
39	0.0782%	0.0672%	92	15.5105%	11.9717%
40	0.0837%	0.0726%	93	17.4679%	13.1425%
41	0.0941%	0.0775%	94	19.5105%	15.1670%
42	0.1051%	0.0838%	95	21.6689%	17.3761%
43	0.1167%	0.0918%	96	23.7343%	19.5275%
44	0.1294%	0.1013%	97	25.7571%	21.6213%
45	0.1432%	0.1132%	98	27.8633%	23.3643%
46	0.1582%	0.1271%	99	29.8272%	23.8705%
47	0.1744%	0.1429%	100	31.5152%	23.9898%
48	0.1918%	0.1597%	101	33.0771%	24.9134%
49	0.2102%	0.1774%	102	34.4234%	26.0067%
50	0.2317%	0.1950%	103	35.6398%	27.2992%
51	0.2657%	0.2130%	104	36.6357%	28.7614%
52	0.3011%	0.2304%	105	37.3430%	30.3385%
53	0.3373%	0.2472%	106	37.7004%	31.9944%
54	0.3744%	0.2638%	107	37.8599%	33.6898%
55	0.4112%	0.2806%	108	38.0314%	35.3785%
56	0.4578%	0.3034%	109	38.1998%	37.0129%
57	0.5025%	0.3264%	110	50.0000%	50.0000%
58	0.5448%	0.3498%	111	50.0000%	50.0000%
59	0.5843%	0.3732%	112	50.0000%	50.0000%
60	0.6211%	0.3973%	113	50.0000%	50.0000%
61	0.7018%	0.4321%	114	50.0000%	50.0000%
62	0.7804%	0.4686%	115	50.0000%	50.0000%
63	0.8588%	0.5072%	116	50.0000%	50.0000%
64	0.9371%	0.5479%	117	50.0000%	50.0000%
65	0.9994%	0.5912%	118	50.0000%	50.0000%
66	1.1295%	0.6619%	119	50.0000%	50.0000%
67	1.2569%	0.7367%	120	100.0000%	100.0000%

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**  
**QUALIFIED PENSION PLAN**

**SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS  
 IN EFFECT FOR THE JUNE 30, 2020 ACTUARIAL VALUATION (Cont'd)**

<b>Table 5b</b>					
PROBABILITIES OF MORTALITY FOR DISABLED RETIREES BASE RATES					
Age	Males	Females	Age	Males	Females
15	0.3819%	0.3483%	68	2.8007%	2.0012%
16	0.5167%	0.4712%	69	2.8946%	2.0043%
17	0.6964%	0.5141%	70	3.0268%	2.0073%
18	0.7863%	0.5351%	71	3.1148%	2.0103%
19	0.8312%	0.5569%	72	3.2684%	2.1811%
20	0.8353%	0.5649%	73	3.3926%	2.3760%
21	0.8659%	0.5961%	74	3.5875%	2.5968%
22	0.8978%	0.6295%	75	3.7271%	2.8417%
23	0.9464%	0.6597%	76	3.9657%	3.0808%
24	0.9977%	0.6908%	77	4.2691%	3.3373%
25	1.0424%	0.7150%	78	4.5349%	3.6085%
26	1.0960%	0.7387%	79	4.8252%	3.8944%
27	1.1348%	0.7520%	80	5.1378%	4.1909%
28	1.1774%	0.7625%	81	5.6917%	4.6921%
29	1.2163%	0.7686%	82	6.2841%	5.1536%
30	1.2878%	0.7763%	83	6.8835%	5.5061%
31	1.3554%	0.9885%	84	7.7954%	6.1180%
32	1.3755%	1.1922%	85	8.8286%	6.7342%
33	1.3953%	1.3874%	86	9.9032%	7.3088%
34	1.4153%	1.3942%	87	10.8837%	8.2536%
35	1.4357%	1.4012%	88	11.9567%	9.3264%
36	1.4563%	1.4082%	89	13.8059%	10.3734%
37	1.4772%	1.4152%	90	15.7270%	11.4459%
38	1.4985%	1.4223%	91	17.7012%	12.6271%
39	1.5200%	1.4294%	92	19.6428%	14.1350%
40	1.5418%	1.4366%	93	21.9234%	15.4424%
41	1.5640%	1.4436%	94	24.0761%	16.9560%
42	1.5865%	1.4509%	95	26.0577%	18.4261%
43	1.6093%	1.4581%	96	28.3614%	20.1727%
44	1.6324%	1.4654%	97	30.3483%	21.6213%
45	1.6559%	1.5299%	98	31.8739%	23.3643%
46	1.6797%	1.6016%	99	33.6652%	23.8705%
47	1.7038%	1.6623%	100	35.0392%	23.9898%
48	1.7283%	1.7238%	101	36.0496%	24.9134%
49	1.7531%	1.7485%	102	37.0460%	26.0067%
50	1.7783%	1.7736%	103	37.7767%	27.2992%
51	1.8039%	1.7991%	104	38.1460%	28.7614%
52	1.9408%	1.8530%	105	38.3076%	30.3385%
53	2.0713%	1.8909%	106	38.4698%	31.9944%
54	2.2040%	1.9173%	107	38.6325%	33.6898%
55	2.3207%	1.9622%	108	38.8076%	35.3785%
56	2.4304%	1.9652%	109	38.9794%	37.0129%
57	2.4937%	1.9681%	110	50.0000%	50.0000%
58	2.5070%	1.9711%	111	50.0000%	50.0000%
59	2.5245%	1.9741%	112	50.0000%	50.0000%
60	2.5362%	1.9770%	113	50.0000%	50.0000%
61	2.5394%	1.9801%	114	50.0000%	50.0000%
62	2.5426%	1.9831%	115	50.0000%	50.0000%
63	2.5480%	1.9861%	116	50.0000%	50.0000%
64	2.5797%	1.9891%	117	50.0000%	50.0000%
65	2.6258%	1.9921%	118	50.0000%	50.0000%
66	2.6510%	1.9951%	119	50.0000%	50.0000%
67	2.7083%	1.9982%	120	100.0000%	100.0000%

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK  
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**SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS  
IN EFFECT FOR THE JUNE 30, 2020 ACTUARIAL VALUATION (Cont'd)**

<b>Table 5c</b>					
PROBABILITIES OF MORTALITY FOR BENEFICIARIES BASE RATES					
Age	Males	Females	Age	Males	Females
15	0.0105%	0.0092%	68	1.8256%	1.3605%
16	0.0142%	0.0112%	69	1.9386%	1.4332%
17	0.0191%	0.0122%	70	2.0542%	1.5007%
18	0.0222%	0.0133%	71	2.2359%	1.6745%
19	0.0240%	0.0143%	72	2.4230%	1.8463%
20	0.0251%	0.0145%	73	2.6165%	2.0157%
21	0.0268%	0.0153%	74	2.8157%	2.1838%
22	0.0284%	0.0161%	75	3.0220%	2.3492%
23	0.0301%	0.0171%	76	3.4928%	2.6652%
24	0.0315%	0.0183%	77	3.9787%	2.9831%
25	0.0327%	0.0195%	78	4.4792%	3.3011%
26	0.0342%	0.0208%	79	4.9963%	3.6207%
27	0.0354%	0.0221%	80	5.5282%	3.9391%
28	0.0371%	0.0236%	81	6.1051%	4.4386%
29	0.0394%	0.0252%	82	6.6894%	4.9473%
30	0.0427%	0.0270%	83	7.2805%	5.4665%
31	0.0495%	0.0330%	84	7.8749%	5.9942%
32	0.0562%	0.0384%	85	8.4753%	6.5354%
33	0.0625%	0.0431%	86	9.6136%	7.4659%
34	0.0682%	0.0471%	87	10.8005%	8.3995%
35	0.0743%	0.0511%	88	12.0443%	9.3428%
36	0.0780%	0.0542%	89	13.3397%	10.2918%
37	0.0818%	0.0579%	90	14.6958%	11.2477%
38	0.0861%	0.0618%	91	16.4185%	12.8868%
39	0.0917%	0.0666%	92	18.1416%	14.4887%
40	0.0997%	0.0719%	93	19.8574%	16.0801%
41	0.1394%	0.0775%	94	21.6187%	17.5854%
42	0.1774%	0.0859%	95	23.5884%	19.0626%
43	0.2143%	0.0968%	96	25.4266%	20.2474%
44	0.2507%	0.1111%	97	27.2119%	21.2937%
45	0.2875%	0.1287%	98	29.0202%	22.0663%
46	0.3207%	0.1501%	99	30.6654%	22.5443%
47	0.3534%	0.1748%	100	32.1584%	22.6473%
48	0.3849%	0.2022%	101	33.7521%	23.5294%
49	0.4150%	0.2319%	102	35.1259%	24.5619%
50	0.4431%	0.2633%	103	36.3671%	25.7825%
51	0.5156%	0.2999%	104	37.3834%	27.1635%
52	0.5928%	0.3376%	105	38.1051%	28.6530%
53	0.6740%	0.3762%	106	38.4698%	30.2169%
54	0.7583%	0.4151%	107	38.6325%	31.8182%
55	0.8440%	0.4540%	108	38.8076%	33.4131%
56	0.9048%	0.5132%	109	38.9794%	34.9566%
57	0.9604%	0.5735%	110	50.0000%	50.0000%
58	1.0101%	0.6353%	111	50.0000%	50.0000%
59	1.0536%	0.6981%	112	50.0000%	50.0000%
60	1.0919%	0.7631%	113	50.0000%	50.0000%
61	1.1835%	0.8329%	114	50.0000%	50.0000%
62	1.2676%	0.8908%	115	50.0000%	50.0000%
63	1.3473%	0.9493%	116	50.0000%	50.0000%
64	1.4238%	1.0146%	117	50.0000%	50.0000%
65	1.4985%	1.0876%	118	50.0000%	50.0000%
66	1.6059%	1.1681%	119	50.0000%	50.0000%
67	1.7146%	1.2609%	120	100.0000%	100.0000%

