**Public School Retirement System of the City of St. Louis, Missouri**

*A Pension Trust Fund for Public School Employees*

# Annual Comprehensive Financial Report

For the Fiscal Years Ended: December 31, 2021 & 2020

Begin Here

PSRSSTL

Public School Retirement System of the City of St. Louis

# Public School Retirement System of the City of St. Louis

A Pension Trust Fund for Public School Employees

3641 Olive Street
Suite 300
St. Louis, Missouri 63108-3601

(314) 534-7444
www.psrsstl.org

# Annual Comprehensive Financial Report

For the Fiscal Years Ended December 31, 2021 and 2020

Prepared by:
Susan Kane, CEBS
Executive Director

# Mission Statement

The mission of the Public School Retirement System of the City of St. Louis is to enhance the well-being and financial security of its members, retirees and beneficiaries through benefit programs and services which are soundly financed and prudently administered in an effective and efficient manner.

## Mission Statement Principles

The Retirement System adopts the following principles advocated by the National Council on Teacher Retirement, and with respect to such principles hereby pledges as follows:

1. **Courteous Service.** To give members prompt and courteous service and provide complete and accurate information.
2. **Member Statements.** To provide each active member with an annual statement that includes the member's accrued service credit, employee contributions, and other related information.
3. **Information.** To provide new participants in the system a summary plan description that clearly and simply summarizes the benefit provisions of the plan. The System will make available information on changes made in benefits.
4. **Annual Reports.** Full disclosure of financial, actuarial, and investment information in a detailed annual report that will be available for members, elected officials, and the public.
5. **Financial Audits.** To prepare or cause to be prepared an annual financial statement in accordance with generally accepted accounting principles and have an annual audit of the System's financial statement in accordance with generally accepted auditing standards.
6. **Actuarial Studies.** To have an annual or biennial actuarial valuation performed by an enrolled actuary in accordance with actuarial standards and an actuarial experience study at least every five years.
7. **Adequate Funding.** To work to obtain adequate funding of all promised benefits and to ensure the financial integrity of this System.
8. **Independence of Retirement Systems.** To work for a retirement system which functions as an independent retirement trust, separate from state and local government. Such independence includes the power of trustees to set actuarial assumptions, appoint professionals such as actuaries and attorneys on whom they must rely to carry out their responsibilities, and to establish a budget for the System which ensures the delivery of high quality, cost-effective service to their members.
9. **Exclusive Benefit.** To act for the exclusive benefit of the members as fiduciaries entrusted with the management and payment of retirement benefits.
10. **Prudent Investments.** To adopt comprehensive objectives, methods for evaluation of performance, and policies which ensure both the prudent investment of plan assets and the achievement of the highest possible investment return.
11. **Ethical Conduct.** To adhere to the highest standards of conduct set out in the terms of the trust, state statute or other law.
12. **State and Local Government Authority.** To support the continuation of state and local pension plan oversight by the respective state or local government to ensure that decisions are made at the appropriate level of government.

# Table of Contents

# Introductory Section



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The mission of the Public School Retirement System of the City of St. Louis is...

Government Finance Officers Association

# Certificate of Achievement for Excellence in Financial Reporting

Presented to

**Public School Retirement System of the City of St. Louis Missouri**

For its Annual Comprehensive Financial Report
For the Fiscal Year Ended

December 31, 2020

Christopher P. Morrill

Executive Director/CEO

# Board of Trustees

An eleven-member Board of Trustees is responsible for general administration of the Retirement System and investing System assets. Active members elect five trustees: one administrator, two teachers and two non-teachers. Retired members elect two trustees: one retired teacher and one retired non-teacher. The St. Louis Public Schools ("SLPS") Board of Education appoints four trustees. Length of term of office is four years. The following individuals serve on the Public School Retirement System of the City of St. Louis Board of Trustees.

| **Elected by Active Members** | **Term Ends** | **Trustee Representation** |
|---|---|---|
| Justin Stein | 12-31-2022 | Active Non-teacher |
| Yvette Levy | 12-31-2023 | Active Administrator |
| Albert Sanders | 12-31-2023 | Active Teacher |
| Sheila Goodwin | 12-31-2024 | Active Teacher |
| Bobbie Richardson | 12-31-2025 | Active Non-teacher |

| **Elected by Retired Members** | **Term Ends** | **Trustee Representation** |
|---|---|---|
| Louis Cross | 09-30-2023 | Retired Teacher |
| Dorris Walker | 09-30-2025 | Retired Non-Teacher |

| **SLPS Appointments** | **Term Ends** | **Trustee Representation** |
|---|---|---|
| Christina Bennett | 12-31-2022 | SLPS Board of Education |
| Donna Jones | 12-31-2023 | SLPS Board of Education |
| Martel Mann | 12-31-2023 | SLPS Board of Education |
| Angela Banks | 12-31-2024 | SLPS Board of Education |

**Public School Retirement System**
**of the City of St. Louis**
3641 Olive Street, Suite 300
St. Louis, MO 63108-3601

**Office of the**
**Executive Director**

**Phone: (314) 534-7444**
**Fax: (314) 533-0531**

June 1, 2022

To the Board of Trustees and Members of the Retirement System:

I am pleased to present the Annual Comprehensive Financial Report (Annual Report) for the Public School Retirement System of the City of St. Louis ("PSRSSTL", "System", "fund" or "plan") for the fiscal years ended December 31, 2021 and December 31, 2020. Management of the System is responsible for the content in this report. To the best of my knowledge, I believe the information in this report is accurate, in all material respects, and presented in a manner that fairly portrays the financial position and operations of the plan for fiscal years 2021 and 2020.

**Overview of the Retirement System**

The Public School Retirement System of the City of St. Louis was established January 1, 1944. Through acts of the Missouri Legislature, the System provides retirement benefits to employees of the St. Louis Public Schools District, the System, a number of Charter Schools located in the St. Louis Public Schools District and certain past employees of Harris-Stowe State College. The System's members are covered by Social Security and eligible for Social Security benefits in addition to retirement benefits provided by the plan.

### Financial Information

An independent certified accounting firm performs a financial audit each year. The financial statements of the System are prepared in conformity with accounting principles generally accepted in the U.S.A. (GAAP) within guidelines established by the Governmental Accounting Standards Board (GASB). Management uses internal controls to help protect the System's assets from loss due to unauthorized use or erroneous disposition. These internal controls are constrained to keep costs from outweighing the benefits derived from them so there are natural limits to preventing all errors or instances of fraud. Management is confident that within reason, not absolute assurance, the financial statements meet the important objective of providing information free of material misstatements. Please refer to the Management Discussion and Analysis ("MD&A") in the Financial Section for an overview of the System's financial highlights that includes a review of the additions and deductions from the plan during 2021 and 2020.

### Investment Activities

The overall investment return for the plan during 2021 was 12.4%, which was above the actuarial assumed rate of return of 7.0% adopted by the Board of Trustees in 2021. Thus, the investment managers added additional value to the fund for the year. In comparison to other public plans in the Investor Force Universe (IFU), the System's investment return for 2021 ranked in the top 61% of the IFU while maintaining similar risk as the peer group.

The Board of Trustees governs investments of the fund through the adoption of investment policies and guidelines, amended as needed, that define the plan's objectives, monitoring procedures and performance measures. The Investment Policies and Operating Guidelines lay out specific parameters for performance expectations, eligible investments and portfolio characteristics. Key to the success of this governance is the determination of an Asset Allocation Policy. The policy is reviewed by the Board of Trustees at least annually and modified as needed to maximize returns while minimizing risk within the accepted investment guidelines of the System. Through advice from the Investment Consultant, management and staff are primarily responsible for implementing and monitoring the Asset Allocation Policy adopted by the Board of Trustees. Detailed investment information can be found in the Investment Section.

### Funding Status and Valuation Results

The System is a defined benefit plan, which means that certain benefit provisions are used in a formula to determine each member's retirement benefit. The formula to calculate retirement benefits for members hired on or before December 31, 2017, is credited service (years of service) multiplied by average compensation (final average salary for three consecutive years) multiplied by 2% (pension multiplier). For members hired for the first time on or after January 1, 2018, the pension multiplier is 1.75%, which changes the retirement benefits formula for these members.

Each year, the System has an actuarial valuation conducted by an independent Actuary. The purpose of the actuarial valuation is to measure the relative financial health of the System.

To determine the relative financial health of the System, the Actuary calculates the plan's actuarial accrued liability using the System's benefit provisions and actuarial assumptions in effect at the time of the calculation. The actuarial accrued liability is then compared to the actuarial value of assets to arrive at a percentage or Funded Ratio. The Funded Ratio measures the ability of the System to pay retirement benefits over the course of time, usually the next 30 years. For plan year 2021, the Funded Ratio was 78.7%, which is the fifth year in a row that the Funded Ratio for the System remained below 80%. The main reason for the low measurements is due to the downgrade of the retirement system's assumed rate of return (discount rate) from 8.0% to 7.5%, in plan year 2017 and then down to 7.0% in 2021.

The Actuary calculates an ARC that is adequate to fund the normal costs of the plan that includes the unfunded actuarial accrued liability amortized over a 30-year period. The Actuary presents the annual Actuarial Valuation Report to the Board of Trustees for consideration. Once the Board of Trustees accepts the actuarial valuation for the year, the employers are notified of the ARC as governed by state statute.

**Legislative Information**

There were no major legislative changes in 2021 that directly affected the System. The last major change to the System's plan provisions occurred in 2017. For more details on the 2017 changes, please refer to the legislative history of the plan summarized on the last page of the Statistical Section.

**Professional Services**

Certain professional services are provided to the System by retained consultants. The required opinion letters from the Actuary, Buck Global, LLC, and Independent Certified Public Accountants, Anders Minkler Huber & Helm LLP, are contained in the appropriate sections of this report.

The retained consultants that provide professional services to the System appear at the end of this section. Investment professionals that provide brokerage and investment management services to the System can be found on pages 71 – 73 in the Investment Section.

**Certificate of Achievement**

Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to the Public School Retirement System of the City of St. Louis for its comprehensive annual financial report for the fiscal year ended December 31, 2020. This was the tenth consecutive year the System has achieved this prestigious award. In order to be awarded a Certificate of Achievement, the System must publish an easily readable and efficiently organized annual comprehensive financial report. This report must satisfy both generally accepted accounting principles and applicable legal requirements.

A Certificate of Achievement is valid for a period of one year only. The System believes our current annual comprehensive financial report continues to meet the Certificate of Achievement Program's requirements and the System is submitting it to GFOA to determine its eligibility for another certificate.

**Acknowledgments**

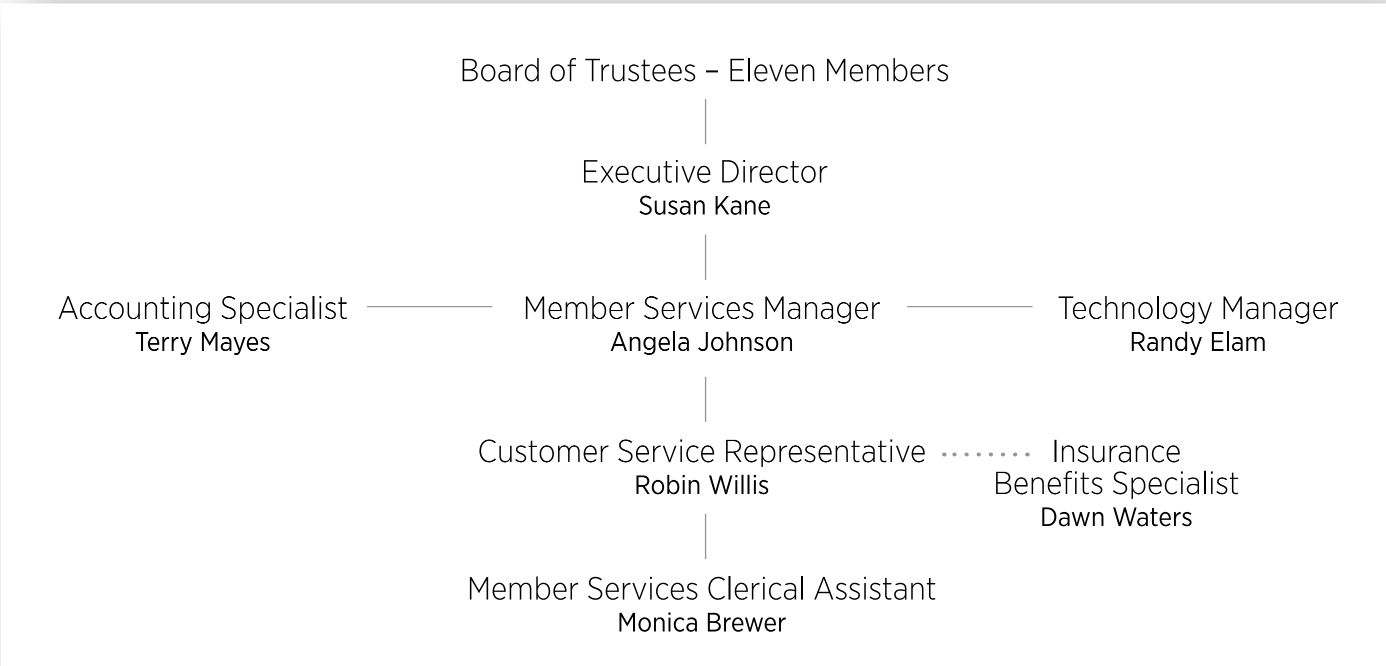
I would like to thank the Board of Trustees, staff and consultants for their assistance in preparing this report. The dedication of these groups contributes to the System's continued stability.

Sincerely,

*Susan Kane*

Susan Kane
CEBS. Executive Director

# Organizational Chart




Denotes some work-flow supervision

# Providers of Professional Services

**Actuarial Services**
Buck Global, LLC
Michael Ribble,
St. Louis, MO

**Auditor**
Anders Minkler Huber & Helm LLP
Jeanne M. Dee, CPA/CGMA
St. Louis, MO

**Insurance Consultant**
Gallagher Benefit Services, Inc.
(A division of Arthur J. Gallagher & Co.)
Mark Von Vogt
Boston, MA

**Investment Consultant**
AndCo Consulting
Gwelda Swilley, Jeff Kuchta
Winter Park, FL

**Legal Counsel**
Hartnett Reyes-Jones, L.L.C.
Jamie Reyes-Jones
St. Louis, MO

**Property Management**
CB Richard Ellis
St. Louis, MO

**Computer Programming Consultant**
Jupiter Consulting Services, LLC
St. Louis, MO

**Computer Networking Consultant**
Blade Technologies, Inc.
St. Louis, MO

# Financial Section

# Independent Auditors' Report

ANDERS
CPAs + ADVISORS

## Independent Auditors' Report

The Board of Trustees
Public School Retirement System of the City of St. Louis
St. Louis, MO

**Opinion**

We have audited the accompanying financial statements of Public School Retirement System of the City of St. Louis (the "System"), which comprise the statements of fiduciary net position as of December 31, 2021 and 2020, and the related statements of changes in fiduciary net position for the years then ended, and the related notes to the financial statements.

In our opinion, the financial statements referred to above present fairly, in all material respects, the fiduciary net position of Public School Retirement System of the City of St. Louis as of December 31, 2021 and 2020, and the changes in it's 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 in accordance with auditing standards generally accepted in the United States of America. Our responsibilities under those standards are further described in the Auditors' 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 financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

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

**Auditors' Responsibilities for the Audit of the Financial Statements**

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' 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 generally accepted auditing standards will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with generally accepted auditing standards, we:

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

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

**Required Supplementary Information**

Accounting principles generally accepted in the United States of America require that Management's Discussion and Analysis and the other required supplementary information, as listed in the Table of Contents, be presented to supplement the basic financial statements. Such information is the responsibility of management and although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audits of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

**Other Supplementary Information**

Our audits were conducted for the purpose of forming an opinion on the System's basic financial statements. The other supplementary information on pages 43 - 49 is presented for purposes of additional analysis and is not a required part of the basic financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the financial statements. The information has been subjected to the auditing procedures applied in the audits of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the other supplementary information is fairly stated, in all material respects, in relation to the basic financial statements as a whole.

Anders Minkler Huber & Helm LLP

April 18, 2022

# Management's Discussion and Analysis Year Ended December 31, 2021

The Management Discussion and Analysis ("MD&A") for the Public School Retirement System of the City of St. Louis ("PSRSSTL") provides an overview of PSRSSTL financial activities for the fiscal year ended December 31, 2021. This MD&A is presented as required supplementary information to the financial statements and should be read in conjunction with the PSRSSTL financial statements, notes to the financial statements, required supplementary information, and other supplementary information.

The basic financial statements contained in this section of the MD&A consist of:

- The Condensed Statements of Fiduciary Net Position illustrate the System's assets, liabilities, and resulting fiduciary net position where Assets + Deferred Outflow of Resources - Liabilities - Deferred Inflow of Resources = Fiduciary Net Position held in trust for pension benefits available at the end of a fiscal year.
- The Condensed Statements of Changes in Fiduciary Net Position summarize the System's financial transactions throughout a fiscal year where Additions - Deductions = Change in Fiduciary Net Position. These statements support the change from the prior year's net position on the Statements of Fiduciary Net Position.
- The Notes to the Financial Statements are an integral part of these basic financial statements and contain information that helps better understand them.
- The required supplementary MD&A information, the Required Supplementary Information, and Other Supplementary Information following the Notes to the Financial Statements provide detailed historical information that is useful in evaluating the condition of the retirement plan administered by PSRSSTL.

The System's fiduciary net position was $972,827,656 at December 31, 2021, which represents an increase of $58,050,702 from December 31, 2020. This increase was due to investment returns during the 2020 fiscal year that were far above the System's assumed rate of return. The performance results increased the System's asset values for most investment categories at December 31, 2021.

The System's investment returns were 12.4% in fiscal year 2021, 8.9% in fiscal year 2020, and 16.8% in fiscal year 2019. The System's investment return in fiscal year 2021, when compared to fiscal year 2020, represents positive increases in investment values for most asset categories while volatility continued in the financial markets during the one year period. Predicting conditions in the marketplace is always challenging yet the Board of Trustees stands behind a sound Asset Allocation Policy by remaining focused on active monitoring of its money managers and long-term investment objectives. The actuarial assumed rate of return set by the Board of Trustees changed to 7.0% in fiscal year 2021.

Additions to fiduciary net position were $173.2 million, $136.3 million and $188.6 million for fiscal years 2021, 2020 and 2019, respectively. The two highest additions to fiduciary net position in 2021 were net investment income of $116 million and employer contributions of$41.2 million. The main additions to fiduciary net position in 2020 were net investment income of $69.4 and employer contributions $41.8 million of member contributions. The main additions to fiduciary net position during 2019 were $126.2 million of employer contributions and $43.9 million of member contributions.

Deductions from fiduciary net position were $115.2 million, $114.5 million and $114.9 million in fiscal years 2021, 2020 and 2019, respectively. Overall, most deductions, including operating expenses, decreased from the prior year, but the large increase in refunds to members drove the overall slight increase in deductions from fiduciary net position from 2021 to 2020. The nearly $400,000 decrease in fiduciary net position between fiscal years 2020 and 2019 was due mainly to the decrease in contribution refunds paid to terminated or deceased members in fiscal year 2020.

**Financial Statements**

The PSRSSTL financial report consists of two financial statements, (1) the Statements of Fiduciary Net Position, and (2) the Statements of Changes in Fiduciary Net Position. The Statements of Fiduciary Net Position provide details concerning PSRSSTL assets and liabilities other than long-term benefit obligations. However, PSRSSTL assets are the only source available to the System to pay pension benefits. The Statements of Changes in Fiduciary Net Position provide details regarding PSRSSTL financial activity during fiscal year 2021 that caused the change in fiduciary net position from fiscal year 2020 to fiscal year 2021.

Additionally, the financial report contains notes, supplementary information and actuarial data that provide further information to use while analyzing the System's financial statements.

**Financial Analysis**

On December 31, 2021, total assets and deferred outflow of resources of the System were $974,941,723. Total assets consisted of cash, receivables, investments and an office building. When compared to fiscal year 2020, total assets and deferred outflows in fiscal year 2021 increased by 6.3%, or $57,371,533, and can be attributed to higher than expected investment returns.

On December 31, 2021, total liabilities and deferred inflow of resources of the System were $2,114,067. Total liabilities consisted of accounts payable and accrued expenses and net pension liability. Total liabilities and deferred inflows in fiscal year 2021, when compared to fiscal year 2020, decreased by $(679,169), primarily because of the decrease in the System's deferred inflow of resources as required by GASB Statement No. 68.

On December 31, 2021, the fiduciary net position restricted for pensions was $972,827,656, an increase of 6.3%, or $58,050,702, from fiscal year 2020.

On December 31, 2020, total assets and deferred outflow of resources of the System were $917,570,190. Total assets consisted of cash, receivables, investments and an office building. When compared to fiscal year 2019, total assets and deferred outflows in fiscal year 2020 increased by 2.5%, or $21,948,986, and can be attributed to higher than expected investment returns.

On December 31, 2020, total liabilities and deferred inflow of resources for the System were $2,793,236. Total liabilities consisted of accounts payable, accrued expenses, and net pension liability. Total liabilities and deferred inflows in fiscal year 2020, when compared to fiscal year 2019, increased by 8.2%, or $211,721, primarily because of the increase in the deferred inflows of resources.

On December 31, 2020, the fiduciary net position restricted for pensions was $914,776,954, an increase of 2.4%, or $73,589,796, from fiscal year 2019.

**Condensed Statements of Fiduciary Net Position**

| | FY 2021 | FY 2020 | FY 2019 | FY 2021 % Change | FY 2020 % Change |
|---|---|---|---|---|---|
| **Assets** | | | | | |
| Cash | $ 9,538,225 | $ 9,863,612 | $ 9,863,612 | (3.3)% | 0.6 % |
| Receivables | 809,964 | 822,998 | 822,998 | (1.6)% | (0.6)% |
| Investments | 962,858,918 | 904,831,520 | 904,831,520 | 6.4 % | 2.5 % |
| Property and Building, net | 1,520,115 | 1,571,742 | 1,571,742 | (3.3)% | (3.2)% |
| Total Assets | 974,727,222 | 917,089,872 | 917,089,872 | 6.3 % | 2.5 % |
| **Deferred Outflows of Resources** | | | | | |
| Deferred Outflows of Resources | 214,501 | 480,318 | 742,621 | (55.3)% | (27.2)% |
| Total Assets and Deferred Outflows of Resources | 974,941,723 | 917,570,190 | 895,621,204 | 6.3 % | 2.5 % |
| **Liabilities** | | | | | |
| Accounts Payable and Accrued Expenses | 818,796 | 867,927 | 728,909 | (5.7)% | 19.1 % |
| Net Pension Liability | 688,612 | 1,051,687 | 1,621,273 | (34.5)% | (35.1)% |
| Total Liabilities | 1,507,408 | 1,919,614 | 2,350,182 | (21.5)% | (18.3)% |
| **Deferred Inflows of Resources** | | | | | |
| Deferred Inflows of Resources | 606,659 | 873,622 | 231,333 | (30.6)% | 58.1 % |
| Total Liabilities and Deferred Inflows of Resources | 2,114,067 | 2,793,236 | 2,581,515 | (24.3)% | 8.2 % |
| **Fiduciary Net Position** | $ 972,827,656 | $ 914,776,954 | $ 893,039,689 | 6.3 % | 2.4% |

**Revenues – Additions to Fiduciary Net Position**

The assets available to finance PSRSSTL pension benefits are accumulated through receipt of employer and member contributions as well as through earnings on investments. For fiscal year 2021, employer contributions were approximately $41.2 million; member contributions were approximately $20.8 million; and investments gained a net amount of approximately $116 million. For fiscal year 2020, employer contributions were approximately $41.8 million; member contributions were approximately $17.6 million; and investments gained a net of approximately

$69.4 million. For fiscal year 2019, employer contributions were approximately $43.9 million; member contributions were approximately $17 million; and investments gained a net of approximately $126.2 million.