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**  
**QUALIFIED PENSION PLAN**

**SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS  
 IN EFFECT FOR THE JUNE 30, 2020 ACTUARIAL VALUATION (Cont'd)**

ANNUAL RATES OF MERIT AND SALARY INCREASE		
Years of Service	Merit Increase	Salary Increase <sup>1</sup>
0	10.00%	13.00%
1	8.00%	11.00%
2	6.00%	9.00%
3	5.00%	8.00%
4	6.00%	9.00%
5	5.00%	8.00%
6	5.00%	8.00%
7	4.00%	7.00%
8	2.00%	5.00%
9	5.00%	8.00%
10	1.00%	4.00%
11	1.00%	4.00%
12	3.00%	6.00%
13	1.00%	4.00%
14	5.00%	8.00%
15	1.00%	4.00%
16	1.00%	4.00%
17	2.00%	5.00%
18	1.00%	4.00%
19	9.00%	12.00%
20	1.00%	4.00%
21	5.00%	8.00%
22+	1.00%	4.00%

<sup>1</sup>Salary Increase is the General Wage Increase of 3.00% plus the Merit Increase.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK  
QUALIFIED PENSION PLAN**

**SUMMARY OF ACTIVE MEMBER VALUATION DATA**

<b>Table 7</b>				
ACTIVE MEMBER VALUATION DATA				
<b>June 30 Actuarial Valuation</b>	<b>Number</b>	<b>Annual Salary</b>	<b>Average Annual Salary</b>	<b>Percentage Increase/ (Decrease) In Avg. Salary</b>
2011	109,636	\$7,888,203,642	71,949	0.7%
2012	112,460	8,013,395,184	71,256	(1.0%)
2013	112,481	8,128,378,071	72,264	1.4%
2014	111,726	8,274,685,657	74,062	2.5%
2015	114,652	8,844,650,633	77,143	4.2%
2016	118,201	9,224,267,647	78,039	1.2%
2017	120,826	9,848,899,232	81,513	4.5%
2018	121,764	10,404,403,684	85,447	4.8%
2019	123,336	10,903,755,059	88,407	3.5%
2020	124,276	11,203,878,026	90,153	2.0%

Salaries reflect the impact of recent labor contract settlements and certain non-union salary increases with retroactive effective dates, if any.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**  
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**SUMMARY OF PLAN MEMBERSHIP DATA**

As of the June 30, 2020 and June 30, 2019 actuarial valuations, the Plan's Membership consisted of:

SUMMARY OF PLAN MEMBERSHIP		
Group	June 30, 2020	June 30, 2019
Active members	124,276	123,336
Terminated Non Vested Members/Active Off Payroll <sup>1</sup>	5,604	8,174
Deferred vested members not yet receiving benefits	15,502	13,410
Retirees and beneficiaries currently receiving benefits	89,536	88,507
Total	234,918	233,427

<sup>1</sup> Actives Off Payroll as of June 30, 2019 represents members no longer on payroll, but not otherwise classified.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**  
**QUALIFIED PENSION PLAN**

**SCHEDULE OF RETIREES AND BENEFICIARIES ADDED TO AND REMOVED FROM THE ROLLS**

<b>June 30 Actuarial Valuation</b>	<b>Added to Rolls</b>		<b>Removed from Rolls</b>		<b>End of Year Rolls</b>		<b>% Increase in Annual Allowances</b>	<b>Average Annual Allowances</b>
	<b>Number</b>	<b>Annual Allowances<sup>1</sup></b>	<b>Number</b>	<b>Annual Allowances</b>	<b>Number</b>	<b>Annual Allowances<sup>1</sup></b>		
2011	3,849	\$278,652,149	2,141	\$67,488,320	74,064	\$3,228,919,440	7.0%	\$43,596
2012	4,684	200,786,572	2,209	62,805,438	76,539	3,366,900,574	4.3%	43,989
2013	4,078	248,087,233	2,440	77,107,240	78,177	3,537,880,567	5.1%	45,255
2014	4,356	275,947,759	2,114	67,585,789	80,419	3,746,242,537	5.9%	46,584
2015	4,728	219,769,491	2,370	81,986,287	82,777	3,884,025,741	3.7%	46,922
2016	3,808	157,518,432	2,492	86,890,450	84,093	3,954,653,723	1.8%	47,027
2017	3,519	254,567,439	2,842	111,573,800	84,770	4,097,647,362	3.6%	48,338
2018	4,107	240,586,776	2,582	103,957,220	86,295	4,234,276,918	3.3%	49,067
2019	4,921	249,898,766	2,709	113,559,733	88,507	4,370,615,951	3.2%	49,382
2020	4,144	211,711,365	3,115	135,202,307	89,536	4,447,125,010	1.8%	49,669

<sup>1</sup> Allowances shown through June 30, 2019 are those presented in the census data.

Beginning June 30, 2020, disclosed pensioner benefits include anticipated increases due to non-finalized pensioners and other changes not otherwise reflected in the census data.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**  
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**ACTUARIAL AND STATUTORY CONTRIBUTION HISTORY**

**Table 10**

ACTUARIAL AND STATUTORY CONTRIBUTION HISTORY

<b>Fiscal Year Ended June 30</b>	<b>Actuarial Contribution Certified</b>	<b>Statutory Contribution Contributed<sup>1</sup></b>	<b>Employer Rate of Contribution<sup>2,3,4</sup></b>
2013	2,855,639,947	2,855,639,947	36.5%
2014	2,998,693,727	2,998,693,727	37.7%
2015	3,270,006,920	3,270,006,920	40.5%
2016	3,702,569,102	3,702,569,102	44.8%
2017	3,888,399,470	3,888,399,470	44.1%
2018	3,889,709,927	3,889,709,927	42.3%
2019	3,696,685,559	3,696,685,559	37.7%
2020	3,590,801,261	3,590,801,261	34.6%
2021	3,131,606,535	3,131,606,535	28.8%
2022	3,303,797,557	3,303,797,557	29.6%

<sup>1</sup>Represents total employer contributions accrued for fiscal year.

<sup>2</sup>The Employer Rate of Contribution equals the Statutory Contribution as a percentage of the salaries of members who were on payroll or projected to be on payroll (under One-Year Lag Methodology) as of the preceding June 30 adjusted, where applicable, to be consistent with collective bargaining agreements estimated to be achieved.

<sup>3</sup>Starting with the Fiscal Year ended June 30, 2019, the Employer Rate of Contribution is calculated before offsetting for Annuity Savings Accumulation Fund (ASAF).

<sup>4</sup> For Fiscal Year ended June 30, 2020, the Employer Rate of Contribution is calculated before offsetting for the Pre-Payment credit as well as the ASAF credit.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK  
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**FUNDED STATUS BASED ON ENTRY AGE NORMAL COST METHOD**

June 30 Valuation Date	Table 11					
	FUNDED STATUS BASED ON ENTRY AGE NORMAL COST METHOD					
	(\$ Thousands)					
June 30 Valuation Date	(1) Actuarial Value of Assets (AVA) <sup>1</sup>	(2) Accrued Liability (AL)	(3) Unfunded AL (UAL) <sup>1</sup> (2) - (1)	(4) Funded Ratio (1) / (2)	(5) Covered Payroll <sup>2</sup>	(6) UAL as a % of Covered Payroll (3) / (5)
2011	\$33,601,537	\$57,702,731	\$24,101,194	58.2%	\$7,888,204	305.5%
2012	33,871,180	58,783,399	24,912,219	57.6%	8,013,395	310.9%
2013	35,186,072	61,988,933	26,802,861	56.8%	8,128,378	329.7%
2014	37,521,424	67,309,977	29,788,553	55.7%	8,274,686	360.0%
2015	39,290,072	69,625,608	30,335,536	56.4%	8,844,651	343.0%
2016	41,015,087	69,964,412	28,949,325	58.6%	9,224,268	313.8%
2017	44,381,706	69,552,380	25,170,674	63.8%	9,848,899	255.6%
2018	50,012,149	72,205,318	22,193,169	69.3%	10,404,404	213.3%
2019	57,990,211	73,938,547	15,948,336	78.4%	10,903,755	146.3%
2020	60,693,821	75,452,987	14,759,166	80.4%	11,203,878	131.7%

<sup>1</sup> Unfunded Accrued Liability excludes receivables and estimated payables in the Actuarial Value of Assets.

<sup>2</sup> Salaries reflect the impact of recent labor contract settlements and certain non-union salary increases with retroactive effective dates, if any.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**  
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**COMPARATIVE SUMMARY OF ACCRUED LIABILITIES FUNDED BY ACTUARIAL VALUE OF ASSETS**

**Table 12**

COMPARATIVE SUMMARY OF ACCRUED LIABILITIES FUNDED BY ACTUARIAL VALUE OF ASSETS  
 SOLVENCY TEST  
 (\$ Thousands)

June 30 Valuation Date	Accrued Liabilities for			Actuarial Value of Assets <sup>1</sup>	Percentage of Accrued Liabilities Funded by Actuarial Value of Assets		
	Accumulated Member Contributions (A)	Current Retirees and Beneficiaries (B)	Active Members' Employer-Financed Portion (C)		(D)	(A)	(B)
2011	\$3,167,737	\$34,317,270	\$17,770,140	\$33,601,537	100%	89%	0%
2012	3,122,720	35,575,735	17,558,791	33,871,180	100	86	0
2013	3,330,541	37,451,527	18,565,932	35,186,072	100	85	0
2014	3,547,779	40,753,340	20,193,955	37,521,424	100	83	0
2015	3,646,765	42,095,109	20,888,473	39,290,072	100	85	0
2016	3,765,740	41,651,524	21,465,314	41,015,087	100	89	0
2017	3,291,234	42,149,684	23,681,032	44,381,706	100	97	0
2018	3,431,852	43,150,865	25,230,752	50,012,149	100	100	14
2019	3,617,468	43,741,267	26,579,812	57,990,211	100	100	40
2020	3,829,592	44,132,285	27,491,110	60,693,821	100	100	46

<sup>1</sup> The Actuarial Value of Assets excludes receivables and estimated payables.

See following "SOLVENCY TEST - NOTES."

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK QUALIFIED PENSION PLAN

## COMPARATIVE SUMMARY OF ACCRUED LIABILITIES FUNDED BY ACTUARIAL VALUE OF ASSETS (Cont'd)

### SOLVENCY TEST - NOTES

The ultimate test of financial soundness in a retirement system is its ability to pay all of its promised benefits when due. The retirement system's progress in accumulating assets to pay all promised benefits can be measured by comparing the Actuarial Value of Assets of the retirement system with the Accrued Liabilities for:

- a. Accumulated Member Contributions;
- b. Current Retirees and Beneficiaries; and
- c. Active Members' Employer-Financed Portion.

Prior to the June 30, 2019 valuation, the Accrued Liabilities were calculated under the Projected Unit Credit actuarial cost method. Beginning with the June 30, 2019 actuarial valuation, the Accrued Liabilities are calculated based on the Entry Age Normal (EAN) actuarial cost method.

The values in the table are dependent upon census data, benefit levels, and the actuarial assumptions and methods employed at each valuation date.

To fully evaluate trends in financial soundness, changes in assumptions need to be evaluated. The Actuarial Interest Rate assumption has been 7.0% per annum, net of investment expenses, throughout the period shown. However, other actuarial assumptions and methods have been revised. The two most recent changes in assumptions and methods occurred in the June 30, 2020 valuation used to compute the Employer Contributions for Fiscal Year 2022 and in the June 30, 2019 valuation used to compute the Employer Contributions for Fiscal Year 2021.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK  
QUALIFIED PENSION PLAN**

**CONTRIBUTIONS**

The benefits of the System are financed by member and employer contributions and from investment earnings of the System.

**A. MEMBER CONTRIBUTIONS**

**1. Coordinated Retirement Plan (Article 15):**

A Tier III/IV member of this Plan is mandated to contribute 3% of annual wages during all the years of coverage. If a member resigns or is otherwise terminated from City Service prior to eligibility for a benefit, all of his or her contributions with 5% interest will be refunded upon request.

Beginning October 1, 2000, Tier III and IV members are not required to make basic required contributions after the 10th anniversary of their membership date or completion of 10 years of City Service, whichever is earlier. Effective February 27, 2008, active members were eligible to enroll in a 55/25 plan (age 55 with 25 years of service). Those that chose the 55/25 plan were required to contribute an additional 1.85% of pay from February 28, 2008 until June 29, 2008, or until they have accumulated 25 years of service, whichever is later. New members joining after February 27, 2008 are automatically enrolled in a 55/27 plan (age 55 with 27 years of service). These members are required to pay an additional 1.85% of pay for the first 27 years of service. New members after December 10, 2009 who are represented by the UFT are required to contribute 4.85% of salary for the first 27 years of service and 1.85% of salary thereafter.

A Tier VI member is mandated to contribute between 3.0% and 6.0% of salary until the later of separation from service or retirement.

**2. Twenty-Year Pension Plan:**

A member of this Plan is required to contribute a percentage of salary which, if paid from the date of entry until the date of completion of 20 years of City Service, would provide at the payability date, an annuity of approximately one-eighth of the member's final salary as of the completion of 20 years of City Service. Tier II members who elected to join the 55/25 plan pay an additional 1.85% of pay.

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK

## QUALIFIED PENSION PLAN

### CONTRIBUTIONS (Cont'd)

#### 3. Age-55-Increased-Benefits Pension Plan:

A member of this Plan is required to contribute a percentage of salary, which if paid to the age for service retirement under the law in effect prior to July 1, 1970, would provide an annuity equal to approximately 1% of the average annual compensation during the last five years of service multiplied by years of service. Tier II members who elected to join the 55/25 plan pay an additional 1.85% of pay.

Member contributions are accumulated with interest in individually maintained accounts. Except under Article 15, upon retirement, the amount to the member's credit (i.e., Accumulated Deductions) is used to purchase an annuity on the basis of the tables adopted by the Teachers' Retirement Board. Upon death in service, the death benefits, including the Accumulated Deductions, are paid to the beneficiary and, on termination of employment other than by death or retirement, the Accumulated Deductions are returned to the member.

Beginning July 1, 1960, on a year-to-year basis, the required contributions of members were reduced by an Increased-Take-Home-Pay rate initially equal to 2.5% of salary. The following table shows effective periods and Increased-Take-Home-Pay rate.

<b>PERIOD</b>	<b>INCREASED-TAKE-HOME-PAY RATE</b>
<b>Board of Education Employees</b>	
07/01/60 – 06/30/61	2.5%
07/01/61 – 08/31/67	5.0%
09/01/67 – 08/31/68	8.0%
<b>Board of Higher Education Employees</b>	
09/01/67 – 08/31/68	5.0%
<b>Twenty-Year and Age-55-Increased-Benefits Pension Plan Members</b>	
09/01/68 – 06/30/70	8.0%
07/01/70 – 12/31/75	5.0%
01/01/76 and later	2.5%
<b>Article 15 Members</b>	
All	0.0%

TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK  
QUALIFIED PENSION PLAN

CONTRIBUTIONS (Cont'd)

**B. EMPLOYER CONTRIBUTIONS**

The Entry Age Normal cost method of funding is utilized by the Plan's Actuary to calculate the contributions required of the employers.

Employer contributions are accrued by the Plan and are funded by the employers on a current basis.



## Statistical Section

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## **STATISTICAL SECTION OVERVIEW**

This part of the Annual Comprehensive Financial Report presents detailed information as a context for understanding how the information in the Financial Section relates to the Teachers' Retirement System's overall condition. The following are the categories of the various schedules that are included in this Section:

### **QPP Financial Trend Information**

Schedules 1 through 3 contain trend information to help the reader understand how the QPP's financial performance and condition have changed over time.

### **QPP Demographic and Economic Information of In-Service Members**

Schedules 4 through 7 offer demographic and economic information of in-service members to help the reader understand this segment of the QPP membership population.

### **QPP Benefit Payment, and Demographic and Economic Information of Retired Members**

Schedules 8 through 17 present information to help the reader assess the QPP's current and future benefit payment obligations based on financial and demographic information of retired members.

### **QPP and TDA Operating Expense Information**

Schedule 18 contains trend information as it relates to investment and administrative expenses of the System.

### **TDA Financial Trend Information**

Schedules 19 through 21 contain trend information to help the reader understand how the TDA Program's financial performance and condition have changed over time.

### **TDA Membership Information of In-Service and Retired Members**

Schedules 22 through 26 present membership information to help the reader assess the TDA Program's demographics and financial activity.

**SCHEDULE 1: NET POSITION AND CHANGES IN NET POSITION—QPP**  
*In Thousands*

Year Ended	Pension Fund	Diversified Equity	Balanced Fund*	International Equity	Inflation Protection**	Sustainable Equity***	U.S. Equity Index****	International Equity Index****	Net Position	Changes in Net Position
2013	\$33,654,166	\$3,110,127	\$63,719	\$16,320	\$5,882	\$6,242	\$ -	\$ -	\$36,856,456	\$4,081,695
2014	41,199,953	3,210,248	48,507	17,082	5,662	8,487	-	-	44,489,939	7,633,483
2015	41,452,046	2,740,658	34,034	15,071	4,747	8,108	-	-	44,254,664	(235,275)
2016	41,440,456	2,142,217	22,786	12,262	3,930	7,894	-	-	43,629,545	(625,119)
2017	43,920,339	6,058,218	83,594	16,685	4,760	12,127	-	-	50,095,723	6,466,178
2018	48,172,801	6,256,312	69,477	16,458	4,553	12,875	-	-	54,532,476	4,436,753
2019	51,949,650	5,947,790	61,152	15,470	3,904	12,245	-	-	57,990,211	3,457,735
2020	53,732,776	5,499,519	57,166	13,813	-	12,791	2,795	90	59,318,950	1,328,739
2021	71,185,752	7,070,829	54,015	15,200	-	16,554	4,825	123	78,347,298	19,028,348
2022	58,724,228	5,213,617	40,692	12,835	-	13,532	4,081	443	64,009,428	(14,337,870)

<sup>\*</sup> Bond Fund prior to January 1, 2018<sup>\*\*</sup> Fund discontinued as of April 1, 2020<sup>\*\*\*</sup> Socially responsive equity fund prior to October 1, 2019<sup>\*\*\*\*</sup> New funds established as of January 1, 2020**SCHEDULE 2: 2022 CHANGES IN NET POSITION—QPP***In Thousands*