Employer and member contributions combined increased by $2.6 million in fiscal year 2021 compared to $1.5 million in fiscal year 2020. These fluctuations in the contribution amounts are primarily due to the decrease of the employer contribution rate from 15.0% of covered compensation in fiscal year 2020 to 14.5% in fiscal year 2021, and the decrease from 19.10% of covered compensation in fiscal year 2018 to 16.00% in fiscal year 2019.

The PSRSSTL Actuary determines the amount of employer contributions required to maintain actuarial soundness of the System as part of the annual actuarial valuation report. However, through legislation passed in 2017, beginning with plan year 2018, the employer contribution rate was decreased to 16.0% of covered compensation. This rate will decrease by 0.5% in each future plan year until reaching a minimum of 9.0% and remain at 9.0% of covered compensation in all subsequent plan years.

An active member contribution rate of 5.00% of covered compensation was effective from July 1, 1999 through December 31, 2017. In 2018, through legislation passed in 2017, the active member contribution rate was increased to 5.50% of covered compensation for members hired before January 1, 2018. This rate will increase by 0.50% per year until reaching 9.00%. After that, the contribution rate will remain at 9.00% of covered compensation. The legislation requires new active members hired on or after January 1, 2018, to immediately contribute at a rate of 9.00%.

Net investment income was $116 million, $69.4 million and $126.2 million in fiscal years 2021, 2020 and 2019, respectively. These fluctuations in net investment income occurred because the investment earning rates were 12.4%, 8.9% and 16.8% in fiscal years 2021, 2020 and 2019, respectively. Net investment income or (loss) reflects gross investment income or (loss) less investment expenses, such as investment manager, investment advisor and custodial fees.

### Expenses – Deductions From Fiduciary Net Position

The primary deductions from fiduciary net position were payments of retirement benefits, survivor benefits, disability benefits, retiree healthcare subsidies and refunds to members who have retired or terminated employment. PSRSSTL operating expenses in fiscal year 2021 were approximately .20% of assets, while operating expenses were approximately 0.21% and 0.24% of assets for 2020 and 2019, respectively.

**Condensed Statements of Changes in Fiduciary Net Position**

| | FY 2021 | FY 2020 | FY 2019 | FY 2021 % Change | FY 2020 % Change |
|---|---|---|---|---|---|
| **Additions** | | | | | |
| Employer Contributions | $ 41,226,981 | $ 41,822,334 | $43,902,706 | (1.4)% | (4.7)% |
| Member Contributions | 20,880,189 | 17,607,279 | 17,019,685 | 18.6 % | 3.5 % |
| Net Investment Income | 116,054,836 | 69,466,228 | 126,231,937 | 67.1 % | (45.0)% |
| Rental Income | 170,397 | 164,877 | 161,263 | 3.3 % | 2.2 % |
| Other Income (Loss) | (5,071,188) | 7,264,633 | 1,238,033 | (169.8)% | 486.8 % |
| Total Additions | 173,261,215 | 136,325,351 | 188,553,624 | 27.1 % | (27.7)% |
| **Deductions** | | | | | |
| Retirement Benefits | 99,362,102 | 99,692,129 | 99,624,865 | (0.3)% | 0.1 % |
| Survivor Benefits | 2,987,195 | 3,007,912 | 3,043,126 | (0.7)% | (1.2)% |
| Disability Benefits | 3,347,554 | 3,412,356 | 3,575,042 | (1.9)% | (4.6)% |
| Health Care Subsidies | 2,093,653 | 2,129,938 | 2,249,449 | (1.7)% | (5.3)% |
| Operating Expenses | 1,523,071 | 1,906,813 | 1,862,658 | (20.1)% | 2.4 % |
| Refunds to members | 5,896,938 | 4,438,938 | 4,608,688 | 32.8 % | (3.7)% |
| Total Deductions | 115,210,513 | 114,588,086 | 114,963,828 | 0.5 % | (0.3)% |
| **Change in Fiduciary Net Position** | $ 58,050,702 | $ 21,737,265 | $73,589,796 | 167.1 % | (70.5)% |

### Financial Summary

For over 25 years, the PSRSSTL Investment Consultant has consistently calculated the System's investment performance; thereby, providing a valid basis on which performance can be compared with other public pension funds. For instance, the System's investments have provided consistent returns with cumulative PSRSSTL investment performance ranking in the top 50% of similar public pension plans for the last 25 years through the period ended December 31, 2021.

The fiduciary net position over this same time frame has fluctuated from a low of $780 million in fiscal year 1997 to a high of $1.15 billion in fiscal year 2007. At the end of fiscal year 2021, the fiduciary net position was $972.8 million. These fluctuations in the value of the System's fiduciary net position can be attributed to volatile financial market conditions, particularly due to the pandemic in the current year and other volatile market changes in other years, that caused substantial losses of investment returns in several fiscal years followed by large investment gains in other fiscal years.

Until fiscal year 2017, using the Governmental Accounting Standards Board ("GASB") calculation method implemented in 1992, the funded status of PSRSSTL remained stable by fluctuating within the range of 80.5% to 88.6% for 26 fiscal years. The funded ratio of a plan compares its assets to its liabilities; thereby, on an actuarial basis, measuring a plan's ability to fulfill future financial obligations to its members. The funded ratios of the PSRSSTL for fiscal years 2021, 2020 and 2019 were 78.7, 78.6%, and 78.5%, respectively. The dip in the System's funded ratio beginning with fiscal year 2017 was primarily due to the change in the System's actuarial assumed rate of return (discount rate) from 8.0% to 7.5%.

The Board of Trustees and the PSRSSTL Actuary assume that the PSRSSTL will continue to be funded on a sound actuarial basis provided required member and employer contributions are made as recommended, a prudent and well-diversified Asset Allocation Policy remains in place, quality investment managers continue to be selected, and the financial markets dodge sustained volatility. However, during fiscal year 2017, the Missouri General Assembly, in cooperation with then Governor Eric Greitens, enacted changes to the System's calculations for the required annual employer and member contributions that jeopardize the System's actuarial soundness. Unless this legislation is overturned or replaced, these changes will have adverse effects on the System and its ability to meet future financial obligations to its members. It is assumed that the Board of Trustees will fulfill its fiduciary duty to the System's membership by continuing to take the appropriate legal action against the legislation.

Despite the volatility in the market through 2021, the System experienced an investment return higher than anticipated.

### Requests for Information

This report is intended to provide the Board of Trustees, PSRSSTL members, and other interested parties a general overview of PSRSSTL financial matters. If any reader has questions about this report or needs additional financial information, contact the Public School Retirement System of the City of St. Louis.

# Statements of Fiduciary Net Position December 31, 2021 and 2020

| **Assets** | **2021** | **2020** |
|---|---|---|
| Cash | $ 9,538,225 | $ 9,863,612 |
| Receivables | | |
| Accrued Interest and Dividends | 567,667 | 582,304 |
| Other Receivables | 242,297 | 240,694 |
| Total Receivables | 809,964 | 822,998 |
| Investments, at Fair Value | | |
| Cash equivalents | 40,980,094 | 45,645,690 |
| Bonds | | |
| U.S. Government and Agency Issues | 28,800,098 | 30,541,590 |
| Corporate | 32,828,877 | 28,625,293 |
| Foreign Investments (Bonds and Stocks) | 94,236,786 | 91,225,646 |
| Common and Preferred Stocks | 230,724,806 | 209,538,964 |
| Mutual and Co-Mingled Funds | 402,073,191 | 389,396,506 |
| Real Estate Partnerships | 54,001,917 | 46,928,887 |
| Limited Partnerships | 79,213,149 | 62,928,944 |
| Total Investments | 962,858,918 | 904,831,520 |
| Property and Building, net | 1,520,115 | 1,571,742 |
| Total Assets | 974,727,222 | 917,089,872 |
| **Deferred Outflows of Resources** | | |
| Deferred Outflows of Resources Related to Pensions | 214,501 | 480,318 |
| **Liabilities** | | |
| Accounts Payable and Accrued Expenses | 818,796 | 867,927 |
| Net Pension Liability | 688,612 | 1,051,687 |
| Total Liabilities | 1,507,408 | 1,919,614 |
| **Deferred Inflows of Resources** | | |
| Deferred Inflows of Resources Related to Pensions | 606,659 | 873,622 |
| **Net Position** | | |
| Net Position Restricted for Pensions | $ 972,827,656 | $ 914,776,954 |

See notes to financial statements starting on page 21.

# Statements of Changes in Fiduciary Net Position December 31, 2021 and 2020

| | 2021 | 2020 |
|---|---|---|
| Additions | | |
| Employer contributions | | |
| St. Louis Public Schools | $ 29,106,335 | $ 29,884,664 |
| Sick Leave Conversion | 109,983 | 117,129 |
| Charter Schools | 11,930,457 | 11,746,232 |
| Retirement System | 80,206 | 74,309 |
| Plan Member Contributions | | |
| Sick Leave Conversion | 14,326,129 | 11,795,498 |
| Charter Schools | 6,512,595 | 5,775,829 |
| Retirement System | 41,465 | 35,952 |
| | 62,107,170 | 59,429,613 |
| Investment Income (loss) | | |
| Cash Equivalents | 44,013 | 232,644 |
| Bonds | | |
| U.S. Government and Agency Issues | (200,968) | 1,928,940 |
| Corporate | 1,245,389 | 585,817 |
| Foreign Investments (Bonds and Stocks) | 15,955,237 | 4,865,413 |
| Common and Preferred Stocks | 50,553,750 | 26,452,859 |
| Mutual and Co-Mingled Funds | 27,208,873 | 36,832,371 |
| Limited Partnerships | 18,182,960 | 3,590,829 |
| Real Estate Partnerships | 7,481,063 | (1,083,252) |
| | 120,470,317 | 73,405,621 |
| Less Investment Expenses | 4,415,481 | 3,939,393 |
| Net Investment Income | 116,054,836 | 69,466,228 |
| Rental Income | 170,397 | 164,877 |
| Other Miscellaneous Income (loss) | (5,071,188) | 7,264,633 |
| Net Additions | 173,261,215 | 136,325,351 |
| Deductions | | |
| Benefits Paid | | |
| Retirement Benefits | 99,362,102 | 99,692,129 |
| Survivor Benefits | 2,987,195 | 3,007,912 |
| Disability Benefits | 3,347,554 | 3,412,356 |
| Health Care Subsidies | 2,093,653 | 2,129,938 |
| | 107,790,504 | 108,242,335 |
| Operating Expenses | 1,523,071 | 1,906,813 |
| Contribution Refunds Due to Death or Resignation | 5,896,938 | 4,438,938 |
| Total Deductions | 115,210,513 | 114,588,086 |
| Net Increase in Net Position | 58,050,702 | 21,737,265 |
| Net Position Restricted for Pensions, Beginning of Year | 914,776,954 | 893,039,689 |
| Net Position Restricted for Pensions, End of Year | $ 972,827,656 | $ 914,776,954 |

See notes to financial statements starting on page 21.

# Notes to Financial Statements December 31, 2021 and 2020

## 1. Description of System

### General

The Public School Retirement System of the City of St. Louis (the "System") is the administrator of a cost-sharing multiple-employer defined benefit pension plan existing under provisions of the Revised Statutes of the State of Missouri (the "Statutes") to provide retirement benefits for all employees of the Board of Education of the City of St. Louis, of the Charter Schools located within the St. Louis School District, and of all employees of the System. The System issues a Comprehensive Annual Financial Report ("Annual Report"), a publicly available financial report that can be obtained at **www.psrsstl.org**.

An eleven member Board of Trustees is responsible for general administration of the System and investing the System's assets. Trustees are appointed by plan members and the Board of Education of the City of St. Louis.

### Membership and Eligibility

All persons employed on a full-time basis are members of the System as a condition of employment. Membership statistics, as of the latest actuarial valuations, are as follows:

| | January 1, 2021 | January 1, 2020 |
|---|---|---|
| Active Members | 4,984 | 5,108 |
| Inactive Members | 3,560 | 3,274 |
| Total Members Not Retired | 8,544 | 8,382 |
| Retired Members | | |
| Service and survivors | 4,161 | 4,237 |
| Disability | 225 | 240 |
| | 4,386 | 4,477 |
| Total Membership | 12,930 | 12,859 |

### Vesting

Full vesting on termination of employment after at least five years of service is provided if contributions remain with the System. The full benefit is payable at age 65 or at a reduced early retirement benefit prior to age 65.

### Funding Policy

The funding objective of the System is to meet long-term benefit promises through contributions that remain approximately level from year to year as a percentage of covered payroll.

### Benefits

Upon retirement at age 65, or at any age if age plus years of credited service equals or exceeds 80 (Rule of 80), or 85 (Rule of 85) if terminated prior to August 28, 2017, members receive monthly payments for life or yearly benefits equal to years of credited service multiplied by 2% of average final compensation or 1.75% of average final compensation if hired on or after January 1, 2018, but not to exceed 60% of average final compensation. Early retirement can occur prior at age 60 with five years of service or at the age the Rule of 80 or Rule of 85 is satisfied. The service retirement allowance is reduced five ninths of one percent for each month of commencement prior to age 65 or the age at which the Rule of 80 (Rule of 85 if terminated prior to August 28, 2017) would have been satisfied had the employee continued working until that age, if earlier.

In lieu of the benefit paid over the lifetime of the participant, reduced benefit options are available for survivor and beneficiary payments.

Members are eligible, after accumulation of five years of credited service, for disability benefits prior to eligibility of normal retirement. Survivor benefits are available for beneficiaries of members who die after at least 18 months of active membership.

The System pays a portion of health insurance premiums for retirees under Section 169.476 of the Statutes, as an expense of the System.

Benefits are recorded when paid.

### Return of Contributions Upon Death

If, after the death of a participant, no further monthly amounts are payable to a beneficiary under an optional form of payment or under the survivor benefit provisions, the participant's beneficiary shall be paid the excess, if any, of the participant's accumulated contributions over all payments made to, or on behalf of, the deceased participant.

### Contributions by Participants

Active participants hired before January 1, 2018 contributed 7.00% and 6.50% of covered compensation for the years ended December 31, 2021 and 2020, respectively. This rate increases 0.50% per year until it reaches 9.00%. After this, the contribution rate will remain at 9.00% of covered compensation. Active participants hired on or after January 1, 2018 contribute 9.00% of covered compensation.

Accumulated contributions are credited at the rate of interest established by the Board of Trustees. The current crediting rate is 5.00%

### Contributions by Employers

The System's statutory required contribution rate applied to St. Louis Public Schools and the Retirement System was 15.00% and 15.50% of annual payroll for the years ended December 31, 2021 and 2020, respectively. For all other employers, the System's contractually required contribution rate was set at 14.50% and 15.00% of covered payroll for the years ended December 31, 2021 and 2020, respectively. These contribution rates shall be decreased by 0.50% in each subsequent year until reaching 9.00% of covered payroll. After this, the contribution rate will remain at 9.00% of covered payroll.

Contributions to the pension plan for System employees were $80,206 and $74,309 for the years ended December 31, 2021 and 2020, respectively.

### Expenses

Operating expenses are paid out of investment income.

### Investment Policy

The System's policy in regards to the allocation of invested assets is established and may be amended by the System's Board of Trustees. Investments are managed on a total return basis with a long-term objective of maintaining a fully funded status for the benefits provided through the pension plan. The following was the System's adopted asset allocation policy as of February 25, 2019:

| Asset Class | Target Allocation | Long-Term Expected Real Rate of Return |
|---|---|---|
| Domestic Equity | 25.5 % | 7.5 % |
| International Equity | 23.5 % | 8.5 % |
| Domestic Bonds | 16.0 % | 2.5 % |
| International Bonds | 8.0 % | 3.5 % |
| Real Estate | 7.0 % | 4.5 % |
| Alternative Assets | 20.0 % | 6.1 % |
| Total/Average | 100.0 % | 6.1 % |

The long-term real return expectations remove the 2.5 percent inflation rate embedded in each nominal return assumption.

The 5.0 percent target allocation to Global Equity is allocated 3.5 percent to Domestic Equity and 1.5 percent to International Equity.

Alternative Assets include the target allocations to Global Asset Allocation, Hedge Funds, Private Equity and Private Debt. The Alternative Assets return assumption is based on an aggregation of multiple global asset class assumptions.

## 2. Summary of Significant Accounting Policies

### Basis of Presentation and Accounting

The financial statements of the System have been prepared in accordance with the criteria established by the Governmental Accounting Standards Board ("GASB"), which is the source of authoritative accounting principles generally accepted in the United States of America ("GAAP"), as applied to governmental units. The System's financial statements are prepared using the accrual basis of accounting.

### Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect certain reported amounts and disclosures. Accordingly, actual results could differ from those estimates.

### Receivables

Receivables consist of pending interest and dividends payable on investments held at the end of the year. Other receivables are amounts due to the System from members or family members of a deceased member for overpaid benefits.

### Investment Valuation and Income Recognition

Investments are reported at fair value. Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. See Note 4 for discussion of fair value measurements. Short-term investments are reported at cost, which approximates fair value. Securities traded on national or international exchanges are valued at the latest reported sales price at current exchange rates.

### Limited Partnerships

Fair values of the limited partnership investments are based on valuations of the underlying companies of the limited partnerships as reported by the general partner. Certain limited partnerships reflect values on a quarter lag basis due to the nature of those investments and the time it takes to value them.

### Alternative Investments

For alternative investments where no readily ascertainable fair value exists, management, in consultation with their investment advisors, values these investments in good faith based upon audited financial statements, cash flow analysis, purchase and sales of similar investments, other practices used within the industry, or other information provided by the underlying investment advisors. The estimated fair value of these investments may differ significantly from values that would have been used had a ready market existed.

### Investment Income

Investment income includes: realized gains (losses), unrealized appreciation (depreciation), dividends, interest, and other investment income. Purchases and sales of securities are recorded on a trade-date basis. Interest income is recorded on the accrual basis. Dividends are recorded on the ex-dividend date.

### Investment Expenses

Investment expenses consist of investment manager, investment advisor, limited partnership, and custodial bank fees.

### Fair Value Measurements

The System follows guidance issued by the GASB on fair value measurements, which establishes a framework for measuring fair value, clarifies the definition of fair value within that framework, and expands disclosures about the use of fair value measurements. This guidance applies whenever fair value is the applicable measurement. The three general valuation techniques used to measure fair value are the market approach, cost approach, and income approach.

### Furniture and Equipment

Acquisitions of furniture and equipment are charged to operating expense when purchased. The value of furniture and equipment owned by the System is deemed to be immaterial in relation to the total assets of the System.

### Property and Building

The System records property, building, and related improvements at cost while expenditures for normal repairs and maintenance, which do not extend the useful life of the assets, are charged to operations as incurred. The System uses the straight-line method for the depreciation of the building and improvements over the estimated life of 40 years.

### Long-Lived Asset Impairment

The System evaluates the recoverability of the carrying value of long-lived assets whenever events or circumstances indicate the carrying amount may not be recoverable. If a long-lived asset is tested for recoverability and the undiscounted estimated future cash flows expected to result from the use and eventual disposition of the asset are less than the carrying amount of the asset, the asset cost is adjusted to fair value and an impairment loss is recognized as the amount by which the carrying amount of a long-lived asset exceeds its fair value. The System does not believe any impairment exists as of December 31, 2021 and 2020.

### Deferred Outflows and Inflows of Resources

In addition to assets and liabilities, the statements of fiduciary net position will sometimes include separate sections for deferred outflows and inflows of resources. Deferred outflow of resources represent a consumption of net assets that applies to future periods and deferred inflows of resources represent an acquisition of net assets that applies to future periods. The System has deferred outflows and inflows in the statements of fiduciary net position that relate to pension related deferrals required by GASB Statement No. 68.

### Pensions

Pension-related expenses, liabilities, deferred outflows of resources, and deferred inflows of resources have been determined on the same basis as they are reported by the System. For this purpose, benefit payments are recognized when due and payable in accordance with the benefit terms.

### Subsequent Events

The System has evaluated subsequent events through April 18, 2022, the date the financial statements were available to be issued.

### Reclassifications

Certain amounts in the 2020 financial statements have been reclassified to conform to the current year presentation.

### Recent Accounting Pronouncements

The following GASB Statements are effective for various reporting periods beginning after December 15, 2021.

- GASB Statement No. 87: Leases
- GASB Statement No. 91: Conduit Debt Obligations
- GASB Statement No. 92: Omnibus 2020
- GASB Statement No. 94: Public-Private and Public-Public Partnerships and Availability Payment Arrangements
- GASB Statement No. 96: Subscription-Based Information Technology Arrangements
- GASB Statement No. 97: Certain Component Unit Criteria, and Accounting and Financial Reporting for Internal Revenue Code Section 457 Deferred Compensation Plans — an amendment of GASB Statements No. 14 and No. 84, and a superseding of GASB Statement No. 32.

Based on preliminary analysis, the System does not expect the new guidance to have a significant impact on its financial statements.

## 3. Investments

At December 31, 2021 and 2020, investments consisted of the following:

| **2021** | **Fair Value** | **Cost** |
|---|---|---|
| Cash Equivalents | $ 40,980,094 | $ 40,980,094 |
| Bonds | | |
| U.S. Government and Agency Issues | 28,800,098 | 29,576,387 |
| Corporate | 32,828,877 | 34,292,287 |
| Foreign Investments (Bonds and Stocks) | 94,236,786 | 79,731,976 |
| Common and Preferred Stocks | 230,724,806 | 159,315,378 |
| Mutual and Co-Mingled Funds | 402,073,191 | 261,297,717 |
| Real Estate Partnerships | 54,001,917 | 69,463,204 |
| Limited Partnerships | 79,213,149 | 71,822,292 |
| | $962,858,918 | $746,479,335 |
| **2020** | | |
| Cash Equivalents | $ 45,645,690 | $ 45,645,690 |
| Bonds | | |
| U.S. Government and Agency Issues | 30,541,590 | 30,392,441 |
| Corporate | 28,625,293 | 29,647,263 |
| Foreign Investments (Bonds and Stocks) | 91,225,646 | 76,121,495 |
| Common and Preferred Stocks | 209,538,964 | 149,191,094 |
| Mutual and Co-Mingled Funds | 389,396,506 | 268,518,468 |
| Real Estate Partnerships | 46,928,887 | 67,629,540 |
| Limited Partnerships | 62,928,944 | 62,406,444 |
| | $904,831,520 | $729,552,435 |

## 4. Fair Value Measurements

The framework for measuring fair value establishes a fair value hierarchy which prioritizes the inputs to valuation techniques used to measure fair value into Levels 1, 2, and 3. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1) and the lowest priority to unobservable inputs (Level 3). The three levels of the fair value hierarchy are described as follows:

**Level 1** Inputs to the valuation methodology are unadjusted quoted prices for identical instruments in active markets.

**Level 2** Inputs to the valuation methodology include quoted prices for similar instruments in active markets, quoted prices for identical or similar instruments in inactive markets, inputs other than quoted prices that are observable for the instrument, or inputs that are derived principally from or corroborated by observable market data by correlation or other means.

**Level 3** Inputs to the valuation methodology are unobservable and significant to the fair value measurement.

Investments that are measured at fair value using the net asset value ("NAV") per share (or its equivalent) as a practical expedient are not classified in the fair value hierarchy.

The fair value amounts presented in the tables are intended to permit reconciliation of the fair value hierarchy to the line items presented in the statements of fiduciary net position. The instrument's fair value measurement level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement. Valuation techniques maximize the use of relevant observable inputs and minimize the use of unobservable inputs.

Carrying amounts of certain financial instruments such as cash, receivables, accounts payable, and accrued expenses approximate fair value due to their short maturities or because the terms are similar to market terms. There have been no changes in the methodologies used at December 31, 2021 and 2020.

Following is a description of the valuation methodologies used for investments measured at fair value.

**Level 1** Investments consist of publicly traded common and preferred stocks and mutual funds. These investments are valued using the closing price reported on the active market on which the individual securities are traded.

**Level 2** Investments consist of corporate and foreign bonds and stocks, U.S. government securities and agency issues, and cash equivalent accounts. These securities are valued using pricing models maximizing the use of observable inputs for similar securities. This includes basing value on yields currently available on comparable securities of issuers with similar credit ratings.

**Level 3** Investments consist of real estate partnerships and limited partnerships. Real estate partnerships are valued at fair value as determined by the general partner. Limited partnerships are valued based on valuations of the underlying companies of the limited partnerships as reported by the general partner.

Investments also consist of co-mingled funds. These securities are valued at the NAV based on shares held by the System at year-end. The NAV is used as a practical expedient to estimate fair value.

The preceding methods described may produce a fair value calculation that may not be indicative of net realizable value or reflective of future fair values. Furthermore, although the System believes its valuation methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a different fair value measurement at the reporting date.

The following table presents the fair value measurements of instruments recognized in the accompanying statements of fiduciary net position measured at fair value on a recurring basis and the level within the fair value hierarchy in which the fair value measurements are categorized at December 31, 2021 and 2020:

| **2021** | | **Fair Value Measurements** | | |
|---|---|---|---|---|
| | **Total** | **Level 1** | **Level 2** | **Level 3** |
| Cash Equivalents | $40,980,094 | $ - | $ 40,980,094 | $ - |
| U.S. Government and Agency Issues | 28,800,098 | - | 28,800,098 | - |
| Corporate Bonds | 32,828,877 | - | 32,828,877 | - |
| Foreign Investments | 94,236,786 | - | 94,236,786 | - |
| Common and Preferred Stocks | 230,724,806 | 230,724,806 | - | - |
| Mutual Funds | 262,128,076 | 262,128,076 | - | - |
| Real Estate Partnerships | 54,001,917 | - | - | 54,001,917 |
| Limited Partnerships | 79,213,149 | - | - | 79,213,149 |
| Total Assets in Fair Value Hierarchy | 822,913,803 | $492,852,882 | $196,845,855 | $133,215,066 |
| Investments Measured at NAV | 139,945,115 | | | |
| | $962,858,918 | | | |
| **2020** | | | | |
| Cash Equivalents | 45,645,690 | $ - | $ 45,645,690 | $ - |
| U.S. Government and Agency Issues | 30,541,590 | - | 30,541,590 | - |
| Corporate Bonds | 28,625,293 | - | 28,625,293 | - |
| Foreign Investments | 91,225,646 | - | 91,225,646 | - |
| Common and Preferred Stocks | 209,538,964 | 209,538,964 | - | - |
| Mutual Funds | 251,327,162 | 251,327,162 | - | - |
| Real Estate Partnerships | 46,928,887 | - | - | 46,928,887 |
| Limited Partnerships | 62,928,944 | - | - | 62,928,944 |
| Total Assets in Fair Value Hierarchy | 766,762,176 | $460,866,126 | $196,038,219 | $109,857,831 |
| Investments Measured at NAV | 138,069,344 | | | |
| | $904,831,520 | | | |

Investments measured at fair value based on NAV per share practical expedient as of December 31, are as follows:

| | Fair Value | Unfunded Commitments | Redemption Frequency | Redemption Notice Period |
|---|---|---|---|---|
| **December 31, 2021** | | | | |
| Co-mingled Funds | $ 139,945,115 | N/A | Daily | 30 days |
| **December 31, 2020** | | | | |
| Co-mingled Funds | $ 138,069,344 | N/A | Daily | 30 days |

The following table provides a summary of changes in fair value of the System's Level 3 assets for the years ended December 31, 2021 and 2020, as follows:

| | Limited Partnerships | Real Estate Partnerships | Total |
|---|---|---|---|
| **December 31, 2019** | $52,066,573 | $48,419,609 | $100,486,182 |
| Realized Gains | 317,576 | 41,563 | 359,139 |
| Unrealized Gains (losses) | 1,075,926 | (2,906,098) | (1,830,172) |
| Purchases, Sales, Issuances, and Settlements (net) | 7,307,044 | - | 7,307,044 |
| Investment Income, net | 2,161,825 | 1,781,284 | 3,943,109 |
| Management fees | - | (407,471) | (407,471) |
| **December 31, 2020** | $62,928,944 | $46,928,887 | $109,857,831 |
| Realized Gains | 6,231,172 | 326,398 | 6,557,570 |
| Unrealized Gains (losses) | 9,540,952 | 5,239,365 | 14,780,317 |
| Purchases, Sales, Issuances, and Settlements (net) | (1,917,327) | - | (1,917,327) |
| Investment Income, net | 2,429,408 | 1,915,300 | 4,344,708 |
| Management fees | - | (408,033) | (408,033) |
| **December 31, 2021** | $ 79,213,149 | $ 54,001,917 | $133,215,066 |

All assets have been valued using a market approach, except for Level 3 assets. Fair values in Level 2 are calculated using quoted market prices for similar assets in markets that are not active. The following table describes the valuation technique used to calculate fair values for assets in Level 3. Annually, management determines if the current valuation techniques used in the fair value measurements are still appropriate and evaluates and adjusts the unobservable inputs used in the fair value measurements based on third-party information. There were no changes in the valuation techniques during the current year.

| | Fair Value | Valuation Technique | Unobservable Inputs |
|---|---|---|---|
| **December 31, 2021** | | | |
| Limited Partnerships | $79,213,149 | Basis in LLC | Undistributed Income |
| Real Estate Partnerships | $54,001,917 | Basis in LLC | Undistributed Income |
| **December 31, 2020** | | | |
| Limited Partnerships | $62,928,944 | Basis in LLC | Undistributed Income |
| Real Estate Partnerships | $46,928,887 | Basis in LLC | Undistributed Income |

The significant unobservable inputs used in the fair value measurement of the System's investments in limited partnerships are the original cost of the investment in the partnership plus the cumulative net income of the partnership through the end of the most recent fiscal year. Significant increases or decreases in the partnership's cumulative net income as of December 31, 2021 and 2020 could result in a significantly higher or lower fair value measurement.

## 5. Risks and Uncertainties

### Custodial Credit Risk

Financial instruments that potentially subject the System to concentrations of custodial credit and market risk consist principally of cash and investments. The System places its temporary cash investments with major financial institutions. At December 31, 2021, the System had approximately $10,299,000 in cash on deposit at US Bank. These balances were insured by the Federal Deposit Insurance Corporation ("FDIC") for $250,000. The remaining balances are collateralized by US Bank's assets held jointly in the name of US Bank, N.A. and the System, held by the Federal Home Loan Bank of Cincinnati as Trustee. Regulations require that government entities, in case of bank failure, have collateral to cover losses that could exceed the FDIC limit of $250,000. The fair value of the collateralized securities at December 31, 2021 was $11,000,000. A significant portion of the System's investments are held in trust by US Bank of St. Louis, N.A.

On December 30, 2021 and 2020, the System received $29,216,318 and $30,001,793, respectively, from the St. Louis Board of Education for the 2021 and 2020 St. Louis Public Schools' annual regular pension contribution and sick leave conversion contribution and held it in a cash equivalents account until investment allocations were implemented.

The System invests in various investment securities. Investment securities are exposed to various risks such as interest rate, market and credit risks. Due to the level of risk associated with certain investment securities, it is at least reasonably possible that changes in the values of investment securities will occur in the near term and that such change could materially affect the amounts reported in the accompanying statements of fiduciary net position.

### Concentration of Credit Risk

At December 31, 2021 and 2020, the System had the following concentrations, defined as investments (other than those issued or guaranteed by the U.S. Government) in any one organization that represent 5% or more of net position held in trust for pension benefits.

| Investments | Fair Value | Percentage of Total Net Position |
|---|---|---|
| **2021** | | |
| UBS Realty Investors, LLC | $54,001,917 | 5.6% |
| Causeway | $51,663,366 | 5.3% |
| Fidelity Institutional Asset Mgmt | $60,688,510 | 6.2% |
| Edgar Lomax Company | $73,418,532 | 7.6% |
| **2020** | | |
| UBS Realty Investors, LLC | $46,928,887 | 5.1% |
| Causeway | $47,066,559 | 5.1% |
| Fidelity Institutional Asset Mgmt | $54,625,376 | 6.0% |
| Mellon Capital Management | $49,995,547 | 5.5% |
| Loomis Strategic Alpha | $47,254,584 | 5.2% |
| Edgar Lomax Company | $65,464,656 | 7.2% |

### Credit Risk of Debt Securities

The System's debt investments as of December 31, 2021 were rated by Moody's Investor Services ("Moody's") and the ratings are presented using the Moody's rating scale. The System's policy to limit credit risk is that the overall average quality of each high-grade domestic fixed income portfolio shall be AA or better and the average quality rating of securities held in a domestic high-yield portfolio shall be B or better. The overall average quality of each global fixed income portfolio shall be A or better. Non-rated issues are allowed as long as the quality is sufficient to maintain the overall average rating noted.

As of December 31, 2021, the System held the following fixed income investments with respective Moody's quality ratings or equivalent rating. Obligations of the U.S. Government or obligations explicitly guaranteed by the U.S. Government are not considered to have credit risk. Foreign investments not considered to have credit risk such as stocks and cash equivalents are not included in the following:

| Quality Rating | Corporate Bonds | Foreign Government and Corporate Obligations | U.S. Government and Agency Issues | Total |
|---|---|---|---|---|
| Aaa | $ 3,175,002 | $ 209,655 | $ 15,345,754 | $ 18,730,411 |
| Aa1 | 19,416 | - | - | 19,416 |
| Aa2 | 147,017 | - | - | 147,017 |
| Aa3 | 343,631 | - | 459,424 | 803,055 |
| A1 | 868,381 | - | - | 868,381 |
| A2 | 1,300,314 | - | - | 1,300,314 |
| A3 | 790,829 | - | 139,376 | 930,205 |
| Baa1 | 1,267,648 | 76,755 | 52,107 | 1,396,510 |
| Baa2 | 2,401,794 | - | - | 2,401,794 |
| Baa3 | 4,479,614 | 325,109 | - | 4,804,723 |
| Ba1 | 912,070 | 216,916 | - | 1,128,986 |
| Ba2 | 648,559 | 41,276 | - | 689,835 |
| Ba3 | 702,823 | 147,929 | - | 850,752 |
| B1 | 443,801 | 43,453 | - | 487,254 |
| B2 | 177,584 | 87,448 | - | 265,032 |
| B3 | 516,455 | 41,566 | - | 558,021 |
| Caa1 | 74,324 | - | - | 74,324 |
| Caa2 | 24,803 | - | - | 24,803 |
| Caa3 | - | 8,720 | - | 8,720 |
| Ca | 38,534 | - | - | 38,534 |
| Not rated | 14,496,278 | 2,139,245 | 12,803,437 | 29,438,960 |
| Total | $32,828,877 | $3,338,072 | $28,800,098 | $64,967,047 |

As of December 31, 2020, the System held the following fixed income investments with respective Moody's quality ratings or equivalent rating.

| Quality Rating | Corporate Bonds | Foreign Government and Corporate Obligations | U.S. Government and Agency Issues | Total |
|---|---|---|---|---|
| Aaa | $ 1,126,281 | $ 117,192 | $ 12,544,595 | $ 13,788,068 |
| Aa1 | 18,929 | - | - | 18,929 |
| Aa2 | 163,127 | - | - | 163,127 |
| Aa3 | 413,095 | - | 478,749 | 891,844 |
| A1 | 519,926 | - | - | 519,926 |
| A2 | 1,568,649 | - | - | 1,568,649 |
| A3 | 1,188,872 | - | 130,764 | 1,319,636 |
| Baa1 | 1,890,987 | 37,797 | 49,409 | 1,978,193 |
| Baa2 | 2,492,504 | 187,787 | - | 2,680,291 |
| Baa3 | 5,475,883 | 357,843 | - | 5,833,726 |
| Ba1 | 866,736 | 454,276 | - | 1,321,012 |
| Ba2 | 504,167 | 317,542 | - | 821,709 |
| Ba3 | 829,237 | 66,795 | - | 896,032 |
| B1 | 465,636 | 36,625 | - | 502,261 |
| B2 | 172,338 | 65,893 | - | 238,231 |
| B3 | 499,503 | 73,353 | - | 572,856 |
| Caa1 | 157,403 | - | - | 157,403 |
| Caa2 | 48,559 | 13,597 | - | 62,156 |
| Ca | 14,320 | - | - | 14,320 |
| Not rated | 10,209,141 | 2,349,316 | 17,338,073 | 29,896,530 |
| Total | $28,625,293 | $4,078,016 | $30,541,590 | $63,244,899 |

### Foreign Currency Risk

Foreign currency risk is the risk that changes in exchange rates will adversely impact the fair value of an investment. The System does not have a formal policy to limit foreign currency risk. The System's exposure to foreign currency risk in U.S. Dollars as of December 31, 2021 is as follows:

| Currency | Cash Equivalents | Equities | Total |
|---|---|---|---|
| British Pound Sterling | $1 | $ 17,023,264 | $ 17,023,265 |
| Canadian Dollar | 6 | 2,042,721 | 2,042,727 |
| Danish Krone | - | 344,448 | 344,448 |
| Euro | - | 29,475,939 | 29,475,939 |
| Hong Kong Dollar | - | 1,962,650 | 1,962,650 |
| Japanese Yen | - | 6,397,970 | 6,397,970 |
| Korean Won | - | 2,666,924 | 2,666,924 |
| Mexican Peso | - | 193,443 | 193,443 |
| Swedish Krona | - | 1,106,422 | 1,106,422 |
| Swiss Franc | - | 8,852,379 | 8,852,379 |
| | $7 | $70,066,160 | $70,066,160 |
| Foreign Investment Denominated in U.S. Dollars | | | 24,170,619 |
| | | | $ 94,236,786 |

The System's exposure to foreign currency risk in U.S. Dollars as of December 31, 2020 is as follows:

| Currency | Cash Equivalents | Equities | Total |
|---|---|---|---|
| Australian Dollar | $- | $ 358,803 | $ 358,803 |
| British Pound Sterling | 1 | 12,426,518 | 12,426,518 |
| Canadian Dollar | 344 | 1,821,242 | 1,821,242 |
| Danish Krone | - | 164,601 | 164,601 |
| Euro | - | 30,644,215 | 30,644,215 |
| Hong Kong Dollar | - | 1,722,172 | 1,722,172 |
| Japanese Yen | - | 7,292,362 | 7,292,362 |
| Korean Won | - | 2,772,088 | 2,772,088 |
| Mexican Peso | - | 292,189 | 292,189 |
| Swedish Krona | - | 526,614 | 526,614 |
| Swiss Franc | - | 8,386,047 | 8,386,047 |
| | $345 | $66,406,851 | $66,407,196 |
| Foreign Investment Denominated in U.S. Dollars | | | 24,818,795 |
| | | | $ 91,225,991 |

### Interest Rate Risk

Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of an investment. The System's fixed income investments are managed in accordance with policies established by the Board that are specific as to the degree of interest rate risk that can be taken. The System's policies established by the Board manage the interest rate risk within the portfolio using various methods, including effective duration, option adjusted duration, average maturity, and segmented time distribution, which reflects total fair value of investments maturing during a given time period. The System does not have a specific investment policy on interest rate risk. However, domestic bond managers are limited to seven years average duration and global bond managers cannot differ from the passive benchmark by more than two years as a means of managing its exposure to fair value losses arising from increasing interest rates.

The segmented time distribution of the various investment types of the System's debt securities at December 31, 2021 is as follows:

| Type | 2021 Fair Value | Less Than 1 Year | 1 to 5 Years | 6 to 10 Years | More Than 10 Years |
|---|---|---|---|---|---|
| Corporate Bonds | $32,828,877 | $165,965 | $ 9,318,485 | $ 9,115,759 | $ 14,228,668 |
| Foreign Government and Corporate Obligations | 3,338,072 | - | 884,565 | 800,698 | 1,652,809 |
| U.S. Government and Agency Issues | 28,800,098 | 5,253 | 5,666,918 | 4,323,844 | 18,804,083 |
| Total | $64,967,047 | $ 171,218 | $15,869,968 | $14,240,301 | $34,685,560 |

The segmented time distribution of the various investment types of the System's debt securities at December 31, 2020 is as follows:

| Type | 2020 Fair Value | Less Than 1 Year | 1 to 5 Years | 6 to 10 Years | More Than 10 Years |
|---|---|---|---|---|---|
| Corporate Bonds | $28,625,293 | $ 37 | $ 6,470,855 | $10,261,399 | $11,893,002 |
| Foreign Government and Corporate Obligations | 4,078,016 | - | 1,050,795 | 2,185,110 | 842,110 |
| U.S. Government and Agency Issues | 30,541,590 | 3,461 | 5,282,730 | 3,768,892 | 21,486,509 |
| Total | $63,244,899 | $3,498 | $12,804,380 | $16,215,401 | $34,221,621 |

## 6. Property and Building

Property and building as of December 31, consists of:

| | 2021 | 2020 |
|---|---|---|
| Land | $ 229,451 | $ 229,451 |
| Building | 2,065,061 | 2,065,061 |
| Tenant Improvements | 158,120 | 158,120 |
| | 2,452,632 | 2,452,632 |
| Less accumulated depreciation | 932,517 | 880,890 |
| Property and Building, net | $ 1,520,115 | $ 1,571,742 |

Depreciation expense totaled $51,627 and $51,626 for the years ended December 31, 2021 and 2020, respectively.

## 7. Occupancy

The System occupies offices in a building it owns. Occupancy expenses for the years ended December 31, 2021 and 2020 were $51,926 and $39,142, respectively.

The System leases a portion of its building to an unrelated party. The current lease agreement extends the term to May 2022 with an annual rent of $173,595. Rental income received for the years ended December 31, 2021 and 2020 totaled $170,397 and $164,877, respectively.

## 8. Tax Status of Plan

The Internal Revenue Service has determined and informed the System by a letter dated December 15, 2016, that the System and related trust and amendments are designed in accordance with the applicable sections of the Internal Revenue Code ("IRC"). Management believes that the System is designed and is currently being operated in compliance with the applicable requirements of the IRC and therefore believes that the System is qualified and the related trust is tax-exempt.

## 9. Retirement Plan of the System

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

At December 31, 2021 and 2020, the System reported a liability of $688,612 and $1,051,687, respectively, as its proportionate share of the net pension liability. The net pension liability was measured as of December 31, 2020 and 2019, respectively, and the total pension liability used to calculate the net pension liability was determined by an actuarial valuation as of that date.

The System's proportionate share of the net pension liability was based on the System's actual employer's compensation relative to the actual compensation of all participating employers for the System's plan years ended December 31, 2020 and 2019. At December 31, 2020 and 2019, the System's portion was 0.19% and 0.21%, respectively.

For the year ended December 31, 2021, the System recognized pension expense of $13,612 consisting of the current year contribution, pension liability adjustment, and amortization of deferred outflows and inflows of resources. At December 31, 2021, the System reported deferred outflows and inflows of resources related to pensions from the following sources:

| | Deferred Outflows of Resources | Deferred Inflows of Resources |
|---|---|---|
| Difference Between Expected and Actual Experience | $ 4,917 | $ 9,076 |
| Changes in Assumptions | - | 352,146 |
| Net Difference Between Projected and Actual Earnings on Pension Plan Investments | 82,062 | 119,378 |
| Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions | 47,316 | 126,059 |
| System Contributions Subsequent to the Measurement Date of December 31, 2020 | 80,206 | - |
| Total | $214,501 | $606,659 |

For the year ended December 31, 2020, the System recognized pension expense of $150,372 consisting of the current year contribution, pension liability adjustment, and amortization of deferred outflows and inflows of resources. At December 31, 2020, the System reported deferred outflows and inflows of resources related to pensions from the following sources:

| | Deferred Outflows of Resources | Deferred Inflows of Resources |
|---|---|---|
| Difference Between Expected and Actual Experience | $ - | $ 25,912 |
| Changes in Assumptions | 176,050 | 609,061 |
| Net Difference Between Projected and Actual Earnings on Pension Plan Investments | 146,373 | 167,888 |
| Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions | 83,586 | 70,761 |
| System Contributions Subsequent to the Measurement Date of December 31, 2019 | 74,309 | - |
| Total | $480,318 | $873,622 |

The System's total pension liability in the December 31, 2020 and 2019 actuarial valuation was determined using the actuarial assumptions disclosed in Note 12.

Deferred outflows of resources of $80,206 resulting from the System's contributions subsequent to the measurement date will be recognized as a reduction of the net pension liability in the year ended December 31, 2022. Other amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense in the System's year ending December 31 as follows:

| Year | Amount |
|---|---|
| 2022 | $(270,525) |
| 2023 | (165,575) |
| 2024 | (31,723) |
| 2025 | (4,541) |
| Total | $(472,364) |

### Discount Rate

The discount rate used to measure the total pension liability was 7.50 percent for each of the years ended December 31, 2021 and 2020. The projection of cash flows used to determine the discount rate assumed that System contributions will continue to follow the funding policy established prior to the year ended December 31, 2021. Based on those assumptions, the System's contributions will continue to follow the current funding policy.

### Sensitivity of The System's Proportionate Share of the Net Pension Liability to Changes in the Discount Rate

The following presents the System's proportionate share of the net pension liability calculated using the discount rate of 7.50 percent for each of the years ended December 31, 2021 and 2020, as well as what the System's proportionate share of the net pension liability would be if it were calculated using a discount rate that is 1- percentage-point lower or 1-percentage-point higher than the current rate:

| System's Proportionate Share of the Net Pension Liability | 1% Decrease (6.50%) | Current Discount Rate (7.50%) | 1% Increase (8.50%) |
|---|---|---|---|
| **Year Ended December 31, 2021** | $924,557 | $688,612 | $492,888 |
| **Year Ended December 31, 2020** | $1,052,633 | $1,051,687 | $574,085 |

## 10. Annual Money-Weighted Rate of Return

The annual money-weighted rate of return was 6.13 percent and 8.90 percent for the years ended December 31, 2021 and 2020, respectively. The annual money-weighted rate of return expresses investment performance, net of investment expense, and adjusted for the changing amounts actually invested.

## 11. Funding Status

The funded status as of January 1, which is the most recent actuarial date is as follows:

| | 2021 | 2020 |
|---|---|---|
| Actuarial value of assets | $894,251,149 | $888,759,194 |
| Actuarial accrual liability (AAL) | $1,136,451,964 | $1,130,608,343 |
| Unfunded AAL (UAAL) | $242,200,815 | $241,849,149 |
| Funded ratio | 78.7 % | 78.6 % |
| Annual covered payroll | $264,676,845 | $272,973,377 |
| UAAL as a percentage of payroll | 91.5 % | 88.6 % |

The funded ratio increased 0.1% from the previous year. The schedule of funding progress, presented as required supplementary information following the notes to the financial statements, presents similar information but uses a multi-year format to show trend information. These trends indicate whether the actuarial value of plan assets are increasing or decreasing over time relative to the actuarial accrued liability for benefits. The trend information was obtained from the annual valuation report of the independent actuary retained by the System.