	Pension Fund	Diversified Equity	Balanced Fund	International Equity	Sustainable Equity	U.S. Equity Index	International Equity Index	Total
2021 Net Position	\$71,185,752	\$7,070,829	\$54,015	\$15,200	\$16,554	\$4,825	\$123	\$78,347,298
Member Contributions	273,503	163	20	-	-	-	-	273,686
Employer Contributions	3,364,372	7	-	-	-	-	-	3,364,379
Interest & Misc Income	1,420,977	(3,385)	-	(43)	1	-	-	1,417,550
Dividend Income	1,133,792	104,032	661	222	85	43	8	1,238,843
Realized Profit/Loss	4,440,385	577,397	105	191	724	96	6	5,018,904
Unrealized Profit/Loss	(16,226,897)	(1,754,664)	(5,128)	(2,455)	(3,909)	(734)	(88)	(17,993,875)
Benefit Payments	(4,174,103)	(702,359)	(6,687)	(1,534)	(1,753)	(688)	(32)	(4,887,156)
Refunds & Withdrawals	(21,134)	(1,198)	-	-	-	-	-	(22,332)
Interest Paid to TDA Funds	(2,140,639)	-	-	-	-	-	-	(2,140,639)
Transfer to other Systems	(2,993)	-	-	-	-	-	-	(2,993)
Interfund Transfer	53,675	(55,630)	(2,229)	1,306	1,907	545	426	-
TDA Rebalance	2,537	-	-	-	-	-	-	2,537
Provision for Expenses*	(584,999)	(21,575)	(65)	(52)	(77)	(6)	-	(606,774)
<b>2022 Net Changes</b>	<b>(\$12,461,524)</b>	<b>(\$1,857,212)</b>	<b>(\$13,323)</b>	<b>(\$2,365)</b>	<b>(\$3,022)</b>	<b>(\$744)</b>	<b>\$320</b>	<b>(\$14,337,870)</b>
<b>2022 Net Position</b>	<b>\$58,724,228</b>	<b>\$5,213,617</b>	<b>\$40,692</b>	<b>\$12,835</b>	<b>\$13,532</b>	<b>\$4,081</b>	<b>\$443</b>	<b>\$64,009,428</b>

<sup>\*</sup> Includes Administrative and Investment Expenses

## SCHEDULE 3: CHANGES IN NET POSITION—QPP

*In Thousands*

Year Ended June 30*	1 Net Member Contributions	2 Employer Contributions	3 Net Investment Income	4a Transfer from/to Other Systems	4b TDA Rebalance	5 TDA Fixed Interest Payments	6 Total Retirement Benefits	7 Loan Liquidation	8 Withdrawals	9 Other Benefits**	10 Administrative Expenses	11 Change in Net Position
2013	\$154,698	\$2,912,844	\$5,721,112	(\$44)	-	(\$1,047,979)	(\$3,537,881)	(\$24,006)	(\$12,690)	(\$44,677)	(\$39,682)	\$4,081,695
2014	154,962	3,054,424	9,435,906	404	-	(1,047,923)	(3,740,243)	(24,866)	(18,813)	(134,326)	(46,042)	7,633,483
2015	158,590	3,325,528	1,611,929	329	-	(1,248,988)	(3,884,026)	(28,775)	(14,312)	(97,159)	(58,391)	(235,275)
2016	173,696	3,760,714	960,267	1,233	-	(1,354,207)	(3,954,654)	(20,126)	(13,639)	(119,036)	(59,367)	(625,119)
2017	180,076	3,945,768	8,133,280	(2,291)	(43,938)	(1,466,615)	(4,097,646)	(16,958)	(13,493)	(91,215)	(60,790)	6,466,178
2018	195,241	3,949,689	6,275,115	(3,534)	32,704	(1,595,462)	(4,234,277)	(17,935)	(17,262)	(82,450)	(65,076)	4,436,753
2019	217,205	3,759,199	5,721,310	1,222	27,449	(1,716,679)	(4,370,616)	(12,800)	(16,580)	(87,684)	(64,291)	3,457,735
2020	226,920	3,652,570	3,911,187	(2,798)	42,651	(1,846,173)	(4,437,206)	(14,476)	(15,033)	(124,371)	(64,532)	1,328,739
2021	247,751	3,193,270	22,362,988	(5,550)	(4,175)	(1,998,388)	(4,691,132)	(10,305)	(18,021)	20,010	(68,100)	19,028,348
2022	273,686	3,364,379	(10,853,862)	(2,993)	2,537	(2,140,639)	(4,743,650)	(23,305)	(22,332)	(120,201)	(71,490)	(14,337,870)

### Total Retirement Benefits By Type

Year Ended June 30*	6a Service Retirement Allowances	6b Ordinary Disability Retirement Allowances	6c Accident Disability Retirement Allowances	6d Death Benefits To Beneficiaries	Total Retirement Benefits
2013	(\$3,337,405)	(\$48,492)	(\$28,487)	(\$123,497)	(\$3,537,881)
2014	(3,531,071)	(51,484)	(23,087)	(134,601)	(3,740,243)
2015	(3,660,115)	(54,633)	(30,276)	(139,002)	(3,884,026)
2016	(3,721,783)	(56,624)	(30,912)	(145,335)	(3,954,654)
2017	(3,855,232)	(58,447)	(31,470)	(152,497)	(4,097,646)
2018	(3,979,655)	(61,606)	(32,700)	(160,316)	(4,234,277)
2019	(4,094,412)	(64,061)	(33,510)	(178,633)	(4,370,616)
2020	(4,151,269)	(65,477)	(32,766)	(187,694)***	(4,437,206)
2021	(4,378,692)	(65,481)	(34,123)	(212,836)***	(4,691,132)
2022	(4,435,350)	(66,100)	(35,186)	(207,014)	(4,743,650)

\* Benefit Payment categories for 2013-2021 take into account retirement valuation reports.

\*\* Other Benefits consists of Retiree Advances, delayed interest payments, Active Death Payments, Accidental Death, and, excluding Fiscal Year 2022, adjustment of retirement benefits is based on retirement valuation reports.

\*\*\* Death Benefits for 2020 include \$1,469 of Accidental Death benefits; Death Benefits for 2021 include \$1,644 of Accidental Death benefits (see schedule 17).

Note: Benefit payments and withdrawals include columns 6, 7, 8, and 9.

**SCHEDULE 4: PARTICIPATING EMPLOYERS—QPP***As of June 30, 2020 (Lag)*

<b>Employer</b>		<b>Number of In-Service Members*</b>	<b>Annual Payroll*</b>
NYC Department of Education and City University of New York		117,229	\$10,686,788,044
City University of New York			
Senior Colleges & Community Colleges		6,499	468,022,060
Charter Schools**	Start Date	Type	
Future Leaders Institute	09/2005	DOE Conversion - UFT	37
Harriet Tubman	09/2005	DOE Conversion - Non Union	60
Imagine Me Leadership	09/2017	Non Conversion - Non Union	16
Kipp Academy	09/2000	DOE Conversion - UFT	79
Kipp NYC	07/2016	Non Conversion - Non Union	34
Opportunity	09/2004	Non Conversion - UFT	67
Renaissance	09/2000	DOE Conversion - UFT	54
South Bronx	09/2015	Non Conversion - UFT	37
University Prep	09/2008	Non Conversion - UFT	69
Voice	09/2008	Non Conversion - Non Union	69
Wildcat	09/2000	DOE Conversion - UFT	26
<b>SUBTOTAL</b>		548	\$49,067,922
<b>TOTAL</b>		<b>124,276</b>	<b>\$11,203,878,026</b>

\* The number of in-service employees and their corresponding Annual Payroll include only current active members receiving salary as of each June 30th.

\*\* Charter Schools that were converted from the NYC Department of Education Schools became participating employers when they were first converted to Charter Schools. Unless restricted by a collective bargaining agreement, a non-conversion Charter School decision to participate is voluntary and at the discretion of the individual school.

## SCHEDULE 5: ACTIVE MEMBERSHIP SUMMARY—QPP

Year	As of July 1	Contributors Registered	Payroll Updates	Contributors Withdrawn	As of June 30 <sup>th</sup>
2012	109,636	9,519	(3,135)	(3,560)	112,460
2013	112,460	7,101	(3,744)	(3,336)	112,481
2014	112,481	7,915	(4,032)	(4,638)	111,726
2015	111,726	8,727	(2,499)	(3,302)	114,652
2016	114,652	10,239	(2,519)	(4,171)	118,201
2017	118,201	9,466	(2,894)	(3,947)	120,826
2018	120,826	8,797	(3,619)	(4,240)	121,764
2019	121,764	7,357	(1,844)	(3,941)	123,336
2020	123,336	7,074	(1,438)	(4,696)	124,276
2021	124,276	3,630	(837)	(3,858)	123,211

Active membership summary based on latest valuation reports. Estimated active memberships of 124,000 for 2022.

## SCHEDULE 6: TABLE OF AVERAGE SALARIES OF IN-SERVICE MEMBERS—QPP

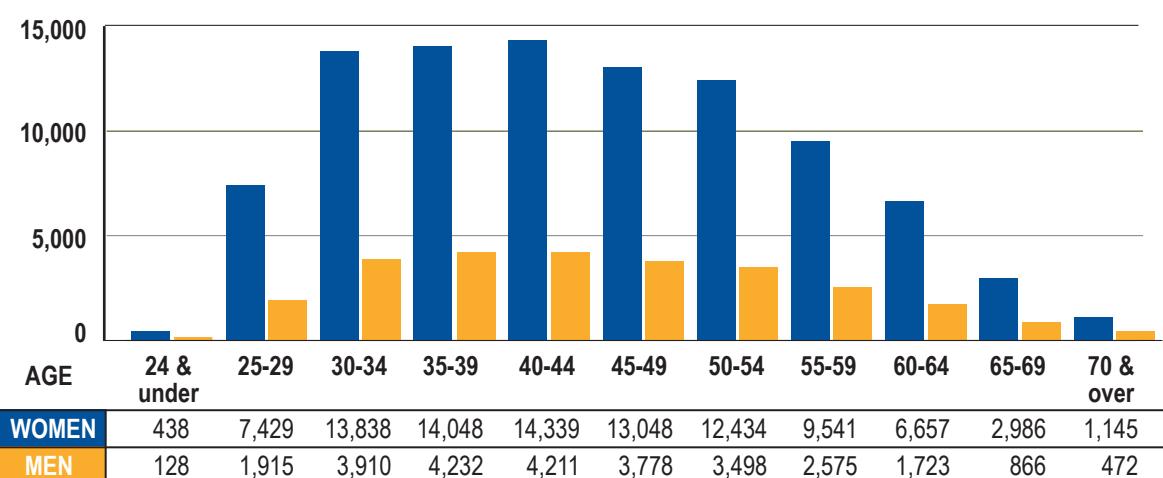
*As of June 30, 2021*

<b>MEN</b>			<b>WOMEN</b>		
Age	Number of In-Service Members*	Average Salaries*	Age	Number of In-Service Members*	Average Salaries*
24 & under	128	\$50,803	24 & under	438	\$56,709
25-29	1,915	66,786	25-29	7,429	69,696
30-34	3,910	78,679	30-34	13,838	81,344
35-39	4,232	91,591	35-39	14,048	91,546
40-44	4,211	101,729	40-44	14,339	98,207
45-49	3,778	109,428	45-49	13,048	101,918
50-54	3,498	112,759	50-54	12,434	100,926
55-59	2,575	109,627	55-59	9,541	94,858
60-64	1,723	104,601	60-64	6,657	89,858
65-69	866	98,213	65-69	2,986	88,516
70 & over	472	89,185	70 & over	1,145	86,601
<b>TOTAL</b>	<b>27,308</b>	<b>\$97,244</b>	<b>TOTAL</b>	<b>95,903</b>	<b>\$91,904</b>
TOTAL ANNUAL SALARIES		\$2,655,542,864	TOTAL ANNUAL SALARIES		\$8,813,910,122

\* The member count and the annual payroll include only those who were on the June 30 payroll.