Additional information regarding assumptions used in the actuarial valuation is as follows:

| | **January 1, 2021** | **January 1, 2020** |
|---|---|---|
| Actuarial Cost Method | Frozen entry age | Frozen entry age |
| Rate of Investment Return | 7.50%, net of expenses | 7.50%, net of expenses |
| Participant Account Interest Crediting Rate | 5.00% | 5.00% |
| Turnover or Withdrawal Rates | Various by age and year of membership based on actual experience | Various by age and year of membership based on actual experience |
| Mortality and Death Rates | a) RP-2014 Combined Healthy Mortality table (rolled back to 2006) for active Members, and deferred vested Members, projected fully generationally using projection scale MP-2015.<br>b) RP-2014 Combined Healthy Mortality Table (rolled back to 2006) for Inactive (In Receipt) Members adjusted by an additional 10% to account for the higher mortality experienced by the Plan, projected fully generationally using projection scale MP-2015. | a) RP-2014 Combined Healthy Mortality table (rolled back to 2006) for active Members, and deferred vested Members, projected fully generationally using projection scale MP-2015.<br>b) RP-2014 Combined Healthy Mortality Table (rolled back to 2006) for Inactive (In Receipt) Members adjusted by an additional 10% to account for the higher mortality experienced by the Plan, projected fully generationally using projection scale MP-2015. |
| Disability Rates | RP-2014 Disability Mortality Table (rolled back to 2006), projected fully generationally using projection scale MP-2015 | RP-2014 Disability Mortality Table (rolled back to 2006), projected fully generationally using projection scale MP-2015 |
| Rates of Retirement Between the Ages of 55 and 70 | Various based on actual experience of the System | Various based on actual experience of the System |
| Rate of Salary Increases | Salaries are assumed to increase at the rate of 5.0% per year for the first 5 years of employment and at the rate of 3.5% per year thereafter | Salaries are assumed to increase at the rate of 5.0% per year for the first 5 years of employment and at the rate of 3.5% per year thereafter |
| Asset Valuation Method | The assumed yield method of valuing assets | The assumed yield method of valuing assets |

## 12. Employers' Net Pension Liability

The components of the net pension liability (the retirement system's liability determined in accordance with GASB Statement No. 67 less the fiduciary net position) as of December 31, 2021, are shown in the Schedule of Net Pension Liability below.

Actuarial valuation of an ongoing plan involves estimates of the reported amounts and assumptions about the probability of occurrence of events far into the future. Examples include assumptions about future employment mortality and future salary increases. Amounts determined regarding the net pension liability are subject to continual revision as actual results are compared with past expectations and new estimates are made about the future. The last experience study was performed in 2021. The net pension liability as of December 31, 2021 and 2020 is $296,612,468 and $363,687,113, respectively, based on actuarial valuations. The 2021 valuation was performed as of June 2020, with a measurement date of January 1, 2021, rolled forward and updated to December 31, 2021 using generally accepted actuarial procedures. The 2020 valuation was performed as of June 2019, with a measurement date of January 1, 2020, rolled forward and updated to December 31, 2020 using generally accepted actuarial procedures.

### Schedule of Net Pension Liability

The components of the net pension liability of all participating employers at December 31, 2021 and 2020, are as follows:

| | 2020 | 2019 |
|---|---|---|
| Total Pension Liability | $1,269,440,124 | $1,278,464,067 |
| Less: Fiduciary Net Position | 972,827,656 | 914,776,954 |
| Employers' Net Pension Liability | $ 296,612,468 | $ 363,687,113 |
| Plan Net Position as a Percentage of Total Pension Liability | 76.63 % | 71.55 % |

### Sensitivity of Net Pension Eligibility to Changes in the Discount Rate

The following presents the net pension liability at December 31, 2021, calculated using the discount rate of 7.00 percent, as well as what the net pension liability would have been if it were calculated using a discount rate that is 1-percentage point lower or 1- percentage-point higher than the current rate:

| Net Pension Liability – 2021 | 1% Decrease (6.00%) | Current Discount Rate (7.00%) | 1% Increase (8.00%) |
|---|---|---|---|
| | $420,110,630 | $296,612,468 | $192,027,293 |

The following presents the net pension liability at December 31, 2020, calculated using the discount rate of 7.50 percent, as well as what the net pension liability would have been if it were calculated using a discount rate that is 1-percentage point lower or 1- percentage-point higher than the current rate:

| Net Pension Liability – 2020 | 1% Decrease (6.50%) | Current Discount Rate (7.50%) | 1% Increase (8.50%) |
|---|---|---|---|
| | $486,608,990 | $363,687,113 | $259,414,662 |

The projection of cash flows used to determine the discount rate assumed that System contributions will continue to follow the current funding policy. Based on those assumptions, the System's contributions will continue to follow the current funding policy.

Under GASB Statement No. 68, employers participating in the plan would recognize a proportionate share of total pension expense of ($97,039,617) and $7,188,133 for their fiscal years beginning after June 15, 2021 and 2020, respectively.

# Schedules of Changes of Employer Net Pension Liability for the Years Ended December 31,

| | 2021 | 2020 | 2019 | 2018 |
|---|---|---|---|---|
| **Total Pension Liability** | | | | |
| Service Cost | $ 21,761,352 | $ 23,374,806 | $ 40,762,465 | $ 41,332,913 |
| Interest | 93,253,627 | 92,951,028 | 78,546,085 | 79,257,906 |
| Changes of Benefit Terms | - | - | - | - |
| Difference Between Expected and Actual Experience | (22,232,218) | 3,525,167 | (631,432) | (21,350,805) |
| Changes of Assumptions | 11,880,738 | - | (392,633,162) | - |
| Benefit Payments | (113,687,442) | (112,681,273) | (113,101,170) | (114,010,652) |
| Net Change in Total Pension Liability | (9,023,943) | 7,169,728 | (387,057,214) | (14,770,638) |
| Total Pension Liability – Beginning | 1,278,464,067 | 1,271,294,339 | 1,658,351,553 | 1,673,122,191 |
| Total Pension Liability – Ending | $1,269,440,124 | $1,278,464,067 | $ 1,271,294,339 | $ 1,658,351,553 |
| **Plan Fiduciary Net Position** | | | | |
| Employer Contributions | $ 41,226,981 | $ 41,822,334 | $ 43,902,706 | $ 48,797,779 |
| Employee Contributions | 20,880,189 | 17,607,279 | 17,019,685 | 14,248,567 |
| Net Investment Income | 111,154,045 | 76,895,738 | 127,614,501 | (41,671,079) |
| Benefit Payments Including Refunds of Employee Contributions | (113,687,442) | (112,681,273) | (113,101,170) | (114,010,652) |
| Administrative Expense | (1,523,071) | (1,906,813) | (1,590,013) | (1,996,982) |
| Other | - | (255,913) | - | - |
| Net Change in Plan Fiduciary Net Position | 58,050,702 | 21,481,352 | 73,845,709 | (94,632,367) |
| Plan Fiduciary Net Position – Beginning | 914,776,954 | 893,295,602 | 819,449,893 | 914,082,260 |
| Plan Fiduciary Net Position – Ending | $ 972,827,656 | $ 914,776,954 | $ 893,295,602 | $ 819,449,893 |
| Net Pension Liability – Ending | $ 296,612,468 | $ 363,687,113 | $ 377,998,737 | $ 838,901,660 |
| Total Pension Liability | $1,269,440,124 | $1,278,464,067 | $ 1,271,294,339 | $ 1,658,351,553 |
| Less: Plan Fiduciary Net Position | 972,827,656 | 914,776,954 | 893,295,602 | 819,449,893 |
| Employer Net Pension Liability | $ 296,612,468 | $ 363,687,113 | $ 377,998,737 | $ 838,901,660 |
| Plan Fiduciary Net Position as a Percentage of the Total Pension Liability | 76.63 % | 71.55 % | 70.27 % | 49.41 % |
| Covered Payroll | $ 264,676,845 | $ 272,973,377 | $ 263,772,380 | $ 265,773,659 |
| Employer Net Pension Liability as a Percentage of Covered Payroll | 112 % | 133 % | 143 % | 316 % |

| | 2017 | 2016 | 2015 | 2014 |
|---|---|---|---|---|
| Total Pension Liability | | | | |
| Service Cost | $ 19,950,269 | $ 19,260,511 | $ 19,136,245 | $ 18,728,870 |
| Interest | 92,276,865 | 92,358,115 | 93,242,628 | 93,305,719 |
| Changes of Benefit Terms | 18,979,978 | - | - | - |
| Difference Between Expected and Actual Experience | (8,215,370) | 6,392,416 | (10,065,347) | - |
| Changes of Assumptions | 397,218,720 | 70,532,232 | - | - |
| Benefit Payments | (112,950,471) | (113,608,409) | (113,384,329) | (113,082,656 |
| Net Change in Total Pension Liability | 407,259,991 | 74,934,865 | (11,070,803) | (1,048,067) |
| Total Pension Liability – Beginning | 1,265,862,200 | 1,190,927,335 | 1,201,998,138 | 1,203,046,205 |
| Total Pension Liability – Ending | $ 1,673,122,191 | $1,265,862,200 | $1,190,927,335 | $ 1,201,998,138 |
| | | | | |
| Plan Fiduciary Net Position | | | | |
| Employer Contributions | $ 41,077,344 | $ 39,519,979 | $ 40,708,503 | $ 41,757,458 |
| Employee Contributions | 12,591,552 | 12,652,029 | 11,664,711 | 11,887,933 |
| Net Investment Income | 124,796,919 | 44,492,088 | (5,342,651) | 35,000,792 |
| Benefit Payments Including Refunds of Employee Contributions | (112,950,471) | (113,608,409) | (113,384,329) | (113,082,656) |
| Administrative Expense | (1,613,506) | (1,554,314) | (1,466,261) | (1,350,393) |
| Other | - | - | (431,423) | - |
| Net Change in Plan Fiduciary Net Position | 63,901,838 | (18,498,627) | (68,251,450) | (25,786,866) |
| | | | | |
| Plan Fiduciary Net Position – Beginning | 850,180,422 | 868,679,049 | 936,930,499 | 962,717,365 |
| Plan Fiduciary Net Position – Ending | $ 914,082,260 | $ 850,180,422 | $ 868,679,049 | $ 936,930,499 |
| Net Pension Liability – Ending | $ 759,039,931 | $ 415,681,778 | $ 322,248,286 | $ 265,067,639 |
| | | | | |
| Total Pension Liability | $ 1,673,122,191 | $1,265,862,200 | $ 1,190,927,335 | $ 1,201,998,138 |
| Less: Plan Fiduciary Net Position | 914,082,260 | 850,180,422 | 868,679,049 | 936,930,499 |
| Employer Net Pension Liability | $ 759,039,931 | $ 415,681,778 | $ 322,248,286 | $ 265,067,639 |
| | | | | |
| Plan Fiduciary Net Position as a Percentage of the Total Pension Liability | 54.63 % | 67.16 % | 72.94 % | 77.95 % |
| | | | | |
| Covered Payroll | $ 260,223,066 | $ 252,127,288 | $ 245,699,583 | $ 243,280,015 |
| | | | | |
| Employer Net Pension Liability as a Percentage of Covered Payroll | 292 % | 165 % | 131 % | 109 % |

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

The blended rate was changed from 4.78 percent to 7.50 percent at December 31, 2019.

The blended rate was changed from 7.50 percent to 7.00 percent at December 31, 2021.

# Schedules of the System's Proportionate Share of the Net Pension Liability for the Years Ended December 31,

| | 2021 | 2020 | 2019 | 2018 | 2017 | 2016 | 2015 | 2014 |
|---|---|---|---|---|---|---|---|---|
| System's Proportion of the Net Pension Liability | 0.19 % | 0.21 % $ | 0.19 % | 0.23 % | 0.21 % | 0.20 % | 0.22 % | 0.22 % |
| System's Proportionate Share of the Net Pension Liability | $688,612 | $1,051,687 | $1,621,273 | $1,727,361 | $876,434 | $649,399 | $570,232 | $517,013 |
| System's Covered Payroll | $446,482 | $509,484 | $453,896 | $535,096 | $478,280 | $454,115 | $472,849 | Not Available |
| System's Proportionate Share of the Net Pension Liability as a Percentage of Its Covered Payroll | 154.20 % | 206.40 % | 357.19 % | 322.81 % | 183.25 % | 143.00 % | 120.59 % | Not Available |
| Plan Fiduciary Net Position as a Percentage of the Total Pension Liability | 71.55 % | 70.25 % | 49.41 % | 54.63 % | 67.16 % | 72.94 % | 77.95 % | 72.30 % |

*The amounts presented for each fiscal year were determined as of December 31 of the previous year.
The goal is to provide a full 10-year history as the information becomes available.

# Schedules of Annual Money-Weighted Rate of Return on Investments

## for the Years Ended December 31,

The System began tracking the annual money-weighted rate of return during the fiscal year ended December 31, 2014. The annual money-weighted rate of return for future years will appear in the following schedule as they occur. The goal is to provide a full 10-year history as the information becomes available.

| | 2021 | 2020 | 2019 | 2018 | 2017 | 2016 | 2015 | 2014 |
|---|---|---|---|---|---|---|---|---|
| Annual Money-Weighted Rate of Return, Net of Investment Expense, Adjusted for the Changing Amounts Actually Invested | 6.13 % | 8.90 % | 16.83 % | (5.09) % | 15.55 % | 5.52 % | (1.00) % | 3.93 % |

# Schedules of Employer Contributions December 31, 2021

## Board of Education

| Year Ended December 31, | Actuarially Determined Contribution | Contributions Recognized by the Plan | Contributions Deficiency (Excess) | Covered Payroll | Contributions Recognized by the Plan as a Percentage of Covered Payroll |
|---|---|---|---|---|---|
| 2012 | $20,786,075 | $20,786,075 | $ - | $175,009,885 | 11.88 % |
| 2013 | 27,962,472 | 27,962,472 | - | 185,606,968 | 15.07 % |
| 2014 | 31,555,696 | 31,555,696 | - | 191,273,081 | 16.50 % |
| 2015 | 31,072,850 | 31,072,850 | - | 195,853,519 | 15.87 % |
| 2016 | 29,007,501 | 29,007,501 | - | 191,534,175 | 15.14 % |
| 2017 | 30,459,434 | 30,459,434 | - | 193,647,262 | 15.73 % |
| 2018 | 37,376,323 | 37,376,323 | - | 195,723,057 | 19.10 % |
| 2019 | 34,715,003 | 31,344,663 | 3,370,340* | 195,904,143 | 16.00 % |
| 2020 | 36,133,150 | 29,884,664 | 6,248,486* | 192,817,182 | 15.50 % |
| 2021 | 35,274,153 | 29,106,335 | 6,167,818* | 194,042,234 | 15.00 % |

*The Board of Education paid the statutory amount that was recognized by the System for the year ended December 31, 2021 and 2020. This contribution is determined from the prior year census; therefore the contributions are recognized one year in arrears.

## Retirement System

| Year Ended December 31, | Actuarially Determined Contribution | Contributions Recognized by the Plan | Contributions Deficiency (Excess) | Covered Payroll | Contributions Recognized by the Plan as a Percentage of Covered Payroll |
|---|---|---|---|---|---|
| 2012 | $ 73,902 | $ 73,902 | $ - | $622,220 | 11.88 % |
| 2013 | 91,361 | 91,361 | - | 606,427 | 15.07 % |
| 2014 | 85,590 | 85,590 | - | 518,799 | 16.50 % |
| 2015 | 83,960 | 83,960 | - | 529,203 | 15.87 % |
| 2016 | 79,497 | 79,497 | - | 524,915 | 15.14 % |
| 2017 | 74,644 | 74,644 | - | 474,551 | 15.73 % |
| 2018 | 100,565 | 100,565 | - | 526,616 | 19.10 % |
| 2019 | 98,558 | 98,558 | - | 556,184 | 17.72 % |
| 2020 | 75,452 | 74,309 | 1,143 | 402,634 | 18.46 % |
| 2021 | 91,988 | 80,206 | 11,782 | 506,024 | 15.85 % |

The contribution is determined from the prior year census; therefore the contributions are recognized one year in arrears.

## Charter Schools

| Year Ended December 31, | Actuarially Determined Contribution | Contributions Recognized by the Plan | Contributions Deficiency (Excess) | Covered Payroll | Contributions Recognized by the Plan as a Percentage of Covered Payroll |
|---|---|---|---|---|---|
| 2012 | $ 5,068,681 | $ 5,533,481 | $ (464,800)* | $ 42,676,134 | 12.97 % |
| 2013 | 7,313,765 | 6,765,907 | 547,858* | 48,546,696 | 13.94 % |
| 2014 | 5,625,992 | 8,527,507 | (2,901,515)* | 34,101,634 | 25.01 % |
| 2015 | 7,440,420 | 8,445,676 | (1,005,256)* | 46,897,293 | 18.01 % |
| 2016 | 8,123,754 | 9,718,163 | (1,594,409)* | 53,640,493 | 18.12 % |
| 2017 | 9,123,878 | 10,130,296 | (1,006,418)* | 58,005,475 | 17.46 % |
| 2018 | 12,216,701 | 11,018,669 | 1,198,032* | 63,973,393 | 17.22 % |
| 2019 | 12,282,602 | 12,267,081 | 15,521* | 69,313,332 | 17.70 % |
| 2020 | 13,221,261 | 11,746,232 | 1,475,029* | 70,552,564 | 16.65 % |
| 2021 | 14,256,585 | 11,930,457 | 2,326,128* | 78,425,119 | 15.21 % |

*Charter Schools report and pay employer contributions in the current year as service is credited.
This is determined from the prior year census; therefore the contributions are recognized one year in arrears.

Additional information related to the actuarial valuation on the previous page follows:

| | |
|---|---|
| Actuarial Cost Method | Frozen entry age |
| Rate of Investment Return | 7.5%, which includes a 2.75% allowance for inflation, net of expenses for 2021 and 2020 |
| Participant Account Interest Crediting Rate | 5.00% for 2021 and 2020 |
| Turnover or Withdrawal Rates | Various by age and year of membership based on actual experience |
| Mortality and Death Rates | Mortality tables issued by the SOA, the RP-2014 Combined Healthy Table (rolled back to 2006), projected fully generationally using projection scale MP-2015 for the 2021 and 2020 plan years. The mortality assumption for inactive participants receiving benefits is increased by an additional 10% to account for the higher mortality experienced by the Plan for the 2021 and 2020 plan years. |
| Disability Rates | RP-2014 Disabled Mortality Table (rolled back to 2006) projected fully generationally using projection scale MP-2015 for the 2021 and 2020 plan years. |
| Rates of Retirement Between the Ages of 55 and 70 | Various based on actual experience of the System |
| Rate of Salary Increases | Salaries are assumed to increase at the rate of 5.0% per year for the first 5 years of employment and 3.5% thereafter for the 2021 and 2020 plan years. |
| Asset Valuation Method | The assumed yield method of valuing assets |

The UFAAL was originally determined and frozen as of January 1, 1981. Effective January 1, 2006, the UFAAL was re-determined and is being amortized over thirty (30) years.

There were no method or assumption changes made since the prior valuation.

# Schedule of Funding Progress (in millions) December 31, 2021

| Actuarial Valuation Date January 1, | Actuarial Value of Assets (a) | Actuarial Accrued Liability (AAL)– Frozen Entry Age (b) | Unfunded AAL (UAAL) (b - a) |
|---|---|---|---|
| 2012 | $925.4 | $1,090.3 | $164.9 |
| 2013 | 914.5 | 1,085.1 | 170.6 |
| 2014 | 922.9 | 1,093.4 | 170.5 |
| 2015 | 926.9 | 1,093.6 | 166.7 |
| 2016 | 915.4 | 1,077.7 | 162.3 |
| 2017 | 901.1 | 1,133.6 | 232.5 |
| 2018 | 899.8 | 1,152.7 | 252.9 |
| 2019 | 886.2 | 1,129.2 | 243.0 |
| 2020 | 888.8 | 1,130.6 | 241.8 |
| 2021 | 894.3 | 1,136.5 | 242.2 |

| Actuarial Valuation Date January 1, | Funded Ratio (a/b) | Annual Covered Payroll (c) | UAAL as a % of Covered Payroll ( (b-a) /c) |
|---|---|---|---|
| 2012 | 84.9 | $238.4 | 70.2 % |
| 2013 | 84.3 | 225.9 | 75.5 |
| 2014 | 84.4 | 243.3 | 70.1 |
| 2015 | 84.8 | 245.7 | 67.8 |
| 2016 | 84.9 | 252.1 | 64.4 |
| 2017 | 79.5 | 260.2 | 89.3 |
| 2018 | 78.1 | 265.8 | 95.2 |
| 2019 | 78.5 | 263.8 | 92.1 |
| 2020 | 78.6 | 273.0 | 88.6 |
| 2021 | 78.7 | 264.7 | 91.5 |

# Schedules of Operating Expenses Years Ended December 31, 2021 and 2020

| | 2021 | 2020 |
|---|---|---|
| Actuarial Services | $ 143,339 | $ 113,300 |
| Accounting and Auditing Fees | 89,336 | 84,377 |
| Computer Programming and Consulting | 93,294 | 97,164 |
| Conventions, Conferences, Seminars – Trustees (See Below) | 1,600 | - |
| Depreciation Expense | 51,627 | 51,626 |
| Dues and Subscriptions | 8,780 | 400 |
| Health Insurance Consulting | 39,843 | 39,843 |
| Insurance – Group Health | 77,271 | 77,271 |
| Insurance – Casualty and Bonding | 121,685 | 97,328 |
| Legal Fees and Expenses | 107,665 | 125,741 |
| Medical Fees | 400 | 500 |
| Miscellaneous Expense | 11,413 | 308,276 |
| Occupancy Expense | 51,926 | 39,142 |
| Office Repairs and Maintenance | 41,061 | 45,012 |
| Office Supplies and Expenses | 12,794 | 10,834 |
| Payroll Taxes | 37,000 | 37,898 |
| Pension Expense | 13,612 | 150,372 |
| Postage | 60,113 | 56,608 |
| Printing and Publishing | 33,739 | 32,775 |
| Salaries – Administrative and Clerical | 483,754 | 495,394 |
| Telephone | 13,639 | 13,672 |
| Utilities | 29,180 | 29,280 |
| Total Operating Expenses | $1,523,071 | $1,906,813 |

**Trustees' Expenses**

The Trustees attended conferences and business meetings in connection with business of the System. The Trustees received no salaries but were allowed expenses relating to their attendance at such events as follows:

| | 2021 | 2020 |
|---|---|---|
| Lodging, Meals, and Miscellaneous | $ - | $ - |
| Transportation and Registration | 1,600 | - |
| Total Trustees' Expenses | $1,600 | $ - |

# Schedules of Investment Expenses Years Ended December 31, 2021 and 2020

| | 2021 | 2020 |
|---|---|---|
| Investment management fees | | |
| Ativo Capital Management | $ - | $ 34,106 |
| Arga Investment Management | - | 31,614 |
| Brown Capital Management | - | 8,627 |
| Causeway Capital Management | 307,069 | 247,746 |
| Channing Capital Management | - | 5,923 |
| Chicago Equity Partners | - | 37,859 |
| Earnest Partners | 30,288 | 31,378 |
| Edgar Lomax Company | 317,391 | 221,733 |
| Entrust Capital Diversified Fund Ltd. | 7,832 | 7,853 |
| Fidelity Institutional Asset Management | 300,452 | 248,246 |
| Invesco Global Performance | - | 242,574 |
| Intech Investment Management | 165,103 | 137,070 |
| Lazard Asset Management | 228,391 | 211,481 |
| Loomis Sayles & Company, L.P. | 236,578 | 216,647 |
| Manulife Asset Management | 120,539 | 128,020 |
| Mellon Capital Management | 63,728 | 137,996 |
| NCM Capital | 31,488 | 36,851 |
| OFI Global Asset Management | 308,953 | 71,356 |
| Strategic Global | - | 37,631 |
| Systematic Financial Management | 335,560 | 236,640 |
| TCW Asset Management Company | 240,197 | 207,101 |
| UBS Realty Investors LLC | 408,033 | 407,471 |
| US Bank Trust | 110,060 | 90,997 |
| Westfield Capital Management | 323,714 | 264,242 |
| Whitebox Multi-Strategy Fund, L.P. | 320,923 | 270,062 |
| Xponance | 327,567 | 157,546 |
| Total Investment Management Fees | 4,183,866 | 3,728,770 |
| NEPC, LLC | 189,414 | 177,215 |
| Banking Services | 42,201 | 33,408 |
| Total Investment Expenses | $4,415,481 | $3,939,393 |

# Schedules of Professional/Consultant Fees Years Ended December 31, 2021 and 2020

| | 2021 | 2020 |
|---|---|---|
| Actuarial Services | $ 143,339 | $ 113,300 |
| Accounting and Auditing Fees | 89,336 | 84,377 |
| Building Property Management | 51,926 | 39,142 |
| Health Insurance Consulting | 39,843 | 39,843 |
| Legal Expenses | 107,665 | 125,741 |
| Technology Consulting | 93,294 | 97,164 |
| Total Fees | $525,403 | $499,567 |

# Schedules of Limited Partnerships Years Ended December 31, 2021 and 2020

| Partnership Name | Style | Investments at Fair Value as of December 31, 2021 |
|---|---|---|
| Asia Alternatives Capital Partners VI, L.P. | Private Equity & Private Debt | $ 652,939 |
| Bain Capital Special Situations Asia II, L.P. | Private Equity & Private Debt | 455,993 |
| BIG Real Estate Fund I, L.P. | Private Equity & Private Debt | 6,121,710 |
| Brightwood Capital Fund IV, L.P. | Private Equity & Private Debt | 9,462,082 |
| Crayhill Principal Strategies Fund II, L.P. | Private Equity & Private Debt | 1,691,490 |
| ElmTree U.S. Net Lease Fund IV, L.P. | Private Equity & Private Debt | 1,621,972 |
| Fort Washington Private Equity Investors IX, L.P. | Private Equity & Private Debt | 17,177,846 |
| GCM Grosvenor Advance Fund, L.P. | Private Equity & Private Debt | 2,739,998 |
| HarbourVest Global Fund, L.P. | Private Equity & Private Debt | 376,748 |
| Kayne Anderson Real Estate Partners VI, L.P. | Private Equity & Private Debt | 502,462 |
| Landmark Equity Partners XIV, L.P. | Private Equity & Private Debt | 560,695 |
| Landmark Equity Partners XV, L.P. | Private Equity & Private Debt | 4,136,838 |
| Landmark Equity Partners XVI, L.P. | Private Equity & Private Debt | 6,774,688 |
| MC Credit Partner, L.P. | Private Equity & Private Debt | 3,405,111 |
| Mesirow Financial Private Equity Partnership Fund III, L.P. | Private Equity & Private Debt | 374,199 |
| Mesirow Financial Private Equity Partnership Fund V, L.P. | Private Equity & Private Debt | 3,371,881 |
| Monroe Capital Private Credit Fund II L.P. | Private Equity & Private Debt | 4,733,066 |
| Monroe Capital Private Credit Fund III L.P. | Private Equity & Private Debt | 9,688,702 |
| Pantheon Global Secondary Fund III B, L.P. | Private Equity & Private Debt | 217,484 |
| Vista Foundation Fund II, L.P. | Private Equity & Private Debt | 5,147,245 |
| | | $79,213,149 |

| **Partnership Name** | **Style** | **Investments at Fair Value as of December 31, 2020** |
|---|---|---|
| BIG Real Estate Fund I, L.P. | Private Equity & Private Debt | $ 4,959,682 |
| Brightwood Capital Fund IV, L.P. | Private Equity & Private Debt | 10,162,948 |
| ElmTree U.S. Net Lease Fund III, L.P. | Private Equity & Private Debt | 4,256 |
| Fort Washington Private Equity Investors IX, L.P. | Private Equity & Private Debt | 11,139,753 |
| Landmark Equity Partners XIV, L.P. | Private Equity & Private Debt | 700,472 |
| Landmark Equity Partners XV, L.P. | Private Equity & Private Debt | 3,908,372 |
| Landmark Equity Partners XVI, L.P. | Private Equity & Private Debt | 7,072,233 |
| MC Credit Partner, L.P. | Private Equity & Private Debt | 1,872,380 |
| Mesirow Financial Private Equity Partnership Fund V, L.P. | Private Equity & Private Debt | 711,111 |
| Monroe Capital Private Credit Fund II L.P. | Private Equity & Private Debt | 7,681,731 |
| Monroe Capital Private Credit Fund III L.P. | Private Equity & Private Debt | 9,353,787 |
| Pantheon Global Secondary Fund III B, L.P. | Private Equity & Private Debt | 280,373 |
| Vista Foundation Fund II, L.P. | Private Equity & Private Debt | 5,081,846 |
| | | $62,928,944 |

# Schedule of Actuarial Present Values of Projected Benefit Payments 000's Omitted December 31, 2021

| Fiscal Year Ending 12/31 | Beginning Fiduciary Net Position | Benefit Payments | Funded Portion | Unfunded Portion | Funded Portion at 7.00% | Unfunded Portion at 2.25% | Using a Single Discount Rate of 7.00% |
|---|---|---|---|---|---|---|---|
| 2022 | $ 972,828 | $ 109,187 | $ 109,187 | $ - | $ 105,555 | $ - | $ 105,555 |
| 2023 | $ 986,556 | $ 107,895 | $ 107,895 | $ - | $ 97,482 | $ - | $ 97,482 |
| 2024 | $ 999,749 | $ 106,041 | $ 106,041 | $ - | $ 89,539 | $ - | $ 89,539 |
| 2025 | $ 1,013,515 | $ 104,437 | $ 104,437 | $ - | $ 82,416 | $ - | $ 82,416 |
| 2026 | $ 1,027,994 | $ 103,411 | $ 103,411 | $ - | $ 76,268 | $ - | $ 76,268 |
| 2027 | $ 1,042,325 | $ 102,886 | $ 102,886 | $ - | $ 65,879 | $ - | $ 65,879 |
| 2028 | $ 1,056,087 | $ 102,268 | $ 102,268 | $ - | $ 65,879 | $ - | $ 65,879 |
| 2029 | $ 1,069,450 | $ 101,610 | $ 101,610 | $ - | $ 61,173 | $ - | $ 61,173 |
| 2030 | $ 1,082,545 | $ 100,880 | $ 100,880 | $ - | $ 56,760 | $ - | $ 56,760 |
| 2031 | $ 1,095,531 | $ 99,979 | $ 99,979 | $ - | $ 52,573 | $ - | $ 52,573 |
| 2032 | $ 1,108,649 | $ 99,257 | $ 99,257 | $ - | $ 48,779 | $ - | $ 48,779 |
| 2033 | $ 1,121,684 | $ 98,391 | $ 98,391 | $ - | $ 45,190 | $ - | $ 45,190 |
| 2034 | $ 1,134,848 | $ 97,395 | $ 97,395 | $ - | $ 41,806 | $ - | $ 41,806 |
| 2035 | $ 1,149,862 | $ 96,170 | $ 96,170 | $ - | $ 38,580 | $ - | $ 38,580 |
| 2036 | $ 1,167,146 | $ 94,942 | $ 94,942 | $ - | $ 35,595 | $ - | $ 35,595 |
| 2037 | $ 1,186,958 | $ 93,645 | $ 93,645 | $ - | $ 32,812 | $ - | $ 32,812 |
| 2038 | $ 1,209,626 | $ 92,288 | $ 92,288 | $ - | $ 30,221 | $ - | $ 30,221 |
| 2039 | $ 1,235,451 | $ 90,896 | $ 90,896 | $ - | $ 27,818 | $ - | $ 27,818 |
| 2040 | $ 1,264,777 | $ 89,682 | $ 89,682 | $ - | $ 25,651 | $ - | $ 25,651 |
| 2041 | $ 1,297,681 | $ 88,287 | $ 88,287 | $ - | $ 23,600 | $ - | $ 23,600 |
| 2042 | $ 1,334,668 | $ 86,902 | $ 86,902 | $ - | $ 21,710 | $ - | $ 21,710 |
| 2043 | $ 1,376,078 | $ 85,544 | $ 85,544 | $ - | $ 19,973 | $ - | $ 19,973 |
| 2044 | $ 1,422,235 | $ 84,156 | $ 84,156 | $ - | $ 18,363 | $ - | $ 18,363 |
| 2045 | $ 1,473,565 | $ 82,916 | $ 82,916 | $ - | $ 16,909 | $ - | $ 16,909 |
| 2046 | $ 1,530,338 | $ 81,547 | $ 81,547 | $ - | $ 15,542 | $ - | $ 15,542 |
| 2047 | $ 1,593,121 | $ 80,275 | $ 80,275 | $ - | $ 14,299 | $ - | $ 14,299 |
| 2048 | $ 1,662,305 | $ 78,859 | $ 78,859 | $ - | $ 13,128 | $ - | $ 13,128 |
| 2049 | $ 1,738,522 | $ 77,627 | $ 77,627 | $ - | $ 12,077 | $ - | $ 12,077 |
| 2050 | $ 1,822,140 | $ 76,361 | $ 76,361 | $ - | $ 11,103 | $ - | $ 11,103 |
| 2051 | $ 1,913,776 | $ 74,922 | $ 74,922 | $ - | $ 10,181 | $ - | $ 10,181 |
| 2052 | $ 2,014,204 | $ 73,197 | $ 73,197 | $ - | $ 9,296 | $ - | $ 9,296 |
| 2053 | $ 2,124,394 | $ 71,397 | $ 71,397 | $ - | $ 8,474 | $ - | $ 8,474 |
| 2054 | $ 2,245,147 | $ 69,610 | $ 69,610 | $ - | $ 7,721 | $ - | $ 7,721 |
| 2055 | $ 2,377,244 | $ 67,565 | $ 67,565 | $ - | $ 7,004 | $ - | $ 7,004 |
| 2056 | $ 2,521,774 | $ 65,433 | $ 65,433 | $ - | $ 6,340 | $ - | $ 6,340 |
| 2057 | $ 2,679,746 | $ 63,204 | $ 63,204 | $ - | $ 5,723 | $ - | $ 5,723 |
| 2058 | $ 2,852,236 | $ 60,837 | $ 60,837 | $ - | $ 5,148 | $ - | $ 5,148 |
| 2059 | $ 3,040,437 | $ 58,366 | $ 58,366 | $ - | $ 4,616 | $ - | $ 4,616 |
| 2060 | $ 3,245,594 | $ 55,854 | $ 55,854 | $ - | $ 4,128 | $ - | $ 4,128 |
| 2061 | $ 3,468,972 | $ 53,359 | $ 53,359 | $ - | $ 3,686 | $ - | $ 3,686 |
| 2062 | $ 3,711,864 | $ 50,873 | $ 50,873 | $ - | $ 3,284 | $ - | $ 3,284 |
| 2063 | $ 3,975,668 | $ 48,396 | $ 48,396 | $ - | $ 2,920 | $ - | $ 2,920 |
| 2064 | $ 4,261,871 | $ 45,934 | $ 45,934 | $ - | $ 2,590 | $ - | $ 2,590 |
| 2065 | $ 4,572,054 | $ 43,493 | $ 43,493 | $ - | $ 2,292 | $ - | $ 2,292 |
| 2066 | $ 4,907,919 | $ 41,080 | $ 41,080 | $ - | $ 2,023 | $ - | $ 2,023 |
| 2067 | $ 5,271,264 | $ 38,697 | $ 38,697 | $ - | $ 1,781 | $ - | $ 1,781 |

# Schedule of Projection of Fiduciary Net Position 000's Omitted

December 31, 2021

| Year | Projected Beginning Fiduciary Net Position | Projected Total Contributions | Projected Benefit Payments | Projected Investment Earnings | Projected Ending Fiduciary Net Position |
|---|---|---|---|---|---|
| 2022 | $ 972,828 | $ 56,655 | $ 109,187 | $ 66,259 | $ 986,556 |
| 2023 | $ 986,556 | $ 53,919 | $ 107,895 | $ 67,170 | $ 999,749 |
| 2024 | $ 999,749 | $ 51,726 | $ 106,041 | $ 68,081 | $ 1,013,515 |
| 2025 | $ 1,013,515 | $ 49,879 | $ 104,437 | $ 69,037 | $ 1,027,994 |
| 2026 | $ 1,027,994 | $ 47,731 | $ 103,411 | $ 70,011 | $ 1,042,325 |
| 2027 | $ 1,042,325 | $ 45,688 | $ 102,886 | $ 70,961 | $ 1,056,087 |
| 2028 | $ 1,056,087 | $ 43,753 | $ 102,268 | $ 71,878 | $ 1,069,450 |
| 2029 | $ 1,069,450 | $ 41,933 | $ 101,610 | $ 72,773 | $ 1,082,545 |
| 2030 | $ 1,082,545 | $ 40,211 | $ 100,880 | $ 73,655 | $ 1,095,531 |
| 2031 | $ 1,095,531 | $ 38,559 | $ 99,979 | $ 74,537 | $ 1,108,648 |
| 2032 | $ 1,108,648 | $ 36,871 | $ 99,257 | $ 75,422 | $ 1,121,684 |
| 2033 | $ 1,121,684 | $ 35,247 | $ 98,391 | $ 76,308 | $ 1,134,848 |
| 2034 | $ 1,134,848 | $ 35,148 | $ 97,395 | $ 77,261 | $ 1,149,862 |
| 2035 | $ 1,149,862 | $ 35,101 | $ 96,170 | $ 78,353 | $ 1,167,146 |
| 2036 | $ 1,167,146 | $ 35,147 | $ 94,942 | $ 79,607 | $ 1,186,958 |
| 2037 | $ 1,186,958 | $ 35,269 | $ 93,645 | $ 81,044 | $ 1,209,626 |
| 2038 | $ 1,209,626 | $ 35,429 | $ 92,288 | $ 82,684 | $ 1,235,451 |
| 2039 | $ 1,235,451 | $ 35,673 | $ 90,896 | $ 84,549 | $ 1,264,777 |
| 2040 | $ 1,264,777 | $ 35,933 | $ 89,682 | $ 86,653 | $ 1,297,681 |
| 2041 | $ 1,297,681 | $ 36,259 | $ 88,287 | $ 89,017 | $ 1,334,668 |
| 2042 | $ 1,334,668 | $ 36,644 | $ 86,902 | $ 91,668 | $ 1,376,078 |
| 2043 | $ 1,376,078 | $ 37,072 | $ 85,544 | $ 94,629 | $ 1,422,235 |
| 2044 | $ 1,422,235 | $ 37,559 | $ 84,156 | $ 97,926 | $ 1,473,565 |
| 2045 | $ 1,473,565 | $ 38,108 | $ 82,916 | $ 101,581 | $ 1,530,338 |
| 2046 | $ 1,530,338 | $ 38,705 | $ 81,547 | $ 105,624 | $ 1,593,121 |
| 2047 | $ 1,593,121 | $ 39,372 | $ 80,275 | $ 110,087 | $ 1,662,305 |
| 2048 | $ 1,662,305 | $ 40,073 | $ 78,859 | $ 115,004 | $ 1,738,522 |
| 2049 | $ 1,738,522 | $ 40,836 | $ 77,627 | $ 120,409 | $ 1,822,140 |
| 2050 | $ 1,822,140 | $ 41,661 | $ 76,361 | $ 126,335 | $ 1,913,776 |
| 2051 | $ 1,913,776 | $ 42,520 | $ 74,922 | $ 132,830 | $ 2,014,204 |
| 2052 | $ 2,014,204 | $ 43,435 | $ 73,197 | $ 139,953 | $ 2,124,394 |
| 2053 | $ 2,124,394 | $ 44,388 | $ 71,397 | $ 147,762 | $ 2,245,147 |
| 2054 | $ 2,245,147 | $ 45,394 | $ 69,610 | $ 156,313 | $ 2,377,244 |
| 2055 | $ 2,377,244 | $ 46,428 | $ 67,565 | $ 165,667 | $ 2,521,774 |
| 2056 | $ 2,521,774 | $ 47,509 | $ 65,433 | $ 175,897 | $ 2,679,746 |
| 2057 | $ 2,679,746 | $ 48,622 | $ 63,204 | $ 187,072 | $ 2,852,236 |
| 2058 | $ 2,852,236 | $ 49,769 | $ 60,837 | $ 199,269 | $ 3,040,437 |
| 2059 | $ 3,040,437 | $ 50,951 | $ 58,366 | $ 212,571 | $ 3,245,594 |
| 2060 | $ 3,245,594 | $ 52,170 | $ 55,854 | $ 227,063 | $ 3,468,972 |
| 2061 | $ 3,468,972 | $ 53,422 | $ 53,359 | $ 242,830 | $ 3,711,864 |
| 2062 | $ 3,711,864 | $ 54,712 | $ 50,873 | $ 259,965 | $ 3,975,668 |
| 2063 | $ 3,975,668 | $ 56,035 | $ 48,396 | $ 278,564 | $ 4,261,871 |
| 2064 | $ 4,261,871 | $ 57,385 | $ 45,934 | $ 298,732 | $ 4,572,054 |
| 2065 | $ 4,572,054 | $ 58,779 | $ 43,493 | $ 320,579 | $ 4,907,919 |
| 2066 | $ 4,907,919 | $ 60,201 | $ 41,080 | $ 344,224 | $ 5,271,264 |
| 2067 | $ 5,271,264 | $ 61,669 | $ 38,697 | $ 369,792 | $ 5,664,028 |

# Investment Section



“

to enhance the well-being and financial security of its members, retirees and beneficiaries....

Clients first.

April 29, 2022

The Board of Trustees
Public School Retirement System of the City of St. Louis
3641 Olive Street, Suite 300
St. Louis, MO 63108

Dear Board Members,

AndCo Consulting is honored to be recently retained as the pension consultant for the Public School Retirement System of the City of St. Louis. We were excited to hit the ground running at the beginning of 2022 to onboard all the System's pertinent data and outreach to the Board, Investment Committee, System Staff, Investment Managers and other System service providers to listen and understand the critical aspects necessary to ensure that the System is optimally aligned to meet its investment objectives and serve the best interests of the System's Participants and Beneficiaries. We look forward to providing a full suite of independent investment consulting services to the System and Board including: asset allocation review and guidance; analysis of asset class structures; review and revision of the Investment Policy Statement (IPS) and monitoring compliance with the IPS; investment manager review, monitoring and searches (both traditional and alternative asset classes); evaluation and negotiation of investment management fees; monthly and quarterly performance evaluation of investment managers, asset class composites, and the combined portfolio; review and monitoring of brokerage arrangements and commissions; and education to the Board on a wide variety of pertinent investment topics.

The overall objective of the Public School Retirement System of the City of St. Louis is to provide service, disability, death and vested retirement benefits, and other post employment benefits to Members and their Beneficiaries. To ensure a solid foundation for the future of the System, the investment program is designed to achieve the actuarial assumed rate of return in the long term, while prudently managing the risks and costs of the portfolio.

**Asset Allocation and Investment Results**

While individual investment manager results and containment of investment expenses are meaningful contributors to the System's long-term results, the primary contributor to success is maintaining an appropriate asset allocation that is well diversified, properly structured within asset classes, avoids uncompensated risk, and maintains an adequate level of liquidity to satisfy ongoing benefit payments and expenses.

At the December 31, 2021 fiscal year end the asset allocation of the System was 49.3% equities, 22.3% fixed income, 4.9% global asset allocation strategies, 6.2% hedge funds,6.4% real estate, 4.5% private equity, 2.8% private debt strategies, and 3.5% cash.

During the year ending December 31, 2021, the System returned +12.36% gross of fees, which ranked it in the 61st percentile of public funds with assets less than $1.0 billion within the InvestmentMetrics Public Fund Defined Benefit Universe. Assets increased from $912 million at the end of fiscal year 2020 to approximately $964 million as of year-end 2021. Over the trailing 5-year period ending December 31, 2021, the System earned an annualized rate of return of 10.15%, ranking in the 76th percentile of the comparative universe. Over the trailing 10-year period ending December 31, 2021, the System earned an annualized rate of return of 8.86%, ranking in the 74th percentile.

**Economy and Markets**

The US economy continued to face headwinds in 2022 from an overhang of COVID and the emergence of the Omicron variant toward the end of the year. Fortunately, despite higher transmission rates, hospitalizations and significant health risks tapered throughout the year. Despite the obstacles of COVID and Omicron, the demand for goods and services remained strong for the year as evidenced by continued year-over-year GDP growth.

The US labor market neared full employment levels by the end of 2021. Despite the continued improvement in the labor market, workers are continuing to leave their employers in record numbers. This condition means the number of jobs available exceeds the number of unemployed workers. As a result, wage growth remained strong as employers competed to fill job openings.

Persistently higher inflation readings during the year forced the FED to announce it was planning to end its bond purchase program earlier than expected. In addition, the FED's statements toward the end of 2021 suggested that it could also begin raising short-term interest rates sooner than expected in 2022.

US Equity markets as measured by the S&P 500 Index experienced their third consecutive year of double-digit positive performance led by large growth-oriented companies. While equities have historically performed well during periods of rising inflation due to their links with strong economic growth, companies may face headwinds if they are unable to pass along price increases, which would result in lower profit margins.

Longer dated fixed income markets were negatively impacted by rising interest rates during the year. Despite the potential for increasing risks due to deteriorating credit conditions, corporate bonds could outperform in the coming year given their higher coupons and shorter maturity profiles compared to higher quality longer duration bonds.

**Global Equity Markets**

Developed equity markets were sharply higher over the trailing 1-year period. The combination of improving economic fundamentals, continued support from the FED, and improving investor expectations all combined to drive equity markets higher. The S&P 500 large cap stock index led equity market performance for the year with a return of 28.7%. The Russell 2000 small cap index returned a lower, but still strong 14.8% for the year.

Over the trailing 1-year period the developed market MSCI EAFE Index return of 11.3% outpaced the MSCI Emerging Markets Index return of -2.5%. While growth in developed markets improved throughout the year, emerging markets were negatively impacted from concerns related to index's dominant country weight to China.

## Global Fixed Income Markets

Bond market returns over the trailing 1-year period were broadly negative as rising interest rates and concerns regarding inflation detracted from performance. TIPS were the lone bright spot in the bond market with the Index returning 6.9% for the year.

Performance for non-US bonds was broadly negative for the year with the developed market Bloomberg Global Aggregate ex US Index declining by -7.0%. The combination of rising interest rates overseas, a longer maturity profile, and USD strength for the year hindered index performance.

## Real Assets

Private equity deal flow and investor interest remained strong in 2021 as valuations and near-term return expectations were favorable versus public market equivalents.

Private debt results continued to benefit from the influx of investors seeking alternatives to historically low public market fixed income yields. Investors were particularly focused on structures with floating rates that can benefit in a rising interest rate environment.

Although Office and Retail properties continued to be impaired by higher COVID-related vacancies, strong Multi-Family and Industrial occupancy and investor demand supported double digit gains for combined commercial real estate portfolios.

## In Closing

Looking ahead, the COVID overhang, Russia-Ukraine conflict, historically high inflation, and the FED's fluid policy decisions may continue to represent a short-term challenge for certain segments of the global capital markets. Regardless of what the near-term market dynamics may dictate, diversification and minimization of relative downside risk remain important tenets of the System's asset allocation, asset class, and investment manager construct, with a clear focus on meeting long-term return objectives and providing necessary cash flows.