## IN-SERVICE MEMBERS ON PAYROLL—DISTRIBUTION BY AGE

*As of June 30, 2021*



### SCHEDULE 7: IN-SERVICE MEMBERSHIP BY TIER AND BY TITLE—QPP

Year	Average Age	IN-SERVICE MEMBERSHIP BY TIER					IN-SERVICE MEMBERSHIP BY TITLE					
		Tier I	Tier II	Tier III	Tier IV	Tier VI	Teachers	Paraprofessionals	Principals and Administrators	Full-Time CUNY Faculty	Adjunct CUNY Instructors	Others
2013	45.3	0.7%	0.4%	1.4%	91.4%	6.1%	64.9%	16.9%	5.5%	2.7%	2.4%	7.6%
2014	44.8	0.5%	0.2%	1.0%	86.3%	12.1%	64.7%	16.6%	5.7%	3.0%	2.4%	7.6%
2015	44.8	0.4%	0.2%	0.7%	81.3%	17.4%	64.5%	16.8%	5.4%	3.3%	2.3%	7.7%
2016	44.7	0.3%	0.2%	0.6%	81.0%	17.9%	63.6%	17.3%	5.6%	3.4%	2.3%	7.8%
2017	44.6	0.2%	0.1%	0.5%	71.6%	27.6%	62.9%	17.7%	5.6%	3.7%	2.3%	7.8%
2018	44.7	0.2%	0.1%	0.4%	67.7%	31.6%	62.9%	17.6%	5.6%	3.9%	2.3%	7.7%
2019	44.8	0.1%	0.1%	0.3%	64.5%	35.0%	62.5%	17.8%	5.6%	4.2%	2.3%	7.6%
2020	44.9	0.1%	0.1%	0.2%	61.3%	38.3%	62.3%	17.8%	5.4%	4.2%	2.4%	7.9%
2021	45.3	0.1%	0.1%	0.2%	59.4%	40.2%	62.4%	17.8%	5.4%	4.2%	2.4%	7.8%
2022	45.1	0.1%	0.0%	0.1%	54.3%	45.5%	61.1%	18.6%	5.4%	4.3%	2.3%	8.3%

### SCHEDULE 8: RETIREE SUMMARY—QPP

Year	As of July 1	Retirees Registered	Payroll Status Changes	Retirees Withdrawn	As of June 30 <sup>th</sup>
2012	74,064	4,180	(412)	(1,293)	76,539
2013	76,539	3,541	(451)	(1,452)	78,177
2014	78,177	3,791	(186)	(1,363)	80,419
2015	80,419	4,171	(308)	(1,505)	82,777
2016	82,777	3,267	(16)	(1,935)	84,093
2017	84,093	3,030	(153)	(2,200)	84,770
2018	84,770	3,578	(21)	(2,032)	86,295
2019	86,295	4,122	198	(2,108)	88,507
2020	88,507	3,477	19	(2,467)	89,536
2021	89,536	2,921	8	(2,468)	89,997

Retiree membership summary based on latest valuation reports. Estimated retiree memberships of 92,000 for 2022.

### SCHEDULE 9: AVERAGE YEARS OF SERVICE OF NEW RETIREES—QPP

#### Average Years of Service

Year	Men	Women	Men and Women	Total Number of Retirees*
2012	25.8	25.2	25.3	4,180
2013	25.1	24.8	24.9	3,541
2014	24.2	24.7	24.6	3,791
2015	24.9	24.0	24.2	4,171
2016	24.5	24.3	24.4	3,267
2017	25.6	25.0	25.1	3,030
2018	25.6	25.1	25.2	3,578
2019	25.6	25.0	25.1	4,122
2020	26.1	25.4	25.5	3,477
2021	26.1	25.0	25.3	2,921

\* Total number of new retirees is based on latest valuation reports.

### SCHEDULE 10: PAYMENT OPTIONS CHOSEN AT RETIREMENT—QPP

Year	Average Age	OPTIONS CHOSEN BY TIER I/II MEMBERS					OPTIONS CHOSEN BY TIER III/IV/VI MEMBERS			
		Maximum Payout	Pop-Up Payments	Continuing Payments	Lump-Sum Payment	Guaranteed Number of Payments	Maximum Payout	Pop-Up Payments	Continuing Payments	Guaranteed Number of Payments
2013	60.7	64.1%	21.5%	11.5%	1.3%	1.6%	68.9%	19.1%	10.3%	1.7%
2014	60.8	62.1%	25.2%	10.7%	1.1%	0.9%	69.2%	19.5%	9.6%	1.7%
2015	60.8	50.8%	25.4%	20.0%	1.5%	2.3%	68.5%	18.1%	10.6%	2.8%
2016	60.9	59.4%	20.3%	17.6%	0.7%	2.0%	68.2%	19.6%	10.7%	1.5%
2017	60.9	62.4%	23.7%	11.9%	0.0%	2.0%	67.8%	19.4%	10.9%	1.9%
2018	61.0	56.1%	27.1%	15.0%	0.9%	0.9%	66.6%	20.3%	11.6%	1.5%
2019	61.0	56.4%	15.4%	25.6%	1.3%	1.3%	66.7%	20.5%	11.4%	1.4%
2020	61.0	59.1%	18.2%	16.6%	6.1%	0.0%	66.3%	20.4%	12.0%	1.3%
2021	61.1	58.7%	10.9%	26.1%	2.1%	2.2%	65.6%	18.6%	13.4%	2.4%
2022	61.2	54.9%	21.6%	19.6%	3.9%	0.0%	66.5%	16.5%	14.4%	2.6%

**SCHEDULE 11: RETIREES' AVERAGE MONTHLY BENEFIT PAYMENTS AND FINAL AVERAGE SALARY  
ORGANIZED BY YEARS OF CREDITED SERVICE—QPP**

	<b>Year*</b>	<b>Survivor</b>	<b>Other</b>	<b>Under 5 Yrs**</b>	<b>5 - 9 Yrs</b>	<b>10 - 14 Yrs</b>	<b>15 - 19 Yrs</b>	<b>20 - 24 Yrs</b>	<b>25 - 29 Yrs</b>	<b>30 - 35 Yrs</b>	<b>35 &amp; up Yrs</b>	<b>Total</b>
	<b>Year*</b>	<b>Under 5 Yrs**</b>										
	<b>Year*</b>	<b>5 - 9 Yrs</b>										
	<b>Year*</b>	<b>10 - 14 Yrs</b>										
	<b>Year*</b>	<b>15 - 19 Yrs</b>										
	<b>Year*</b>	<b>20 - 24 Yrs</b>										
	<b>Year*</b>	<b>25 - 29 Yrs</b>										
	<b>Year*</b>	<b>30 - 35 Yrs</b>										
	<b>Year*</b>	<b>35 &amp; up Yrs</b>										
Retirees	2013	4,118	5,363	64	1,270	4,704	5,862	9,371	16,634	19,064	11,727	78,177
Retirees	2014	4,257	8,208	65	1,377	5,054	6,011	9,600	16,671	18,140	11,036	80,419
Retirees	2015	4,403	4,620	68	1,481	5,543	6,374	10,588	18,260	19,649	11,791	82,777
Retirees	2016	4,564	4,989	67	1,516	5,794	6,535	10,854	18,568	19,536	11,670	84,093
Retirees	2017	4,635	3,879	69	1,566	5,975	6,713	11,266	19,106	19,912	11,649	84,770
Retirees	2018	4,651	3,264	67	1,679	6,290	6,909	11,720	19,784	20,279	11,652	86,295
Retirees	2019	4,734	7,064	65	1,722	6,245	6,757	11,661	19,027	19,839	11,393	88,507
Retirees	2020	4,798	8,839	64	1,790	6,235	6,615	11,655	18,807	19,576	11,157	89,536
Retirees	2021	5,067	11,166	66	1,832	6,083	6,340	11,398	18,137	19,068	10,840	89,997
Retirees	2022***	5,169	10,429	64	1,857	6,377	6,637	12,232	18,857	19,596	10,782	92,000
	<b>Year*</b>	<b>Under 5 Yrs**</b>										
Avg Monthly Benefit	2013		\$1,292	\$597	\$993	\$1,478	\$2,417	\$3,822	\$4,969	\$6,532		
Avg Monthly Benefit	2014		\$1,322	\$614	\$1,005	\$1,531	\$2,451	\$3,897	\$5,100	\$6,764		
Avg Monthly Benefit	2015		\$1,324	\$606	\$1,046	\$1,541	\$2,609	\$4,054	\$5,279	\$7,350		
Avg Monthly Benefit	2016		\$1,290	\$681	\$1,118	\$1,555	\$2,601	\$4,065	\$5,202	\$6,895		
Avg Monthly Benefit	2017		\$1,360	\$648	\$1,112	\$1,626	\$2,693	\$4,198	\$5,368	\$7,061		
Avg Monthly Benefit	2018		\$1,442	\$995	\$1,219	\$1,714	\$2,792	\$4,266	\$5,481	\$7,240		
Avg Monthly Benefit	2019		\$1,506	\$906	\$1,153	\$1,620	\$2,741	\$4,276	\$5,475	\$7,232		
Avg Monthly Benefit	2020		\$1,562	\$688	\$1,189	\$1,649	\$2,790	\$4,319	\$5,541	\$7,285		
Avg Monthly Benefit	2021		\$1,670	\$643	\$1,139	\$1,740	\$2,877	\$4,493	\$5,867	\$7,873		
Avg Monthly Benefit	2022***		\$1,611	\$672	\$1,164	\$1,743	\$2,962	\$4,510	\$5,822	\$7,734		
	<b>Year*</b>	<b>Under 5 Yrs**</b>										
Final Average Salary	2013		\$31,076	\$43,539	\$46,381	\$47,698	\$59,738	\$69,113	\$74,985	\$82,940		
Final Average Salary	2014		\$30,646	\$43,911	\$47,700	\$48,561	\$60,661	\$70,338	\$75,376	\$83,206		
Final Average Salary	2015		\$30,946	\$44,441	\$49,831	\$50,645	\$63,802	\$73,796	\$77,860	\$84,692		
Final Average Salary	2016		\$30,465	\$44,767	\$51,350	\$52,142	\$65,096	\$75,755	\$78,660	\$85,340		
Final Average Salary	2017		\$30,945	\$45,569	\$52,882	\$54,286	\$67,606	\$78,798	\$80,914	\$86,726		
Final Average Salary	2018		\$32,029	\$45,696	\$53,990	\$55,783	\$69,233	\$80,890	\$82,536	\$87,830		
Final Average Salary	2019		\$32,819	\$45,373	\$53,449	\$55,695	\$69,782	\$81,534	\$83,186	\$88,424		
Final Average Salary	2020		\$34,330	\$45,396	\$53,968	\$56,659	\$70,950	\$82,503	\$84,193	\$89,319		
Final Average Salary	2021		\$33,943	\$45,370	\$53,757	\$56,937	\$71,560	\$83,173	\$84,663	\$89,814		
Final Average Salary	2022***		\$34,667	\$45,446	\$54,828	\$59,023	\$73,283	\$85,716	\$86,718	\$91,222		