Sincerely,

| | |
|---|---|
| *Gwelda Swilley* | *Jeff Kuchta* |
| Gwelda Swilley | Jeff Kuchta |
| Consultant | Consultant |

### Investment Policies

Pursuant to the Rules & Regulations established by the PSRSSTL Board of Trustees, the System's assets are invested according to Rule XIV. – Investment Policies. The following is a summary of the System's Investment Goals under Rule XIV., Section 3:

*Assets of the System shall be invested in a manner designed to preserve and enhance principal over the long term, both in real and nominal terms. Total return, consistent with prudent investment management, is the primary goal of the System. Total return, as used herein, includes income less expenses plus realized and unrealized gains and losses in the System's assets. The Trustees will establish, in the Investment and Operating Guidelines, both real and nominal long-term target rates of return for the Fund that are projected to provide a high probability of achieving the System's long-term investment objectives within acceptable risk levels. The Trustees shall establish, in the Investment and Operating Guidelines, additional performance expectations for the Fund as a whole and for each asset classification within the Fund. Total Fund risk exposure and risk adjusted returns will be regularly evaluated and compared to such peer group or groups that the Trustees and investment consultant may from time to time select.*

### Investment and Operating Guidelines

PSRSSTL has issued Investment and Operating Guidelines to steer the System's fiduciaries, including staff, investment consultants, investment professionals and investment managers, in the course of investing and administering the Fund's assets, and to measure the performance of the Fund and its investment managers. The guidelines contain specific directives for the following:

Performance Objectives by Asset Class
Operating Guidelines by Asset Class
Standards of Investment Performance
Reporting Requirements
Asset Allocation Policy
Liquidity Assumption for Benefit Payments
Watch List / Probation Process
Use of Guidelines by Investment Managers

### Code of Ethics Policy

The Board of Trustees has adopted a Code of Ethics Policy that prohibits conflicts of interest and requires representatives of the Fund to act with the highest level of ethical responsibility in the performance of their duties. All Trustees, employees, professionals and vendors are required to acknowledge their understanding of the policy on an annual basis.

### Investment Policies and Operating Guidelines Review

The Investment Policies and Operating Guidelines may be amended or modified from time to time by the Trustees, in the manner provided in the PSRSSTL Rules and Regulations, upon consideration of the advice and recommendations from the System's retained professionals, including the actuary, accountant, investment managers, investment consultant, and attorney. The Investment Policies and Operating Guidelines are regularly reviewed by the Board of Trustees to ensure their relevance to the current needs of the Fund and to communicate any material changes thereto to the investment managers.

To view or print the PSRSSTL Investment Policies and Guidelines, please visit
**http://www.psrsstl.org/about-us/rules-r0egulations-statutes/**

## Schedule of Investments Year Ended December 31, 2021

| Investment Category | % of FV | Fair Value (FV) | Cost | FV Over (Under) Cost |
|---|---|---|---|---|
| Cash Equivalents | 4.26% | $40, 980,094 | $40,980,094 | $ 0 |
| U.S. Government and Agency Issues | 2.99% | 28,800,098 | 29,576,387 | (776,289) |
| Corporate Bonds | 3.40% | 32,828,877 | 34,292,287 | (1,463,410) |
| Foreign Investments (bonds & stocks) | 9.79% | 94,236,786 | 79,731,976 | 14,444,810 |
| Common and Preferred Stocks | 23.96% | 230,724,806 | 150,315,378 | 80,409,428 |
| Mutual and Co-Mingled Funds | 41.76% | 402,073,191 | 261,297,717 | 140,775,474 |
| Real Estate Partnerships | 5.60% | 54,001,917 | 69,463,204 | (15,455,287) |
| Limited Partnerships | 8.24% | 79,213,149 | 71,822,292 | 7,390,857 |
| Total | 100.0% | $962,858,918 | $746,479,335 | $216,379,583 |

## Fair Value of All Assets Years Ended December 31, 2019 – 2021

| | December 31, 2019 | | December 31, 2020 | | December 31, 2021 | |
|---|---|---|---|---|---|---|
| Investment Category | Fair Value | Total | Fair Value | Total | Fair Value | Total |
| Cash, Receivables, Cash Equivalents | $60,764,240 | 6.78% | $ 56,332,300 | 6.14% | $ 51,328,283 | 5.26% |
| Property and Building | 1,623,368 | 0.18% | 1,571,742 | 0.17% | 1,520,115 | 0.16% |
| U.S. Government & Agency Issued Bonds | 32,071,483 | 3.58% | 30,541,742 | 3.33% | 28,800,098 | 2.95% |
| Corporate Bonds | 31,181,568 | 3.48% | 28,625,293 | 3.12% | 32,828,877 | 3.38% |
| Foreign Investments (bonds and stocks) | 86,066,721 | 9.61% | 91,225,646 | 9.94% | 94,236,786 | 9.66% |
| Common and Preferred Stocks | 201,795,327 | 22.53% | 209,538,964 | 22.84% | 230,724,806 | 23.67% |
| Mutual and Co-Mingled Funds | 380,899,694 | 42.53% | 389,396,506 | 42.44% | 402,073,191 | 41.24% |
| Real Estate Partnerships | 48,419,609 | 5.41% | 46,928,887 | 5.11% | 54,001,917 | 5.54% |
| Limited Partnerships | 52,066,573 | 5.81% | 62,928,944 | 6.86% | 79,213,149 | 8.12% |
| Other Assets | 742,62 | 0.08% | 480,318 | 0.05% | 214,501 | 0.02% |
| Total | $895,621,204 | 100.0% | $895,621,204 | 100.0% | $974,941,723 | 100.0% |

For the fiscal year ended December 31, 2021, the System's portfolio posted a gain of 12.36%, ranking 61st within the InvestMetrics Universe of Public Funds. For the three-year and five-year periods ending December 31, 2021, the System's portfolio ranked 79th and 76th, returning 13.59% and 10.15%, respectively.

Investment returns for the System's total portfolio and asset class components for one-year, three-year and five-year periods ending December 31, 2021 are set forth below:

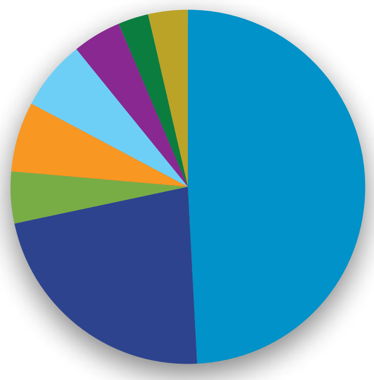
| | Annualized Returns for Periods Ended[1] *December 31, 2021, gross of fees* | | |
|---|---|---|---|
| **Investment Category** | **One Year** | **Three Years** | **Five Years** |
| PSRS Total Portfolio | 12.36% | 13.59% | 10.15% |
| Allocation Index[2] | 11.03% | 13.67% | 10.27% |
| PSRS Domestic Equity | 25.72% | 23.51% | 16.76% |
| Russell 3000 | 25.66% | 25.79% | 17.97% |
| PSRS International Equity | 10.45% | 14.87% | 9.98% |
| MSCI EAFE | 11.26% | 13.54% | 9.55% |
| PSRS Emerging Market Equity | -0.15% | 11.36% | 10.64% |
| MSCI Emerging Markets | -2.54% | 10.94% | 9.87% |
| PSRS Global Equity | 17.35% | 19.21% | 13.84% |
| MSCI All Country World | 21.82% | 21.70% | 15.03% |
| PSRS Global Asset Allocation | 10.70% | 11.70% | 8.39% |
| 60% MSCI World 40% FTSE WGBI | 9.56% | 14.16% | 10.35% |
| PSRS Fixed Income | 1.49% | 6.07% | 4.86% |
| Barclays US Aggregate | -1.55% | 4.79% | 3.57% |
| PSRS Hedge Funds | 10.69% | 9.20% | 6.00% |
| HFRI FOFs Composite | 6.03% | 8.41% | 5.68% |
| PSRS Real Estate | 14.99% | 5.72% | 6.46% |
| NCREIF | 12.15% | 6.72% | 6.84% |

[1]The investment returns in the schedule are annualized by calculating the time weighted rates of return for the time periods.

[2]The Allocation Index is comprised of various equity, fixed income, hedge fund, real estate and Treasury bill indices in proportion to the asset weights within the System.

Following is the System's asset allocation at the fiscal year ended December 31, 2021:

**December 31, 2021: $963,988,567**

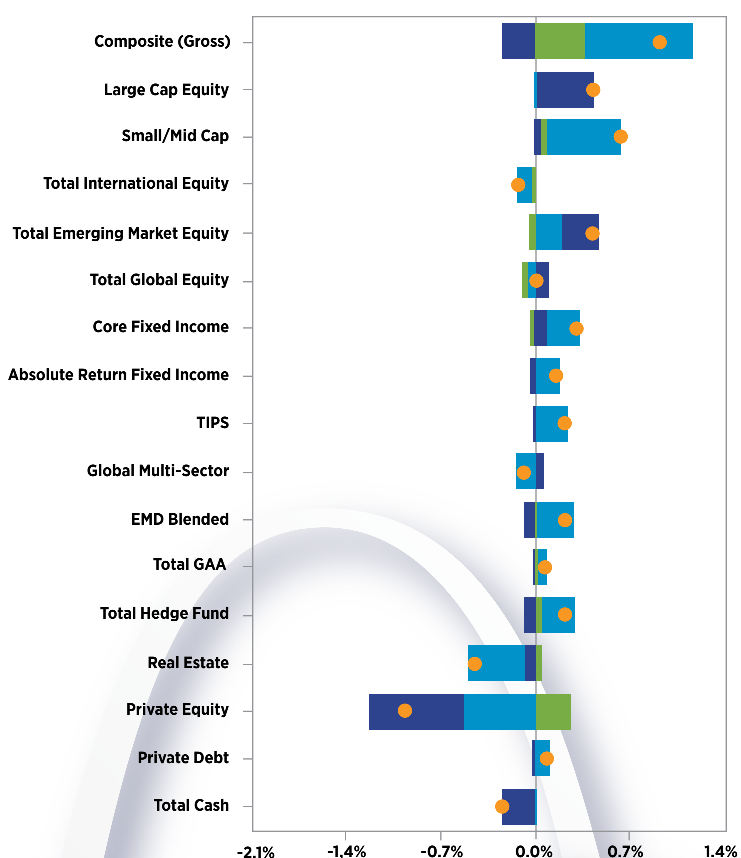


**Allocation**

| | Market Value | Allocation |
|---|---|---|
| Equity | $475,622,346 | 49.3 |
| Fixed Income | $215,400,953 | 22.3 |
| GAA | $46,773,704 | 4.9 |
| Hedge Fund | $59,989,147 | 6.2 |
| Real Estate | $61,504,790 | 6.4 |
| Private Equity | $43,441,033 | 4.5 |
| Private Debt | $27,288,962 | 2.8 |
| Cash | $33,967,631 | 3.5 |

Following is the System's relative performance attribution by asset class for the fiscal year ended December 31, 2021:

**Attribution Effects Relative to Allocation Index 1 Year Ending December 31, 2021**



# Asset Allocation and Investment Managers As of December 31, 2021

| Asset Class / Money Managers | Management Style | Relative to Total Portfolio: Fair Value – Value | Fair Value – % | Target Value – Value | Target Value – % | Variance – Value | Variance – % | Asset Class: Fair Value – Value | Fair Value – % |
|---|---|---|---|---|---|---|---|---|---|
| **Large Cap Growth Domestic Equities** | | 73,963 | 7.7% | 53,020 | 5.5% | 20,943 | 2.2% | | |
| Intech | Large Cap Growth | | | | | | | 33,361 | 45.1% |
| TCW Asset Management | Large Cap Growth | | | | | | | 40,602 | 54.9% |
| **Large Cap Core Domestic Equities** | | 6,960 | 0.7% | 19,280 | 2.0% | (12,320) | -1.3% | | |
| Mellon Stock Index Fund | Large Cap Core | | | | | | | 6,960 | 100.0% |
| **Large Cap Value Domestic Equities** | | 73,472 | 7.6% | 53,020 | 5.5% | 20,452 | 2.1% | | |
| The Edgar Lomax Company | Large Cap Value | | | | | | | 73,472 | 100.0% |
| **Mid/Small/Micro Cap Domestic Equities** | | 93,675 | 9.7% | 86,760 | 9.0% | 6,915 | 0.7% | | |
| Westfield Capital Management | Small Cap Growth | | | | | | | 32,404 | 34.6% |
| Systematic Financial Management | Small Cap Value | | | | | | | 34,262 | 36.6% |
| Dimensional Fund Advisors (DFA) | Micro Cap | | | | | | | 27,009 | 28.8% |
| **Global Tactical Asset Allocation** | | 46,773 | 4.9% | 48,200 | 5.0% | (1,427) | -1.0% | | |
| GMO | Balanced Fund | | | | | | | 22,703 | 48.5% |
| Mellon Global Alpha | Balanced Fund | | | | | | | 0 | 0.0% |
| PIMCO | Balanced Fund | | | | | | | 24,070 | 51.5% |
| **Global Equities** | | 61,383 | 6.4% | 48,200 | 5.0% | 13,183 | 1.4% | | |
| ARGA | Global Equities | | | | | | | 10,288 | 16.8% |
| Applied Resarch Investments (ARI) | Global Equities | | | | | | | 14,668 | 23.9% |
| Foresight Global Investors (FGI) | Global Equities | | | | | | | 18,489 | 30.1% |
| Martin Investment Management (MIM) | Global Equities | | | | | | | 17,938 | 29.2% |
| **International Equities** | | 166,169 | 17.2% | 212,079 | 22.0% | (45,910) | -4.8% | | |
| Dimensional Fund Advisors (DFA) | Emerging Markets | | | | | | | 20,186 | 12.1% |
| Invesco Trust Company | Emerging Markets | | | | | | | 33,618 | 20.2% |
| Open | Emerging Markets Small Cap | | | | | | | 0 | 0.0% |
| Fidelity Institutional Asset Management | International Equities | | | | | | | 60,669 | 36.5% |
| Causeway | International Equities | | | | | | | 51,696 | 31.1% |
| **Core Domestic Bonds** | | 66,964 | 6.9% | 77,120 | 8.0% | (10,156) | -1.1% | | |
| EARNEST Partners | Core Domestic Bonds | | | | | | | 12,169 | 18.2% |
| Manulife Investment Management | Core Domestic Bonds | | | | | | | 40,440 | 60.4% |
| Xponance, Inc. (formerly Piedmont Investment Advisors) | Core Domestic Bonds | | | | | | | 14,355 | 21.4% |
| **Absolute Return Domestic Bonds** | | 47,905 | 5.0% | 48,200 | 5.0% | (295) | 0.0% | | |
| Loomis Sayles | Unconstrained Fixed Income | | | | | | | 47,905 | 100.0% |
| **Treasury Inflation-Protected Securities** | | 29,608 | 3.1% | 28,920 | 3.0% | 688 | 0.1% | | |
| Mellon TIPS Index Fund | TIPS | | | | | | | 29,608 | 100.0% |
| **Emerging Markets Debt** | | 30,044 | 3.1% | 28,920 | 3.0% | 1,124 | 0.1% | | |
| Lazard Asset Management | Emerging Markets | | | | | | | 30,044 | 0.0% |
| **Global Multi-Sector Bonds** | | 40,880 | 4.2% | 48,200 | 5.0% | (7,320) | -0.8% | | |
| Neuberger Berman Trust Co. | Global Opportunistic Bonds | | | | | | | 40,880 | 100.0% |
| **Hedged Strategies** | | 59,998 | 6.2% | 48,200 | 5.0% | 11,798 | 1.2% | | |
| EnTrustPermal[2] | Fund of Funds | | | | | | | 1,566 | 2.6% |
| Grosvenor Capital Management | Fund of Funds | | | | | | | 35,660 | 59.4% |
| Whitebox Advisors | Multi-Strategy Direct | | | | | | | 22,772 | 38.0% |
| **Real Estate** | | 54,002 | 5.6% | 67,480 | 7.0% | (13,478) | -1.4% | | |
| UBS Trumbull Property & Income Funds | Commercial Real Estate | | | | | | | 54,002 | 100.0% |
| **Private Markets** | | 78,233 | 8.1% | 96,400 | 10.0% | (18,167) | -1.9% | | |
| Equity, Debt, Real Estate | Limited Partnerships | | | | | | | 78,233 | 100.0% |
| **Cash** | | 33,968 | 3.5% | 0 | 0.0% | 33,968 | 3.5% | | |
| U.S. Bank (checking & operating accounts) | Cash Accounts | | | | | | | 33,968 | |
| **Total (000's Omitted)** | | **$963,997** | **100.0%** | **$963,997** | **100.0%** | **$963,997** | | | |

# Portfolio Characteristics Total Domestic Equity SMAs As of December 31, 2021

| Portfolio Characteristics (Benchmark: Russell 3000 Index) | | |
|---|---|---|
| | **Portfolio** | **Benchmark** |
| Wtd. Avg. Mkt. Cap ($) | 262,971,513,294 | 562,078,427,479 |
| Median Mkt. Cap ($) | 7,554,633,170 | 2,474,002,370 |
| Price/Earnings Ratio | 20.9 | 24.6 |
| Price/Book Ratio | 3.8 | 4.6 |
| 5 Yr. EPS Growth Rate (%) | 21.5 | 20.9 |
| Current Yield (%) | 1.5 | 1.3 |
| Beta (5 Years, Monthly) | 1.02 | 1.00 |
| Number of Stocks | 333 | 3,068 |

| Top Ten Equity Holdings (Benchmark: Russell 3000 Index) | | |
|---|---|---|
| | **Port Wt** | **Bench Wt** |
| CVS Health Corp | 1.9 | 0.3 |
| Metlife Inc. | 1.8 | 0.1 |
| Amazon.com Inc | 1.7 | 3.0 |
| Adobe Inc | 1.6 | 0.6 |
| Cisco Systems Inc | 1.6 | 0.6 |
| Apple Inc | 1.5 | 5.7 |
| NVIDIA Corporation | 1.5 | 1.5 |
| Alphabet Inc | 1.4 | 1.7 |
| Chevron Corp | 1.4 | 0.5 |
| Walgreens Boots Alliance Inc | 1.3 | 0.1 |
| % of Portfolio | 15.7 | 14.1 |

| Top Ten Contributors (Benchmark: Russell 3000 Index) | Port Wt | Bench Wt | Active Wt | 1 Year Return | CTR (%) |
|---|---|---|---|---|---|
| Pfizer Inc | 1.5 | 0.5 | 1.0 | 66.7 | 1.0 |
| NVIDIA Corporation | 0.7 | 0.8 | -0.1 | 125.5 | 0.9 |
| Microsoft Corp | 1.4 | 4.4 | -3.0 | 52.5 | 0.7 |
| Cisco Systems Inc | 1.5 | 0.5 | 1.0 | 45.8 | 0.7 |
| Exelon Corp | 1.6 | 0.1 | 1.5 | 41.4 | 0.7 |
| Alphabet Inc | 1.0 | 1.4 | -0.4 | 65.2 | 0.7 |
| Capital One Financial Corp. | 1.3 | 0.1 | 1.2 | 49.3 | 0.6 |
| Exxon Mobil Corp | 1.1 | 0.5 | 0.6 | 57.6 | 0.6 |
| Metlife Inc. | 1.6 | 0.1 | 1.5 | 37.3 | 0.6 |
| Apple Inc | 1.6 | 5.7 | -4.1 | 34.6 | 0.5 |
| % of Portfolio | 13.3 | 14.1 | -0.8 | | 7.1 |

| Top Ten Detractors (Benchmark: Russell 3000 Index) | Port Wt | Bench Wt | Active Wt | 1 Year Return | CTR (%) |
|---|---|---|---|---|---|
| Haemonetics Corp | 0.4 | 0.0 | 0.4 | -55.3 | -0.2 |
| Turning Point Therapeutics Inc | 0.3 | 0.0 | 0.3 | -60.9 | -0.2 |
| PayPal Holdings Inc | 1.0 | 0.7 | 0.3 | -19.5 | -0.2 |
| RingCentral Inc | 0.4 | 0.1 | 0.3 | -50.6 | -0.2 |
| Amedisys Inc | 0.4 | 0.0 | 0.4 | -44.8 | -0.2 |
| Zynga Inc | 0.5 | 0.0 | 0.5 | -35.2 | -0.2 |
| Rocket Pharmaceuticals Inc | 0.2 | 0.0 | 0.2 | -60.2 | -0.1 |
| BridgeBio Pharma Inc | 0.2 | 0.0 | 0.2 | -76.5 | -0.1 |
| Splunk Inc | 0.4 | 0.1 | 0.3 | -31.9 | -0.1 |
| FibroGen Inc | 0.2 | 0.0 | 0.2 | -62.0 | -0.1 |
| % of Portfolio | 4.0 | 0.9 | 3.1 | | -1.7 |

# Domestic Bond Investments

A complete list of portfolio holdings is available for a fee based on preparation time and the cost of materials. The information shown reflects securities held for the fiscal year ended December 31, 2021, excluding pooled or mutual funds.

| PSRSSTL Domestic Bond Portfolio Performance & Characteristics | |
|---|---|
| 2021 Return | 1.1% |
| Average Yield to Maturity | 3.01% |
| Average Duration | 6.5 Years |
| Average Quality Rating | A |
| Five-Year Annualized Return | 4.5% |

| PSRSSTL Domestic Bond Portfolio Quality Ratings | Percentage of PSRSSTL Domestic Bond Portfolio (%) |
|---|---|
| AAA | 55.9 |
| AA | 1.5 |
| A | 10.9 |
| BBB | 23.5 |
| BB and Below | 8.1 |
| Not Rated | 0.2 |

# Brokerage Commissions Paid Year Ended December 31, 2021

| Company | Commissions |
|---|---|
| B RILEY SECURITIES, INC. | $18.00 |
| BAIRD & COMPANY | $663.56 |
| BARCLAYS CAPITAL | $2,889.67 |
| BMO CAPITAL MARKETS | $344.26 |
| BOFA SECURITIES, INC. | $1,312.07 |
| BTIG, LLC | $244.40 |
| CANACCORD GENUITY INC. | $14.80 |
| CANTOR FITZGERALD & CO. | $212.10 |
| CAP INSTITUTIONAL SERVICES INC | $9,125.16 |
| CHASDEFX JP MORGAN FRANKFURT | $41.05 |
| CITIGROUP | $9,215.19 |
| CL KING | $1,289.40 |
| CLSA | $3,614.58 |
| COWEN AND COMPANY, LLC | $9,096.38 |
| CREDIT SUISSE SECURITIES | $6,704.68 |
| DAIWA | $411.25 |
| EVERCORE | $508.45 |
| EXANE | $2,229.03 |
| GOLDMAN SACHS & CO. LLC | $241.28 |
| GUGGENHEIM SECURITIES, LLC | $248.00 |
| GUZMAN & COMPANY | $516.13 |
| HONG KONG & Shanghai Bank | $814.45 |
| HSBC SECURITIES, Inc. | $2,463.59 |
| INSTINET | $16,521.69 |
| ITG | $6.54 |
| J.P. MORGAN SECURITIES LLC | $5,455.64 |
| JANNEY MONTGOMERY SCOTT INC. | $93.60 |
| JEFFERIES LLC | $4,626.30 |
| JMP SECURITIES | $291.20 |
| JONES TRADING | $200.40 |
| KEEFE BRUYETTE AND WOODS INC. | $121.84 |
| KEYBANC CAPITAL MARKETS INC | $528.00 |
| LIQUIDNET INC | $2,536.04 |
| LOOP CAPITAL MARKETS | $4,204.81 |
| LUMINEX TRADING AND ANALYTICS | $913.14 |

| Company | Commissions |
|---|---|
| LOOP CAPITAL MARKETS | $4,204.81 |
| LUMINEX TRADING AND ANALYTICS | $913.14 |
| MACQUARIE SECURITIES | $2,747.26 |
| MERRILL LYNCH | $1,051.67 |
| MIZUHO SECURITIES | $602.67 |
| MISCHLER FINANCIAL GROUP, INC | $12,431.07 |
| MKM PARTNERS LLC | $115.60 |
| MORGAN STANLEY & CO. LLC | $2,280.43 |
| NATIONAL FINANCIAL SERVICES CO | $8.40 |
| NEEDHAM AND COMPANY LLC | $78.00 |
| SMBC SECURITIES | $190.67 |
| O'NEIL SECURITIES INC. | $151.20 |
| OPPENHEIMER & CO. INC. | $285.60 |
| PARIBAS | $1,186.12 |
| PENSERRA SECURITIES | $535.70 |
| PERSHING LLC | $8,195.41 |
| PICTET | $2,252.97 |
| PIPER SANDLER & CO | $4,719.80 |
| RAYMOND JAMES & ASSOCIATES INC | $711.28 |
| RBC CAPITAL MARKETS, LLC | $120.54 |
| REDBURN PARTNERS | $1,286.15 |
| ROSENBLATT SECURITIES | $1,112.16 |
| SANFORD C. BERNSTEIN & CO., LL | $3,868.57 |
| SG SECURITIES, | $1,744.43 |
| STATE STREET | $8,465.80 |
| STIFEL, NICOLAUS & CO.,INC. | $912.11 |
| STRATEGAS SECURITIES LLC | $270.90 |
| STURDIVANT AND CO., INC. | $9,134.39 |
| SVB LEERINK LLC | $412.80 |
| TRUIST SECURITIES INC. | $172.70 |
| UBS SECURITIES LLC | $7,139.54 |
| VIRTU AMERICAS LLC | $2,126.12 |
| WELLS FARGO SECURITIES, LLC | $401.50 |
| WILLIAM BLAIR & COMPANY, L.L.C | $173.20 |
| Total | $162601.44 |