\* Retiree figures for 2013-2021 take into account retirement valuation reports.

\*\* Retirees include Service Retirement, Accidental Disability and Ordinary Disability. The majority of retirees with under 5 Yrs. of service are Accidental Disability.

\*\*\* Retiree figures for 2022 include Service or FAS retirement revision cases previously categorized as "Other."

Note: If elected, total monthly benefits for tier I and tier II members depend on current unit value.

## SCHEDULE 12: AVERAGE ANNUAL BENEFIT PAYMENT AMOUNTS—QPP

SERVICE RETIREMENT BENEFITS		ORDINARY (NON-DUTY) DISABILITY BENEFITS		ACCIDENTAL (DUTY) DISABILITY BENEFITS		SURVIVORS' BENEFITS		
Year	Number	Average Annual Allowance	Number	Average Annual Allowance	Number	Average Annual Allowance	Number	Average Annual Benefit
2012	69,515	\$45,718	2,242	\$20,549	711	\$39,116	4,071	\$28,235
2013	71,017	46,994	2,299	21,093	713	39,954	4,148	29,773
2014	73,069	48,325	2,379	21,641	714	40,738	4,257	31,619
2015	75,251	48,639	2,481	22,020	732	41,360	4,313	32,229
2016	76,346	48,749	2,541	22,284	745	41,492	4,461	32,579
2017	76,973	50,086	2,549	22,929	744	42,299	4,504	33,858
2018	78,364	50,784	2,640	23,336	757	43,197	4,534	35,359
2019	80,048	51,149	2,728	23,483	776	43,183	4,955	36,051
2020	80,915	51,304	2,731	23,975	750	43,689	5,140	36,516*
2021	81,213	53,916	2,655	24,663	758	45,017	5,371	39,627**

\* Survivors' benefits for 2020 include 30 Accidental Deaths with average annual benefit of \$48,956.

\*\* Survivors' benefits for 2021 include 35 Accidental Deaths with an average annual benefits of \$46,967 (see Schedule 17).

## SCHEDULE 13: SERVICE RETIREMENT ALLOWANCES—QPP

*As of June 30, 2021*

MEN			WOMEN		
Age	Number of Retirees	Average Annual Allowance	Age	Number of Retirees	Average Annual Allowance
under 30	-	-	under 30	-	-
30-34	-	-	30-34	-	-
35-39	-	-	35-39	-	-
40-44	-	-	40-44	-	-
45-49	-	-	45-49	-	-
50-54	-	-	50-54	-	-
55-59	602	\$60,737	55-59	1,893	\$57,109
60-64	1,652	54,962	60-64	5,245	50,628
65-69	2,753	50,662	65-69	10,316	46,546
70-74	5,495	63,325	70-74	15,050	54,458
75-79	5,771	69,575	75-79	11,663	53,868
80-84	2,921	65,492	80-84	7,057	48,349
85-89	1,693	64,761	85-89	4,290	43,897
90 & over	1,169	62,375	90 & over	3,643	43,189
<b>TOTAL</b>	<b>22,056</b>	<b>\$63,030</b>	<b>TOTAL</b>	<b>59,157</b>	<b>\$50,518</b>

TOTAL ANNUAL ALLOWANCES PAID \$1,390,179,280

TOTAL ANNUAL ALLOWANCES PAID \$2,988,513,152

**SCHEDULE 14: ORDINARY DISABILITY RETIREMENT ALLOWANCES—QPP***As of June 30, 2021*

MEN			WOMEN		
Age	Number of Retirees	Average Annual Allowance	Age	Number of Retirees	Average Annual Allowance
under 30	-	-	under 30	-	-
30-34	-	-	30-34	-	-
35-39	2	\$28,366	35-39	3	\$19,121
40-44	8	21,399	40-44	24	28,469
45-49	16	30,148	45-49	76	24,495
50-54	38	30,179	50-54	154	27,207
55-59	52	29,646	55-59	259	26,696
60-64	77	26,693	60-64	369	23,891
65-69	98	24,918	65-69	394	23,117
70-74	123	28,814	70-74	402	24,184
75-79	84	28,476	75-79	238	22,365
80-84	22	26,150	80-84	119	19,163
85-89	7	24,309	85-89	56	19,394
90 & over	9	31,316	90 & over	25	23,194
<b>TOTAL</b>	<b>536</b>	<b>\$27,723</b>	<b>TOTAL</b>	<b>2,119</b>	<b>\$23,889</b>

TOTAL ANNUAL ALLOWANCES PAID \$14,859,424

TOTAL ANNUAL ALLOWANCES PAID \$50,621,643

**SCHEDULE 15: ACCIDENT DISABILITY RETIREMENT ALLOWANCES—QPP***As of June 30, 2021*

MEN			WOMEN		
Age	Number of Retirees	Average Annual Allowance	Age	Number of Retirees	Average Annual Allowance
under 30	-	-	under 30	-	-
30-34	-	-	30-34	-	-
35-39	1	\$38,224	35-39	4	\$40,312
40-44	1	60,161	40-44	8	46,215
45-49	8	50,585	45-49	15	43,965
50-54	10	63,756	50-54	23	45,405
55-59	5	44,609	55-59	60	45,029
60-64	17	52,405	60-64	81	41,217
65-69	24	54,312	65-69	97	42,626
70-74	49	48,063	70-74	123	43,403
75-79	45	51,757	75-79	94	42,556
80-84	11	62,032	80-84	34	44,854
85-89	8	44,640	85-89	23	31,555
90 & over	6	44,415	90 & over	11	52,314
<b>TOTAL</b>	<b>185</b>	<b>\$51,612</b>	<b>TOTAL</b>	<b>573</b>	<b>\$42,888</b>

TOTAL ANNUAL ALLOWANCES PAID \$9,548,146

TOTAL ANNUAL ALLOWANCES PAID \$24,574,918

**SCHEDULE 16: SURVIVORS' BENEFITS—QPP**  
*As of June 30, 2021*

MEN			WOMEN		
Age	Number of Beneficiaries	Average Annual Benefit	Age	Number of Beneficiaries	Average Annual Benefit
under 30	7	\$26,673	under 30	13	\$20,422
30-34	7	34,723	30-34	11	27,130
35-39	12	21,665	35-39	18	32,950
40-44	22	23,569	40-44	24	24,190
45-49	23	32,218	45-49	32	20,537
50-54	32	21,624	50-54	45	25,356
55-59	50	18,715	55-59	91	19,577
60-64	83	26,213	60-64	154	28,322
65-69	117	31,406	65-69	231	38,828
70-74	234	34,123	70-74	509	46,068
75-79	298	39,668	75-79	692	47,379
80-84	239	33,232	80-84	663	47,706
85-89	213	33,093	85-89	559	45,424
90 & over	297	29,090	90 & over	660	40,036
<b>TOTAL</b>	<b>1,634</b>	<b>\$32,352</b>	<b>TOTAL</b>	<b>3,702</b>	<b>\$42,768</b>
TOTAL ANNUAL BENEFITS PAID	\$52,863,856		TOTAL ANNUAL BENEFITS PAID	\$158,328,183	

**SCHEDULE 17: ACCIDENTAL DEATH BENEFITS—QPP**  
*As of June 30, 2021*

MEN			WOMEN		
Age	Number of Beneficiaries	Average Annual Benefit	Age	Number of Beneficiaries	Average Annual Benefit
under 30	1	\$22,601	under 30	3	\$31,442
30-34	1	21,346	30-34	-	-
35-39	-	-	35-39	1	48,176
40-44	1	58,442	40-44	1	60,031
45-49	1	51,010	45-49	3	57,355
50-54	2	58,044	50-54	1	58,001
55-59	2	57,416	55-59	6	55,495
60-64	5	39,805	60-64	4	43,743
65-69	1	54,416	65-69	2	32,782
70-74	-	-	70-74	-	-
75-79	-	-	75-79	-	-
80-84	-	-	80-84	-	-
85-89	-	-	85-89	-	-
90 & over	-	-	90 & over	-	-
<b>TOTAL</b>	<b>14</b>	<b>\$45,554</b>	<b>TOTAL</b>	<b>21</b>	<b>\$47,910</b>
TOTAL ANNUAL BENEFITS PAID	\$637,759		TOTAL ANNUAL BENEFITS PAID	\$1,006,103	

**SCHEDULE 18: NUMBER AND COST OF INVESTMENT AND  
ADMINISTRATIVE SERVICES (QPP & TDA)**

Year Ended	Investment Agent Count	Investment Expenses	TRS Employees Count*	Administrative Expenses
2013	227	\$151,401,872	373	\$49,877,929
2014	230	\$169,736,553	376	\$63,230,181
2015	228	\$205,719,517	370	\$84,173,556
2016	230	\$209,422,244	365	\$91,998,934
2017	221	\$308,283,033	351	\$93,821,614
2018	227	\$352,816,375	347	\$87,532,002
2019	228	\$299,613,733	350	\$88,255,115
2020	230	\$291,433,988	338	\$88,488,346
2021	238	\$419,445,615	336	\$86,389,714
2022	246	\$559,477,326**	338	\$91,362,734

\* Employee count does not include Consultants, Temporary Employees, and Summer Interns.

\*\* 2022 details are found in the schedule: Summary of Investment Managers and Fees of the Investment Section.

**SCHEDULE 19: NET POSITION AND CHANGES IN NET POSITION—TDA PROGRAM**  
*In Thousands*

Year Ended	Pension Fund	Diversified Equity	Balanced Fund*	International Equity	Inflation Protection**	Sustainable Equity***	U.S. Equity Index****	International Equity Index****	Net Position	Changes in Net Position
2013	\$16,021,066	\$6,762,476	\$304,675	\$71,621	\$28,001	\$41,837	\$ -	\$ -	\$23,229,676	\$ 2,287,579
2014	17,450,769	7,909,321	304,788	96,028	37,488	75,095	-	-	25,873,489	2,643,813
2015	18,922,602	7,869,896	302,816	97,942	39,437	100,889	-	-	27,333,582	1,460,093
2016	20,511,536	7,365,430	312,613	96,081	41,444	117,236	-	-	28,444,340	1,110,758
2017	22,223,301	8,194,607	310,195	120,211	50,138	153,641	-	-	31,052,093	2,607,753
2018	23,963,722	8,704,088	316,507	143,858	60,281	192,526	-	-	33,380,982	2,328,889
2019	25,745,844	8,804,658	340,687	156,367	67,024	218,815	-	-	35,333,395	1,952,413
2020	27,638,167	8,481,059	432,171	162,175	-	290,399	16,492	3,062	37,023,525	1,690,130
2021	29,976,852	11,670,982	527,697	235,938	-	476,762	60,581	10,663	42,959,475	5,935,950
2022	31,779,391	9,197,288	495,935	197,309	-	432,814	86,396	14,936	42,204,069	(755,406)

\* Bond Fund prior to January 1, 2018

\*\* Fund discontinued as of April 1, 2020

\*\*\* Socially Responsive Equity Fund prior to October 1, 2019

\*\*\*\* New fund established as of January 1, 2020

**SCHEDULE 20: CHANGES IN NET POSITION—TDA PROGRAM***In Thousands*

Year Ended	Net Member Contributions	Fixed Interest from TRSNYC Pension Fund	Net Investment Income	TDA Rebalance	Refund and Withdrawals	Loan Liquidation	Other Benefits*	Annuitized Payments	Administrative Expenses	Change in Net Position
2013	633,900	1,047,979	1,216,793	-	(447,099)	(13,560)	(104,402)	(35,837)	(10,195)	2,287,579
2014	638,979	1,147,923	1,631,411	-	(557,402)	(19,700)	(139,759)	(40,451)	(17,188)	2,643,813
2015	662,601	1,248,988	435,632	-	(646,446)	(12,058)	(157,994)	(44,847)	(25,783)	1,460,093
2016	717,566	1,354,207	(11,194)	-	(699,250)	(9,221)	(164,384)	(44,334)	(32,632)	1,110,758
2017	743,663	1,466,615	1,398,500	43,938	(768,207)	(13,069)	(183,628)	(47,027)	(33,032)	2,607,753
2018	856,294	1,595,462	1,055,191	(32,704)	(874,483)	(8,511)	(188,227)	(51,677)	(22,456)	2,328,889
2019	995,035	1,716,679	669,540	(27,449)	(985,941)	(10,889)	(328,641)	(51,957)	(23,964)	1,952,413
2020	1,029,758	1,846,173	327,613	(42,651)	(964,232)	(7,946)	(422,068)	(52,560)**	(23,957)	1,690,130
2021	1,060,833	1,998,388	3,910,934	4,175	(567,119)	(7,828)	(390,990)	(54,153)	(18,290)	5,935,950
2022	1,088,219	2,140,639	(2,087,044)	(2,537)	(1,318,714)	(11,145)	(486,852)	(58,100)	(19,872)	(755,406)

\* Other Benefits consists of active death payments and delayed interest payments.

\*\* Adjusted for \$40,525 of TDAB annuity under Other Benefits (originally classified under Annuitized Payments).

**SCHEDULE 21: 2022 CHANGES IN NET POSITION—TDA PROGRAM***In Thousands*

	Pension Fund	Diversified Equity	Balanced Fund	International Equity	Sustainable Equity	U.S. Equity Index	International Equity Index	Total
2021 Net Position	\$29,976,852	\$11,670,982	\$527,697	\$235,938	\$476,762	\$60,581	\$10,663	\$42,959,475
Member Contributions	735,120	227,062	38,991	21,593	44,280	16,897	4,276	1,088,219
Payment of interest on TDA fixed return funds	2,140,639	-	-	-	-	-	-	2,140,639
Interest & Misc Income	29,633	(5,908)	1,838	(1,019)	16	-	-	24,560
Dividend Income	-	181,588	7,349	5,230	2,787	944	319	198,217
Realized Profit/Loss	-	1,007,851	1,168	4,516	23,721	2,080	253	1,039,589
Unrealized Profit/Loss	-	(3,062,780)	(57,010)	(57,954)	(128,055)	(15,951)	(3,466)	(3,325,216)
Benefit Payments	(528,271)	(26,908)	(459)	(109)	(248)	(97)	(5)	(556,097)
Refunds & Withdrawals	(1,014,826)	(265,305)	(17,345)	(4,932)	(13,308)	(2,610)	(388)	(1,318,714)
Interfund Transfer	362,771	(411,357)	(4,491)	(3,586)	32,194	21,693	2,776	-
TDA Rebalance	77,473	(79,815)	269	(1,116)	(2,852)	2,976	528	(2,537)
Provision for Expenses*	-	(38,122)	(2,072)	(1,252)	(2,483)	(117)	(20)	(44,066)
<b>2022 Net Changes</b>	<b>\$1,802,539</b>	<b>(\$2,473,694)</b>	<b>(\$31,762)</b>	<b>(\$38,629)</b>	<b>(\$43,948)</b>	<b>\$25,815</b>	<b>\$4,273</b>	<b>(\$755,406)</b>
<b>2022 Net Position</b>	<b>\$31,779,391</b>	<b>\$9,197,288</b>	<b>\$495,935</b>	<b>\$197,309</b>	<b>\$432,814</b>	<b>\$86,396</b>	<b>\$14,936</b>	<b>\$42,204,069</b>

\* Includes Administrative and Investment Expenses

## SCHEDULE 22: TDA PROGRAM SUMMARY (EXCLUDES ANNUITANTS)

Year	As of July 1	Contributors Registered	Payroll Status Changes	Contributors Withdrawn	As of June 30 <sup>th</sup>
2012	76,357	1,435	2,965	(3,513)	77,244
2013	77,244	1,834	2,095	(3,400)	77,773
2014	77,773	1,914	1,587	(3,569)	77,705
2015	77,705	2,751	3,168	(2,440)	81,184
2016	81,184	3,367	3,464	(3,108)	84,907
2017	84,907	2,851	3,037	(3,101)	87,694
2018	87,694	2,774	3,436	(3,256)	90,648
2019	90,648	2,179	3,934	(3,161)	93,600
2020	93,600	1,948	3,389	(3,826)	95,111
2021	95,111	1,049	3,840	(3,210)	96,790

*Active membership summary is based on latest valuation reports.*

## SCHEDULE 23: TDA PROGRAM ANNUITANTS SUMMARY

Annuitants Year	Payroll As of July 1	Annuitants Registered	Status Changes	Withdrawn	As of June 30 <sup>th</sup>
2012	3,251	140	(42)	(165)	3,184
2013	3,184	97	(50)	(176)	3,055
2014	3,055	120	(5)	(134)	3,036
2015	3,036	105	(18)	(132)	2,991
2016	2,991	86	16	(163)	2,930
2017	2,930	97	3	(164)	2,866
2018	2,866	91	28	(174)	2,811
2019	2,811	64	74	(122)	2,827
2020	2,827	51	26	(149)	2,755
2021	2,755	107	21	(159)	2,724