# Investment Management Fees and Expenses Years Ended December 31, 2021 and 2020

| | 2021 | 2020 |
|---|---|---|
| Investment management fees | | |
| Ativo Capital Management | $ - | $ 34,106 |
| Arga Investment Management | - | 31,614 |
| Brown Capital Management | - | 8,627 |
| Causeway Capital Management | 307,069 | 247,746 |
| Channing Capital Management | - | 5,923 |
| Chicago Equity Partners | - | 37,859 |
| Earnest Partners | 30,288 | 31,378 |
| Edgar Lomax Company | 317,391 | 221,733 |
| Entrust Capital Diversified Fund LTD | 7,832 | 7,853 |
| Fidelity Institutional Asset Management | 300,452 | 248,246 |
| Invesco Global Performance | - | 242,574 |
| Intech Investment Management | 165,103 | 137,070 |
| Lazard Asset Management | 228,391 | 211,481 |
| Loomis Sayles & Company, LP | 236,578 | 216,647 |
| Manulife Asset Management | 120,539 | 128,020 |
| Mellon Capital Management | 63,728 | 137,996 |
| NCM Capital | 31,488 | 36,851 |
| OFI Global Asset Management | 308,953 | 71,356 |
| Strategic Global | - | 37,631 |
| Systematic Financial Management | 335,560 | 236,640 |
| TCW Asset Management Company | 240,197 | 207,101 |
| UBS Realty Investors LLC | 408,033 | 407,471 |
| US Bank Trust | 110,060 | 90,997 |
| Westfield Capital Management | 323,714 | 264,242 |
| Whitebox Multi-Strategy Fund, L.P. | 320,923 | 270,062 |
| Xponance | 327,567 | 157,546 |
| Total Investment Management Fees | 4,183,866 | 3,728,770 |
| | | |
| NEPC, LLC | 189,414 | 177,215 |
| Banking services | 42,201 | 33,408 |
| Total Investment Expenses | $4,415,481 | $3,939,393 |

4

# Actuarial Section



"

through benefit programs and services which are soundly financed and...

231 South Bemiston
Suite 400
Clayton, MO 63105

June 2021

Ms. Susan Kane
Executive Director
PSRS of the City of St. Louis
3641 Olive Street, Suite 300
St. Louis, MO 63108-3601

Re: Actuarial Certification of January 1, 2021 Valuation

Dear Members of the Public School Retirement System of the City of St. Louis Board:

The annual actuarial valuation required for the Public School Retirement System of the City of St. Louis ("System") has been prepared as of January 1, 2021 by Buck. The purposes of the valuation are to:

(1) determine the required annual contributions from the board of education, the retirement system, and the charter schools; and

(2) present the valuation results of the System as of January 1, 2021.

This report is submitted in accordance with Section 169.450-16 Revised Statutes of Missouri (R.S. Mo.). The required contribution to the System from the board of education, the retirement system, and the charter schools is computed in accordance with Section 169.490 R.S. Mo. The amount of the required contribution is stated in Section 1.3 of this report. Information with respect to financial disclosures under GASB 67 and 68 may be found in a separate report.

In preparing this valuation, we have employed generally accepted actuarial methods and assumptions, in conjunction with employee data and financial information provided to us by the System, to determine a reasonable and sound value for the System liability. The employee data has not been audited, but it has been reviewed and found to be consistent, both internally and with prior years' data. The validity of the valuation results is dependent upon the accuracy of the data and financial information provided.

In our opinion, the actuarial assumptions used are reasonable, taking into account the experience of the System and reasonable long-term expectations, and represent our best estimate of the anticipated long-term experience under the System. The actuary performs an analysis of System experience periodically and recommends changes if, in the opinion of the actuary, assumption changes are needed to more accurately reflect expected future experience. The Experience Study for the period January 1, 2011 to December 31, 2015 was prepared by Buck and approved by the Board for use beginning with the January 1, 2017 actuarial valuation and will remain in effect for valuation purposes until such time as the Board adopts revised assumptions. The next Experience Study will be based on the period from January 1, 2016 to December 31, 2020 and upon approval by the Board will be the basis of valuations performed from January 1, 2022 through January 1, 2026. A summary of all assumptions and methods is presented in Section 3.8 of this report.

Where presented, references to "funded ratio" and "unfunded accrued liability" typically are measured on an actuarial value of assets basis. It should be noted that the same measurements using market value of assets would result in different funded ratios and unfunded accrued liabilities. Moreover, the funded ratio presented is appropriate for evaluating the need and level of future contributions but makes no assessment regarding the funded status of the plan if the plan were to settle (i.e. purchase annuities) for a portion or all of its liabilities.

Future actuarial measurements and contribution requirements may differ from those determined in the valuation because of:

(1) differences between actual experience and anticipated experience based on the assumptions;

(2) changes in actuarial assumptions or methods;

(3) changes in statutory provisions;

(4) differences between actuarially required contributions and actual contributions.

Buck prepared this report for use by the Retirement System and its auditors in reviewing the operation of the System, including the determination of contributions to be made to the System. Use of this report by other parties or for any other purpose may not be appropriate and may result in mistaken conclusions due to failure to understand applicable assumptions, methodologies, or the inapplicability of the report for that purpose. Because of the risk of misinterpretation of actuarial results, Buck recommends requesting its advance review of any statement, document, or filing to be based on information contained in this report. Buck will accept no liability for any such statement, document or filing made without its prior review.

Actuarial Standard of Practice No. 56 provides guidance to actuaries when performing actuarial services with respect to designing, developing, selecting, modifying, using, reviewing, or evaluating models. Buck uses third-party software in the performance of annual actuarial valuations and projections. The model is intended to calculate the liabilities associated with the provisions of the plan using data and assumptions as of the measurement date under the funding rules specified in this report. The output from the third-party vendor software is used as input to an internally developed model that applies applicable funding rules to the derived liabilities and other inputs, such as plan assets and contributions, to generate many of the exhibits found in this report. Buck has an extensive review process in which the results of the liability calculations are checked using detailed sample life output, changes from year to year are summarized by source, and significant deviations from expectations are investigated. Other funding outputs and the internal model are similarly reviewed in detail and at a higher level for accuracy, reasonability, and consistency with prior results. Buck also reviews the third-party model when significant changes are made to the software. This review is performed by experts within Buck who are familiar with applicable funding rules, as well as the manner in which the model generates its output. If significant changes are made to the internal model, extra checking and review are completed. Significant changes to the internal model that are applicable to multiple clients are generally developed, checked, and reviewed by multiple experts within Buck who are familiar with the details of the required changes.

The undersigned meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein, and is available to answer questions regarding this report.

We believe that the assumptions and methods used for funding purposes are individually and in aggregate, reasonable and in combination represent a best estimate of anticipated experience under the plan. We believe that this report conforms with the requirements of the Missouri statutes, and where applicable, other federal and accounting laws, regulations and rules, as well as actuarial principles and practices in accordance with all applicable Actuarial Standards of Practice (ASOPs).

Sincerely,

Michael A. Ribble

Michael A. Ribble, FSA, EA, MAAA, FCA
Principal, Wealth Consulting

Matthew Staback

Matthew Staback, ASA, EA, MAAA, CERA, FCA
Consultant, Wealth Consulting

Buck Global, LLC (Buck)

# Report Highlights

This report has been prepared by Buck to:

- Present the results of a valuation of the Public School Retirement System of the City of St. Louis ("System") as of January 1, 2021; and
- Determine the required annual contribution for 2022.

This report is divided into three sections. Section 1 contains the results of the valuation. It includes the experience of the System during the 2020 plan year, the actuarially required costs, and funded levels.

Section 2 contains asset information. It includes market value of assets, the calculation of actuarial value of assets, the contingency reserve, and asset returns.

Section 3 describes the basis of the valuation. It summarizes the System provisions, provides information relating to the System members, and describes the funding methods and actuarial assumptions used in determining liabilities and costs. Also included is historical information about the System.

**Experience Gains and Losses**

Under the actuarial funding method used to determine the contribution, actuarial gains (or losses) result in a decrease (or increase) in the normal cost rate. Actuarial gains (or losses) result from differences between the actual experience of the System and the expected experience based upon the actuarial assumptions. Annual gains (or losses) should be expected because short-term deviations from expected long-term average experience are common.

For the 2020 plan year, total (net) actuarial gain due to plan experience were $18.7 million. Approximately $2.4 million is a loss attributable to the System's actuarial rate of return on assets which was 7.0%, or 0.5% lower than the assumed rate of return of 7.5% for plan year 2020. By comparison, the rate of return on the market value of assets during plan year 2020 was 8.9%. The difference in these returns is due to the asset smoothing. Market value returns were higher than expected, but these returns are smoothed over 5 years in the actuarial value, rather than realized immediately. As of January 1, 2021, the actuarial value of assets of $894.3 million is above market value of assets (excluding the expense and contingency reserve) by approximately $9.5 million.

An actuarial gain of approximately $21.1 million attributable to demographic experience, estimated based on a Projected Unit Credit basis, is included in the above total (net) actuarial gain of $18.7 million. The actuarial gain was attributable to salary increases being lower than expected and higher than expected mortality experience.

**Assumption Changes**

For the 2021 valuation, no assumptions were changed. A detailed description of the assumptions appears in section 3.8.

### Plan Changes

For the 2021 valuation, no plan provisions were changed.

### Normal Cost Rate

The normal cost is determined annually and equals the product of the normal cost rate times covered payroll. For plan year 2021, the annual normal cost contribution is $17,821,684, as compared to $23,166,568 for plan year 2020. This decrease is primarily due to the legislative changes in future employee contributions, decrease in covered payroll, and the new tier of employees coming into the plan with a 1.75% pension multiplier. Covered payroll decreased from $272.9 million to $264.7 million. The annual normal cost rate decreased from 8.18% to 6.49%.

### Accrued Liability Amortization

The actuarial accrued liability contribution is determined as the amount necessary to amortize the remaining Unfunded Frozen Actuarial Accrued Liability (UFAAL) over a period of 30 years from January 1, 2006, when the Board of Trustees acted to redetermine the UFAAL. This portion of the contribution only changes to reflect changes in benefits, changes in actuarial assumptions and methods, and variations in the remaining UFAAL due to deviations between actual and expected contributions. Employer contributions for 2020 were $7.6 million lower than the annual required contribution, which increased the UFAAL more than expected. As a result, the net amortization payment increased from $26,456,158 to $27,438,261 while the amortization payment component of the contribution rate increased from 9.7% to 10.4% of covered payroll.

### Required Contribution and Timing

In 2001, the Board of Education agreed to institute a one-year lag for payments of the annual required contributions due from SLPS for future years. Therefore, this actuarial valuation is used to determine the annual required contribution (ARC) payment from SLPS for plan year 2021, due to the Plan no later than December 31, 2022. Due to legislation passed August 28, 2017, the contribution rate is set as a fixed percentage rather than an actuarially determined percentage. Because of the statutory required contribution rate, the dollar amount of the ARC due from SLPS no later than December 31, 2022, decreased from $29,106,335 for plan year 2020 to $26,692,454 for plan year 2021.

As a percentage of covered payroll in plan year 2021, the contribution rate decreased from 15.00% for plan year 2020 to 14.50% for plan year 2021. Charter Schools pay both employer and employee contributions as they occur shortly after each payroll period; therefore, this actuarial valuation is used to determine the contribution rate of 14.50% that Charter Schools should be paying beginning with payroll periods ending on or after January 1, 2021.

According to the 2021 Actuarial Valuation Results and timing of payments found in this report, it is important to note that on an actuarially determined and sound basis, SLPS and the Charter Schools should be paying an annual contribution rate of 17.10% versus the 14.50% contribution rate for plan year 2021 as required by statute. The effects on the System's actuarial soundness due to the decreasing statutory required contribution rate schedule will be presented in future annual actuarial valuation reports as they occur.

# Summary and Comparison of Principal Valuation Results

## Annual Required Contribution

| 2021 | Board of Education | Retirement System | Charter Schools | Total |
|---|---|---|---|---|
| Normal Cost Contribution | $ 12,395,193 | $ 37,245 | $ 5,389,246 | $ 17,821,684 |
| Actuarial Accrued Liability Contribution | 19,083,636 | 57,343 | 8,297,282 | 27,438,261 |
| Actuarially Determined Contribution (ADC) | 31,478,829 | 94,588 | 13,686,528 | 45,259,945 |
| Covered Payroll | $184,085,888 | $553,144 | $80,037,813 | $264,676,845 |
| ADC as % of Covered Payroll | 17.10% | 17.10% | 17.10% | 17.10% |
| Statutory Required Contribution Rate | 14.50% | 14.50% | 14.50% | 14.50% |
| Statutory Annual Required Contribution (ARC) | $ 26,692,454 | $ 80,206 | $11,605,483 | $ 38,378,143 |
| **2020** | | | | |
| Normal Cost Contribution | $ 16,467,879 | $ 42,945 | $6,655,744 | $ 23,166,568 |
| Actuarial Accrued Liability Contribution | 18,806,274 | 49,043 | 7,600,841 | 26,456,158 |
| Actuarially Determined Contribution (ADC) | 35,274,153 | 91,988 | 14,256,585 | 49,622,726 |
| Covered Payroll | $194,042,234 | $506,024 | $78,425,119 | $272,973,377 |
| ADC as % of Covered Payroll | 18.18% | 18.18% | 18.18% | 18.18% |
| Statutory Required Contribution Rate | 15.00% | 15.00% | 15.00% | 15.00% |
| Statutory Annual Required Contribution (ARC) | $ 19,106,335 | $ 75,904 | $11,763,768 | $40,946,007 |

| | January 1, 2021 | January 1, 2020 |
|---|---|---|
| **System Assets** | | |
| Expense and Contingency Reserve | $ 30,004,728 | $ 30,244,590 |
| Market Value, Excluding Expense & Contingency Reserve | $884,772,226 | $ 863,051,012 |
| Actuarial Value | $ 894,251,149 | $888,759,194 |
| **System Liabilities** | | |
| Unfunded Actuarial Accrued Liability | $ 242,200,815 | $ 241,849,149 |
| Projected Unit Credit (PUC) Actuarial Accrued Liability | $1,221,292,952 | $ 1,241,617,244 |
| Entry Age Normal (EAN) Actuarial Accrued Liability | $1,257,782,934 | $1,274,573,564 |
| **PUC Funding Ratio** | | |
| Actuarial Value Funding Ratio | 73.2% | 71.6% |
| Market Value Funding Ratio | 72.4% | 69.5% |
| **EAN Funding Ratio** | | |
| Actuarial Value Funding Ratio | 71.1% | 69.7% |
| Market Value Funding Ratio | 70.3% | 67.7% |

# Analysis of the Valuation

**(1) Investment Experience**

Our actuarial calculations were based upon the assumption that the System's assets earn 7.50%. The approximate market value rate of return during 2020 was 8.85%. The approximate actuarial value rate of return was 7.04%.

**(2) Demographic Experience**

The number of active members decreased from 5,108 to 4,984 for the period. The average service of active members increased from 7.47 to 8.15, the average age decreased slightly, and the average annual salary decreased by $335 (0.6%). There were small changes in the inactive statistics. The membership statistics are provided in Sections 3.3 through 3.7 of this report.

**(3) Salary Increases**

The average annual salary decreased by 0.6% between January 1, 2020 and January 1, 2021.
Total annual covered payroll decreased by 3.0% between January 1, 2020 and January 1, 2021.

**(4) Changes in Methods from the Prior Valuation**

There have been no changes in methods since the prior valuation.

**(5) Changes in Assumptions from the Prior Valuation**

There have been no changes in assumptions since the prior valuation.

**(6) Changes in Benefit Provisions from the Prior Valuation**

There have been no changes in assumptions since the prior valuation.

**(7) Other Changes**

There have been no other changes since the prior valuation.

**(8) Summary**

The overall effect of experience during the period resulted in any increase change in the PUC funding ratio utilizing the actuarial value of assets from 71.6% to 73.2%. The total actuarially determined contribution rate decreased from 18.18% to 17.10% of covered payroll.

# Actuarial Balance Sheet as of January 1, 2021

| | |
|---|---|
| **Actuarial Assets** | |
| Actuarial value of current assets | $ 894,251,149 |
| Actuarial present value of future participant contributions | 148,765,017 |
| Actuarial present value of future employer contributions for: | |
| Normal costs | 112,711,699 |
| Unfunded actuarial accrued liability | 242,200,815 |
| Total current and future assets | $1,397,928,680 |
| **Actuarial Liabilities** | |
| Actuarial present value of benefits now payable | $ 879,008,937 |
| Actuarial present value of benefits payable in the future: | |
| Active participants | $ 469,165,673 |
| Terminated vested participants | 36,797,875 |
| Terminated non-vested participants | 12,956,195 |
| Total payable in the future | $ 518,919,743 |
| Total liabilities for benefits | $1,397,928,680 |
| Surplus / (deficit) | 0 |

# Projected Unit Credit Funding Ratios

The funding objective of the System is to meet long-term benefit promises through contributions that remain approximately level from year to year as a percentage of covered payroll.

Funding ratios provide a measure of how much progress has been made towards achieving this objective. For this purpose, the System's liabilities are determined using the projected unit credit cost method. Under this method, liabilities are determined for each participant using only service already performed, but anticipating the impact of future salary growth on the benefits attributable to current active participants.

Section 1.6 provides a comparison of this liability measure to the value of assets to produce a snapshot measure of the System's funding ratio.

Another way to check the funding progress of the System is through a prioritized solvency test.
Section 1.7 illustrates the history of the System's funding progress under this test.

In a prioritized solvency test, the plan's present assets (cash and investments) are sequentially allocated and compared to three priorities of liabilities as follows:

- Liability 1: Active participant contributions, accumulated with interest;
- Liability 2: The liabilities for future benefits to current inactive participants and beneficiaries; and
- Liability 3: The liabilities for future benefits to current active participants for prior service.

Ideally, progress in funding of these liability groups will normally be exhibited with Liability 1 attaining 100% coverage first, then Liability 2, and finally Liability 3. Note that 100% funding of Liability 3 does not mean that the System has completed its funding of benefits since additional benefits typically are expected to be earned in the future.

## Projected Unit Credit Funded Status

| | |
|---|---|
| As of January 1, 2021 the Projected Unit Credit Actuarial Accrued Liability was: | |
| 1. Retired members and beneficiaries currently receiving benefits and terminated members not yet receiving benefits | $ 928,763,007 |
| a. Current active participants | |
| i. Accumulated member contributions, including interest | 135,068,312 |
| ii. Employer-financed benefits | 157,461,633 |
| Total Projected Unit Credit Actuarial Accrued Liability | $1,221,292,952 |
| As of January 1, 2021 the Projected Unit Credit AAL was funded as follows: | |
| 2. Net assets available for benefits at actuarial value | $ 894,251,149 |
| 3. Unfunded Projected Unit Credit AAL | 327,041,803 |
| 4. Actuarial value funding ratio, (2) / (1) | 73.2% |
| 5. Net assets available for benefits at market value | $ 884,772,226 |
| 6. Unfunded Projected Unit Credit AAL | 336,520,726 |
| 7. Market value funding ratio, (5) / (1) | 72.4% |

# Prioritized Solvency Test

| Valuation Date January 1 | Active Participants' Accumulated Contributions | Retirees, Beneficiaries and Inactive Participants | Active Participants (employer-financed) | Valuation Assets | Percent Covered by Valuation Assets | | |
|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | | (1) | (2) | (3) |
| 1999 | 130,705,014 | 276,290,128 | 303,953,494 | 694,250,672 | 100% | 100% | 95% |
| 2000 | 129,398,364 | 353,852,977 | 288,213,016 | 770,090,498 | 100% | 100% | 100% |
| 2001 | 127,086,325 | 414,052,293 | 269,590,438 | 828,097,298 | 100% | 100% | 100% |
| 2002 | 116,506,785 | 476,104,516 | 372,221,726 | 861,128,076 | 100% | 100% | 72% |
| 2003 | 115,570,837 | 492,633,382 | 361,818,972 | 873,260,102 | 100% | 100% | 73% |
| 2004 | 106,021,476 | 528,287,121 | 364,459,284 | 901,996,455 | 100% | 100% | 73% |
| 2005 | 89,710,662 | 518,880,414 | 368,306,240 | 935,328,638 | 100% | 100% | 89% |
| 2006 | 90,001,111 | 661,353,685 | 319,920,373 | 983,828,243 | 100% | 100% | 73% |
| 2007 | 96,223,413 | 712,467,372 | 305,409,824 | 1,003,428,983 | 100% | 100% | 64% |
| 2008 | 98,112,123 | 781,006,957 | 249,244,208 | 1,014,923,381 | 100% | 100% | 54% |
| 2009 | 104,576,264 | 801,995,237 | 187,035,147 | 963,851,408 | 100% | 100% | 31% |
| 2010 | 110,054,510 | 805,831,292 | 195,185,151 | 950,709,944 | 100% | 100% | 18% |
| 2011 | 103,178,297 | 842,643,351 | 169,510,764 | 944,356,735 | 100% | 100% | 0% |
| 2012 | 116,268,566 | 850,498,527 | 189,084,439 | 925,389,359 | 100% | 95% | 0% |
| 2013 | 120,355,959 | 849,412,565 | 190,553,739 | 914,494,335 | 100% | 93% | 0% |
| 2014 | 114,092,991 | 896,477,122 | 164,014,835 | 922,922,386 | 100% | 90% | 0% |
| 2015 | 116,755,946 | 892,626,625 | 156,682,397 | 926,905,797 | 100% | 91% | 0% |
| 2016 | 120,507,482 | 887,757,927 | 157,501,063 | 915,391,079 | 100% | 90% | 0% |
| 2017 | 122,746,557 | 933,916,821 | 166,666,305 | 901,076,683 | 100% | 83% | 0% |
| 2018 | 122,241,799 | 935,005,411 | 178,661,824 | 899,816,911 | 100% | 83% | 0% |
| 2019 | 126,636,422 | 932,068,226 | 179,448,673 | 886,156,011 | 100% | 81% | 0% |
| 2020 | 130,619,480 | 934,865,605 | 176,132,159 | 888,759,194 | 100% | 81% | 0% |
| 2021 | 135,068,312 | 928,763,007 | 157,461,633 | 894,251,149 | 100% | 82% | 0% |

# Development of the Actuarial Value of Assets

| | |
|---|---|
| 1. Actuarial value of assets as of January 1, 2020 | $888,759,194 |
| 2. Participant contributions | 17,607,279 |
| 3. Employer contributions | 41,822,334 |
| 4. Benefit payments and expenses | 114,588,086 |
| 5. Investment increment at 7.50%, 7.50% x {(1) + .5 x [(2) – (4)]} | 63,020,159 |
| 6. Expected actuarial value on January 1, 2021, (1)+ (2) + (3) – (4) + (5) | 896,620,880 |
| 7. Market value of assets on January 1, 2021 | 914,776,954 |
| 8. Expense and contingency reserve on January 1, 2021, prior to adjustment | 30,004,728 |
| 9. Adjustment to the investment contingency reserve | 0 |
| 10. Excess of market value over expected actuarial value, (7)– (6) – (8) – (9) | (11,848,654) |
| 11. Market value adjustment, 20% x (10) | (2,369,731) |
| 12. Actuarial value of assets as of January 1, 2021, (6) + (11) | $894,251,149 |

# The Expense and Contingency Reserve

Effective January 1, 1996, the Board of Trustees revised Rule X, which governs the determination of the amount of the expense and contingency reserve. The expense portion of the reserve is the sum of:

1. The estimated annual operating expenses for the ensuing year:
2. An amount equal to the liability for non-insurance supplements;
3. An amount equal to the liability for insurance supplements for those participants participating in the program on January 1; and
4. The estimated amount of insurance supplements to be paid for participants expected to retire and participate in the program during the ensuing year.