*Annuitant membership summary is based on latest valuation reports.*

**SCHEDULE 24: MEMBERSHIP BY AGE (ACTIVE, DEFERRAL & BENEFICIARY ACCOUNTS AS OF JUNE 30, 2022)—TDA PROGRAM**

Age	Contributing		Non-Contributing		Deferred*		Beneficiary		Loans**	
	Count	Fund Balance	Count	Fund Balance	Count	Fund Balance	Count	Fund Balance	Count	Loan Balance
=<25	6,550	\$111,221,772	553	\$5,529,594	1	\$145,271	16	\$2,866,587	709	\$2,679,898
30	12,046	441,732,242	1,625	49,305,962	5	260,138	25	4,016,459	3,529	18,058,391
35	13,308	905,040,860	2,035	109,597,556	152	11,388,556	31	6,557,889	6,469	40,697,406
40	14,602	1,678,567,490	1,550	118,930,641	394	34,838,719	33	10,925,960	9,590	63,622,571
45	13,685	2,212,496,587	1,031	96,904,169	471	52,372,855	58	19,601,291	10,777	73,367,105
50	12,994	2,806,291,669	936	119,902,169	640	95,513,340	86	26,812,775	10,368	71,803,853
55	8,870	1,955,618,777	642	80,399,324	3,495	1,245,137,247	132	34,827,365	7,862	59,155,290
60	5,626	1,286,486,646	404	53,136,701	6,699	2,471,334,662	171	43,634,195	5,382	40,941,560
65	2,255	583,060,904	190	23,566,961	10,882	4,322,249,716	149	40,764,250	3,563	28,893,725
70	606	198,753,784	76	5,953,421	15,223	7,943,535,209	181	75,734,711	2,599	21,933,212
75	132	65,504,780	38	6,189,440	13,361	7,302,510,060	210	94,355,819	1,356	11,424,582
80	28	22,641,189	6	625,953	6,631	3,293,212,992	169	68,792,796	508	4,272,839
85	7	7,769,270	4	78,387	3,368	1,438,664,656	104	37,384,503	136	1,241,741
90	4	4,689,631	2	691,066	1,764	489,859,832	66	14,111,305	37	529,911

Source: TRS query reports

\* Includes inactive memberships

\*\* Loan balances include interest and insurance receivable amounts.

**SCHEDULE 25: WITHDRAWALS BY AGE (FROM ACTIVE, DEFERRAL & BENEFICIARY ACCOUNTS,  
FISCAL YEAR 2022)—TDA PROGRAM**

Age	Partial Withdrawals*		401(a) Service Purchase		RMD Withdrawals**		Total Withdrawals***		Survivors' Payments****	
	Count	Distribution	Count	Distribution	Count	Distribution	Count	Distribution	Count	Distribution
=<25	22	\$252,949	2	7,360	14	\$33,581	138	\$1,986,617	8	\$36,356
30	68	1,111,678	14	51,459	19	22,112	307	6,904,143	13	165,696
35	135	3,247,610	23	111,579	27	119,042	282	12,164,577	17	413,976
40	257	6,722,954	41	168,014	28	238,503	235	12,732,424	38	1,670,980
45	280	7,147,696	51	244,245	44	402,954	137	7,512,808	62	1,853,350
50	329	8,855,830	62	377,115	71	715,868	126	7,471,625	60	3,683,276
55	1,788	47,272,920	76	509,481	107	939,239	171	16,646,599	65	10,292,720
60	4,452	79,115,877	72	475,298	136	1,401,511	244	17,280,474	102	11,732,708
65	3,760	59,806,880	24	193,158	121	1,809,962	166	14,498,581	133	20,755,214
70	3,783	65,086,044	8	29,866	9,460	206,297,692	140	22,388,988	283	79,570,892
75	2,124	38,023,479	4	28,801	11,274	287,326,288	70	18,404,430	309	107,871,182
80	713	15,634,094	-	-	5,847	171,692,502	35	11,505,583	291	112,147,172
85	298	9,128,970	-	-	2,897	100,036,982	21	4,910,233	241	79,105,511
90	171	5,223,547	-	-	1,234	45,181,584	13	1,950,682	257	68,487,333

Source: TRS query reports.

\* Category includes 146 Partial Withdrawals to Beneficiaries.

\*\* Category includes 1,160 RMD Withdrawals to Beneficiaries.

\*\*\* Category includes 43 Total Withdrawals to Beneficiaries.

\*\*\*\* Category includes the establishment of 58 new Beneficiary accounts.

**SCHEDULE 26: FUND CONVERSION OF INVESTMENT BALANCES BY AGE  
(FISCAL YEAR 2022)—TDA PROGRAM**

From	To	=<25	30	35	40	45	50	55	60	65	70	75	80	85	90+
FX	VA	13.9%	21.5%	16.9%	19.4%	10.6%	7.2%	5.4%	7.6%	4.8%	16.0%	8.6%	5.4%	1.4%	5.9%
FX	VB	1.1%	0.9%	0.6%	0.3%	0.8%	0.2%	0.2%	0.2%	0.2%	0.4%	0.0%	0.3%	0.0%	0.0%
FX	VC	2.7%	1.9%	1.7%	1.8%	1.1%	0.9%	0.2%	0.3%	0.2%	0.7%	1.9%	0.8%	0.7%	0.0%
FX	VE	21.6%	10.9%	25.3%	10.0%	12.2%	5.8%	3.2%	7.9%	11.4%	9.0%	5.7%	2.4%	3.8%	0.5%
FX	VF	21.4%	12.4%	9.1%	12.1%	5.7%	2.3%	1.1%	1.5%	4.8%	2.3%	4.4%	0.6%	0.0%	0.5%
FX	VG	4.5%	2.7%	1.8%	1.5%	0.6%	0.6%	0.2%	0.6%	0.3%	0.4%	0.0%	0.4%	0.7%	0.0%
VA	FX	5.3%	13.8%	15.3%	29.3%	46.6%	64.5%	77.5%	64.9%	68.0%	62.0%	65.7%	72.9%	87.7%	86.9%
VA	VB	0.0%	0.1%	0.0%	0.6%	0.5%	2.0%	0.4%	0.7%	0.0%	0.3%	1.0%	0.0%	0.0%	0.5%
VA	VC	0.3%	0.5%	0.2%	0.1%	0.1%	0.2%	0.1%	0.0%	1.7%	0.1%	0.0%	0.4%	0.0%	0.0%
VA	VE	3.0%	1.2%	2.5%	4.6%	6.0%	3.0%	1.5%	2.8%	1.2%	1.5%	3.9%	6.0%	2.6%	1.0%
VA	VF	3.4%	9.0%	7.5%	4.5%	3.0%	0.8%	0.5%	0.3%	0.0%	1.2%	2.4%	3.8%	0.0%	1.0%
VA	VG	0.2%	1.4%	1.1%	0.9%	0.7%	0.3%	0.1%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
VB	FX	2.5%	1.5%	1.8%	1.3%	1.7%	1.3%	2.0%	1.7%	0.9%	0.7%	0.3%	0.0%	0.0%	0.9%
VB	VA	2.4%	1.0%	0.8%	1.1%	0.9%	0.3%	0.5%	0.1%	0.1%	0.0%	0.0%	1.4%	0.4%	1.2%
VB	VC	0.0%	0.1%	0.1%	0.0%	0.1%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VB	VE	0.7%	0.7%	0.8%	0.2%	0.9%	0.6%	0.1%	0.1%	0.3%	0.0%	0.0%	0.4%	0.0%	0.0%
VB	VF	0.5%	2.5%	0.2%	0.4%	0.4%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.5%	0.0%	0.0%
VB	VG	0.0%	0.4%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VC	FX	1.4%	3.2%	2.2%	1.1%	1.3%	1.8%	1.0%	0.5%	0.9%	0.7%	1.1%	1.1%	1.2%	0.0%
VC	VA	1.8%	1.5%	0.4%	0.5%	0.4%	0.6%	0.0%	0.1%	0.1%	0.1%	0.0%	0.2%	0.0%	0.0%
VC	VB	0.0%	0.0%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VC	VE	0.6%	0.5%	0.5%	0.6%	0.2%	0.1%	0.1%	1.1%	0.1%	0.2%	0.1%	0.8%	0.0%	0.0%
VC	VF	0.0%	1.2%	0.7%	0.5%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VC	VG	0.0%	0.4%	0.0%	0.2%	0.2%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VE	FX	3.2%	5.9%	4.2%	4.5%	3.0%	2.8%	4.1%	5.8%	2.9%	0.7%	1.9%	1.3%	0.5%	1.6%
VE	VA	1.8%	1.7%	1.5%	1.6%	0.6%	0.9%	0.3%	0.5%	1.0%	0.9%	0.0%	0.0%	0.0%	0.0%
VE	VB	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VE	VC	0.2%	0.0%	0.1%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VE	VF	0.4%	1.1%	1.2%	0.2%	0.5%	0.6%	0.2%	0.3%	0.4%	0.6%	0.0%	0.0%	0.3%	0.0%
VE	VG	0.0%	0.2%	0.9%	0.2%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VF	FX	2.2%	0.8%	1.2%	1.4%	0.7%	0.5%	0.9%	0.3%	0.2%	0.2%	1.4%	1.3%	0.0%	0.0%
VF	VA	0.2%	0.1%	0.1%	0.2%	0.4%	0.1%	0.0%	0.0%	0.0%	0.9%	1.6%	0.0%	0.0%	0.0%
VF	VB	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VF	VC	0.4%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VF	VE	1.4%	0.2%	0.2%	0.3%	0.4%	1.7%	0.0%	1.0%	0.2%	1.1%	0.0%	0.0%	0.7%	0.0%
VF	VG	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VG	FX	0.5%	0.3%	0.2%	0.1%	0.2%	0.5%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
VG	VA	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VG	VB	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VG	VC	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VG	VE	0.6%	0.1%	0.2%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VG	VF	0.0%	0.2%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: TRS query reports

**FX** refers to the Fixed Return Fund**VA** refers to the Diversified Equity Fund**VB** refers to the Balanced Fund**VC** refers to the International Equity Fund**VE** refers to the Sustainable Equity Fund**VF** refers to the U.S. Equity Index Fund**VG** refers to the International Equity Index Fund

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