The investment contingency portion of the reserve is intended to help cover significant shortfalls in the actuarial rate of return. When a shortfall of more than 1% occurs, a portion of the reserve is released equal to one half of the amount of the shortfall up to 2% plus any remaining shortfall. When the rate of return exceeds the assumed rate of return by more than 1%, the reserve is increased subject to a maximum reserve of 5% of the market value of the Retirement Fund. The addition equals one half of the amount of the excess up to 2% plus any remaining excess.

The actuarial return on assets was within 1% of 7.50% during plan year 2020; therefore, no adjustments were made to the actuarial value of assets.

Below is a history of the expense and contingency reserve:

| January 1 | Expense Reserve | Investment Contingency Reserve | Total Expense and Contingency Reserve |
|---|---|---|---|
| 1998 | $30,891,555 | $24,100,041 | $54,991,596 |
| 1999 | 22,142,759 | 45,972,067 | 68,114,826 |
| 2000 | 27,992,032 | 50,003,862 | 77,995,894 |
| 2001 | 29,837,776 | 50,003,743 | 79,841,519 |
| 2002 | 23,527,529 | 50,003,743 | 73,531,272 |
| 2003 | 24,952,255 | 37,759,976 | 62,712,231 |
| 2004 | 26,028,780 | 37,759,976 | 63,788,756 |
| 2005 | 27,170,188 | 45,115,876 | 72,286,064 |
| 2006 | 32,534,770 | 45,115,876 | 77,650,646 |
| 2007 | 29,864,946 | 50,732,410 | 80,597,356 |
| 2008 | 31,987,370 | 57,234,574 | 89,221,944 |
| 2009 | 30,555,388 | 0 | 30,555,388 |
| 2010 | 29,903,107 | 0 | 29,903,107 |
| 2011 | 29,480,465 | 0 | 29,480,465 |
| 2012 | 29,564,563 | 0 | 29,564,563 |
| 2013 | 29,181,897 | 0 | 29,181,897 |
| 2014 | 30,439,781 | 0 | 30,439,781 |
| 2015 | 29,868,370 | 0 | 29,868,370 |
| 2016 | 29,537,454 | 0 | 29,537,454 |
| 2017 | 30,921,897 | 0 | 30,921,897 |
| 2018 | 30,751,247 | 0 | 30,751,247 |
| 2019 | 30,776,068 | 0 | 30,776,068 |
| 2020 | 30,244,590 | 0 | 30,244,590 |
| 2021 | 30,004,728 | 0 | 30,004,728 |

# Investment Performance

There are several different methods of approximating the rates of return on investments of the trust fund. Following is a brief comparison of the actuarial assumed rate of return as compared with rates of return on market and actuarial value bases:

**a. Market Value Basis**

The rate of return on a market value basis is the ratio of the appreciation (or depreciation) of assets less contributions plus disbursements to the market value at the beginning of the year plus the average of the receipts and disbursements made during the year. This may be approximated as follows:

| | |
|---|---|
| i. A = Market value of assets as of January 1, 2020 | $893,295,602 |
| ii. B = Market value of assets as of January 1, 2021 | 914,776,954 |
| iii. C = Contributions during the period | 59,429,613 |
| iv. D = Disbursements during the period | 114,588,086 |
| v. Rate of return: $\frac{B - A + D - C}{A + \frac{1}{2}(C - D)}$ | 8.85% |
| vi. Actuarial assumed rate of return for 2020 | 7.50% |
| vii. Difference between actual and assumed rates of return, (v) – (vi) | 1.35% |

**b. Actuarial Value Basis**

The rate of return on an actuarial value basis is approximated using the same method:

| | |
|---|---|
| i. A = Actuarial value of assets as of January 1, 2020 | $888,759,194 |
| ii. B = Actuarial value of assets as of January 1, 2021 | 894,251,149 |
| iii. C = Contributions during the period | 59,429,613 |
| iv. D = Disbursements during the period | 114,588,086 |
| v. Rate of return: $\frac{B - A + D - C}{A + \frac{1}{2}(C - D)}$ | 7.04% |
| vi. Actuarial assumed rate of return for 2020 | 7.50% |
| vii. Difference between actual and assumed rates of return, (v) – (vi) | -0.46% |

# Summary of Plan Provisions

### Participants

All persons regularly employed by the board of education, charter schools, and employees of the board of trustees are in the System.

### Retirement Age

All persons regularly employed by the board of education, charter schools, and employees of the board of trustees are in the System.

**Normal:** Age 65 or any age if age plus the years of credited service equals or exceeds 80 (Rule of 80). If the employee terminated prior to August 28, 2017, then Age 65 or any age if age plus the years of credited service equals or exceeds 85 (Rule of 85).

**Early:** Age 60 with 5 years of service

### Service Retirement Allowance

a. 2.00% (1.25% if terminated prior to July 1, 1999 or 1.75% if hired on or after January 1, 2018) times years of credited service, subject to a maximum of 60%

b. Times average final compensation (AFC)

c. Subject to a maximum of 60% of AFC.

i. AFC is the highest average compensation for any three consecutive years of the last 10 years of service.

ii. Compensation is the regular wages plus what the employer pays towards the participant's health and welfare benefits.

iii. Minimum monthly benefit is $10.00 for each year of credited service, up to 15 years, retirement age 65 and over.

iv. Unused sick leave is added to a participant's credited service and age.

### Early Retirement Benefit

Service retirement allowance reduced five-ninths of one percent for each month of commencement prior to age 65 or the age at which the Rule of 80 (Rule of 85 if terminated prior to August 28, 2017) would have been satisfied had the employee continued working until that age, if earlier.

### Disability Benefit

Service retirement allowance using actual service, or 25% of AFC if larger, provided that in no case will the benefit exceed that payable if service had continued to age 65.

a. Disability must be incurred while an employee as determined by the medical board and approved by the board of trustees.

b. The participant must have a minimum of five years of credited service and not be eligible for normal retirement.

Continued disability is subject to routine verification.

### Withdrawal Benefit

Accumulated contributions of participant with interest credited to the participant's account.

### Vested Benefit

Full vesting on termination of employment after at least five years of service is provided if contributions are left with the System. The full accrued benefit is payable at age 65 or a reduced early retirement benefit prior to age 65.

### Retirement Options

In lieu of the benefit paid only over the lifetime of the participant, a reduced benefit payable for life of participant with:

Option 1 Same retirement allowance continued after death to the beneficiary.

Option 2 One-half of the retirement allowance continued after death to the beneficiary.

Option 3 Same retirement allowance continued after death to the beneficiary. If the beneficiary predeceases the participant, the retirement allowance is adjusted back to the unreduced allowance.

Option 4 One-half of retirement allowance continued after death to the beneficiary. If the beneficiary predeceases the participant, the retirement allowance is adjusted back to the unreduced allowance.

Option 5 Increased retirement allowance is provided up to age 62, such that benefit provided prior to age 62 is approximately equal to the sum of the reduced retirement allowance paid after age 62 and Social Security.

Option 6 Options 1 and 5 combined.

Option 7 Options 2 and 5 combined.

**Survivor Benefits**

If an active participant dies after completing 18 months of service, leaving a surviving spouse or other dependent beneficiaries, survivor benefits are payable. The widow or dependent beneficiary may elect to receive either a refund of accumulated contributions, or:

a. A survivor who is the widow at least age 62 and married to a participant for at least one year receives $60 per month.

b. A widow with dependent, unmarried children under age 22 receives $60 per month plus $60 per dependent child, not to exceed $180 per month. The benefit ceases when youngest child is age 22 and resumes again under (a) at age 62.

c. If no benefits are payable under (a) or (b), minor children may receive a benefit of $60 per child or $180 divided among them if more than three children.

d. If no benefits are payable under (a), (b) or (c), a dependent parent or parents may receive or share $60 per month upon attaining age 62.

If an active participant dies after completing 5 years of service, the widow or dependent beneficiary may elect to receive either a refund of accumulated contributions or:

a. If the survivor is the widow, a survivor benefit calculated as if the participant had been age 60 at death and elected Option 1, plus $60 per dependent child not to exceed $180 per month.

b. If there is no widow, a survivor benefit calculated as if the participant had been age 60 at death and elected Option 1.

# Member Census Information

| As of January 1 | 2020 | 2021 |
|---|---|---|
| Active Members | | |
| Number | 5,108 | 4,984 |
| Average Age | 43.57 | 43.49 |
| Average Service | 7.47 | 8.15 |
| Average Annual Base Pay | $53,440 | $53,105 |
| Vested Terminated Members | | |
| Number | 647 | 703 |
| Average Account Balance | $32,914 | $34,896 |
| Non-vested Terminated Members | | |
| Number | 2,627 | 2,857 |
| Average Account Balance | $4,182 | $4,535 |
| Benefit Recipients | | |
| Number | 4,477 | 4,386 |
| Average Age | 74.74 | 74.95 |
| Average Monthly Benefit | $1,978 | $2,005 |

**Schedule of Active Member Valuation Data** (Last Ten Years)

| Plan Year | Number of Active Members | Annual Payroll | Average Annual Pay | % Increase in Average Pay |
|---|---|---|---|---|
| 2012 | 4,784 | 234,703,040 | 49,060 | -2.56% |
| 2013 | 4,786 | 225,894,414 | 47,199 | -3.79% |
| 2014 | 4,880 | 243,277,760 | 49,852 | 5.62% |
| 2015 | 5,011 | 245,699,352 | 49,032 | -1.64% |
| 2016 | 5,034 | 252,127,288 | 50,085 | 2.15% |
| 2017 | 5,101 | 260,223,066 | 51,014 | 1.85% |
| 2018 | 5,138 | 265,773,659 | 51,727 | 1.40% |
| 2019 | 5,050 | 263,772,380 | 52,232 | 0.98% |
| 2020 | 5,108 | 272,973,377 | 53,440 | 2.3% |
| 2021 | 4,984 | 264,676,845 | 53,105 | -.6% |

# Schedule of Retirees and Beneficiaries Added/Removed From Rolls

| | Added to Payroll | | Removed from Payroll | | Payroll Year-End | | | |
|---|---|---|---|---|---|---|---|---|
| Plan Year | No. | Annual Allowances | No. | Annual Allowances | No. | Annual Allowances | % Increase in Annual Allowances | % Increase in Average Pay |
| 2009 | N/A | | N/A | | N/A | | N/A | N/A |
| 2010 | N/A | | N/A | | 4,370 | | N/A | N/A |
| 2011 | 373 | | 156 | | 4,587 | $98,927,501 | N/A | $21,567 |
| 2012 | 135 | $2,606,505 | 182 | $2,793,752 | 4,540 | $98,768,933 | -0.16% | $21,755 |
| 2013 | 164 | $3,544,756 | 188 | $2,699,920 | 4,516 | $99,629,314 | 0.87% | $22,061 |
| 2014 | 313 | $7,711,256 | 140 | $2,288,004 | 4,689 | $105,061,832 | 5.45% | $22,406 |
| 2015 | 163 | $3,774,578 | 228 | $3,783,237 | 4,624 | $105,066,268 | 0.00% | $22,722 |
| 2016 | 151 | $3,279,162 | 188 | $3,058,449 | 4,587 | $105,295,884 | 0.22% | $22,955 |
| 2017 | 145 | $3,114,108 | 171 | $2,978,925 | 4,561 | $105,434,220 | 0.13% | $23,116 |
| 2018 | 158 | $4,044,180 | 193 | $3,526,969 | 4,526 | $105,976,561 | 0.51% | $23,415 |
| 2019 | 162 | $3,400,180 | 188 | $3,450,225 | 4,500 | $105,995,116 | 0.02% | $23,554 |
| 2020 | 161 | $3,739,591 | 184 | $2,728,795 | 4,477 | $106,259,608 | 0.25% | $23,735 |
| 2021 | 143 | $3,675,006 | 234 | $4,350,523 | 4,386 | $105,502,094 | -0.71% | $24,054 |

# Summary of Methods and Assumptions

**Interest**

7.5% per annum, which includes a 2.75% allowance for inflation.

**Participant Account Interest Crediting Rate**

5.0% per annum.

**Expenses**

The rate of interest assumed is net of expenses.

### Mortality – Healthy Lives

Mortality tables issued by the SOA, the RP-2014 Combined Healthy Mortality Table (rolled back to 2006), projected fully generationally using projection scale MP-2015. The mortality assumption for Inactive participants receiving benefits is increased by 10% to account for the higher mortality experienced by the Plan. Rates are shown for pre-commencement in Table 1 and post-commencement in Table 2.

### Disability Mortality

RP-2014 Disabled Mortality Table (rolled back to 2006) for disabled retired Members, projected fully generationally using projection scale MP-2015. Rates are shown in Table 6.

### Withdrawal

Withdrawals are assumed to occur at rates based on actual experience of the retirement system. During the first five years of membership, withdrawals are assumed to occur at the following rates:

| Year of Membership | Non-charter School Employees | Charter School Employees |
|---|---|---|
| 1st | 25.0% | 35.0% |
| 2nd | 20.0% | 35.0% |
| 3rd | 20.0% | 35.0% |
| 4th | 20.0% | 25.0% |
| 5th | 15.0% | 15.0% |

The rates used after the first five years of membership are shown in Table 3.

### Salary Scale

Salaries are assumed to increase at the rate of 5.0% per year for the first 5 years of employment and 3.50% thereafter.

### Disability

Disabilities are assumed to occur at rates based on the actual experience of the retirement system.
The rates used are shown in Table 5.

### Retirement

Retirements occur at rates based on the actual experience of the retirement system. The age-related rates used are shown in Table 4. The rates are different for those eligible to retire under the Rule of 80 and those not eligible to retire under the Rule of 80.

### Deferred Vested

The liability for deferred vested members with no benefit information provided in the employee data by the System is assumed to be 150% of the member's total accumulated contributions.

### Family Structure

The probability of a participant being married and the probable number of children are based on a table constructed by the Social Security Administration, modified to reflect the experience of the retirement system. The rates used are shown in Table 7. For married participants, husbands are assumed to be 3 years older than their wives.

### Gender

Members with no gender provided in the employee data by the System are assumed to be female.

### Usage of Cash-out Option

Participants terminating in vested status are given the option of taking a refund of their accumulated participant contributions instead of a deferred retirement benefit. Active members who terminate in the future with a vested benefit are assumed to take a deferred vested annuity, unless a refund of contributions and interest is greater than the actuarial present value of their vested deferred benefit.

### Future Benefit Increases or Additional Benefits

When funding is adequate, the Board may authorize cost of living adjustments (COLAs), as noted in the summary of plan provisions. This valuation assumes that no future COLAs will be awarded.

### Actuarial Method – Frozen Entry Age

The actuarial cost method used by the System is the "frozen entry age actuarial cost method." Under this method, on the initial actuarial valuation date for which the cost method is used, the annual cost accruals (individual normal costs for each participant) are determined as a level percentage of pay for each year from entry age until retirement or termination. The initial Unfunded Frozen Actuarial Accrued Liability (UFAAL) was originally determined as of January 1, 1981. Entry age is determined at the date each participant would have entered the System. The sum of these individual normal costs for all active participants whose attained ages are under the assumed retirement age is the normal cost for the initial plan year. The excess of all normal costs falling due prior to the initial actuarial valuation date, accumulated with interest, over the plan assets establishes the UFAAL.

The UFAAL is only frozen in that it is not adjusted due to experience gains and losses. Instead, gains and losses are reflected through changes in the normal cost accrual rate. The UFAAL does change, increasing due to interest and additional normal costs, and decreasing due to contributions. Any changes to plan provisions or actuarial assumptions results in a change to the UFAAL. The amount of the change is determined by computing the impact in the actuarial accrued liability as of the valuation date coincident with or next following the change.

Normal costs are calculated as the level percentage of pay required to fund the excess of the actuarial present value of future benefits over the sum of the actuarial value of current assets and the remaining UFAAL.

Effective January 1, 2006, UFAAL was reestablished to better reflect an appropriate relationship between the normal cost and the actuarial accrued liability.

The funding requirement for each plan year is the sum of the "normal cost contribution" (equal to the normal cost for that year), plus the "actuarial accrued liability contribution." The "actuarial accrued liability contribution" is the payment required to amortize the UFAAL over 30 years, from January 1, 2006, the date that it was reestablished.

**Valuation of Assets**

The actuarial value of assets is determined using the assumed yield method of valuing assets. Under the assumed yield asset valuation method, the prior year's actuarial value is increased at the assumed rate of return with appropriate adjustments for contributions and disbursements to produce an expected actuarial value of assets at the end of the year. The expected actuarial value is compared to the market value of assets less the expense and contingency reserve, and 20% of the difference is added to the expected actuarial value. The actuarial value of assets was "fresh-started" as of January 1, 2006 and set equal to the market value of assets as of that date.

**Changes in Methods and Assumptions from the Prior Valuation**

There were no method or assumption changes made since the prior valuation.

Effective August 28, 2017, legislation passed by the Missouri General Assembly and signed into law by then Governor Eric Greitens changed several of the System's Plan Provisions. A detailed description of these changes appears at the end of Section 3.2.

# Summary of Methods and Assumptions

**Table 1: Mortality Rates for Pre-Commencement – Annual Rates Per 1,000 Members**

| | | | | Rate | | | | |
|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **Age** | **Male** | **Female** | **Age** | **Male** | **Female** |
| 20 | 0.190 | 0.116 | 47 | 1.085 | 0.755 | 74 | 14.369 | 12.429 |
| 21 | 0.203 | 0.113 | 48 | 1.128 | 0.817 | 75 | 18.448 | 15.385 |
| 22 | 0.215 | 0.114 | 49 | 1.172 | 0.883 | 76 | 23.343 | 18.932 |
| 23 | 0.233 | 0.119 | 50 | 1.217 | 0.985 | 77 | 29.054 | 23.071 |
| 24 | 0.251 | 0.126 | 51 | 1.262 | 1.100 | 78 | 35.581 | 27.801 |
| 25 | 0.275 | 0.134 | 52 | 1.309 | 1.271 | 79 | 42.924 | 33.122 |
| 26 | 0.314 | 0.147 | 53 | 1.401 | 1.468 | 80 | 51.083 | 39.034 |
| 27 | 0.327 | 0.153 | 54 | 1.503 | 1.700 | 81 | 58.516 | 43.204 |
| 28 | 0.336 | 0.162 | 55 | 1.671 | 1.969 | 82 | 66.910 | 47.896 |
| 29 | 0.353 | 0.171 | 56 | 1.883 | 2.287 | 83 | 74.584 | 53.181 |
| 30 | 0.380 | 0.193 | 57 | 2.132 | 2.577 | 84 | 84.893 | 59.146 |
| 31 | 0.427 | 0.239 | 58 | 2.424 | 2.817 | 85 | 94.233 | 67.435 |
| 32 | 0.481 | 0.273 | 59 | 2.677 | 3.081 | 86 | 104.477 | 76.970 |
| 33 | 0.540 | 0.298 | 60 | 2.959 | 3.365 | 87 | 118.458 | 87.853 |
| 34 | 0.601 | 0.319 | 61 | 3.369 | 3.668 | 88 | 134.192 | 97.854 |
| 35 | 0.662 | 0.337 | 62 | 3.704 | 3.986 | 89 | 148.298 | 111.198 |
| 36 | 0.720 | 0.354 | 63 | 4.180 | 4.314 | 90 | 167.257 | 122.890 |
| 37 | 0.774 | 0.369 | 64 | 4.540 | 4.648 | 91 | 182.177 | 134.949 |
| 38 | 0.800 | 0.386 | 65 | 4.892 | 4.983 | 92 | 202.142 | 147.094 |
| 39 | 0.821 | 0.406 | 66 | 5.398 | 5.314 | 93 | 218.060 | 162.763 |
| 40 | 0.841 | 0.442 | 67 | 5.731 | 5.636 | 94 | 233.954 | 174.573 |
| 41 | 0.863 | 0.484 | 68 | 5.858 | 5.945 | 95 | 255.453 | 185.756 |
| 42 | 0.890 | 0.533 | 69 | 6.143 | 6.240 | 96 | 271.129 | 196.137 |
| 43 | 0.922 | 0.586 | 70 | 6.210 | 6.517 | 97 | 286.358 | 210.344 |
| 44 | 0.961 | 0.644 | 71 | 7.026 | 7.108 | 98 | 308.123 | 218.852 |
| 45 | 1.005 | 0.682 | 72 | 8.658 | 8.290 | 99 | 322.695 | 226.123 |
| 46 | 1.044 | 0.719 | 73 | 11.106 | 10.064 | | | |

**Table 2: Mortality Rates for Post-Commencement – Annual Rates Per 1,000 Members**

| | | | | Rate | | | | |
|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **Age** | **Male** | **Female** | **Age** | **Male** | **Female** |
| 20 | 0.190 | 0.116 | 47 | 2.205 | 0.912 | 74 | 23.946 | 21.660 |
| 21 | 0.203 | 0.113 | 48 | 2.595 | 1.090 | 75 | 27.356 | 23.365 |
| 22 | 0.215 | 0.114 | 49 | 3.034 | 1.313 | 76 | 30.490 | 25.743 |
| 23 | 0.233 | 0.119 | 50 | 3.521 | 1.580 | 77 | 34.715 | 29.017 |
| 24 | 0.251 | 0.126 | 51 | 3.556 | 1.697 | 78 | 39.486 | 31.986 |
| 25 | 0.275 | 0.134 | 52 | 3.546 | 1.914 | 79 | 44.915 | 35.314 |
| 26 | 0.314 | 0.147 | 53 | 3.595 | 2.193 | 80 | 51.083 | 39.034 |
| 27 | 0.327 | 0.153 | 54 | 3.643 | 2.532 | 81 | 58.516 | 43.204 |
| 28 | 0.336 | 0.162 | 55 | 3.798 | 2.935 | 82 | 66.910 | 47.896 |
| 29 | 0.353 | 0.171 | 56 | 4.033 | 3.418 | 83 | 74.584 | 53.181 |
| 30 | 0.380 | 0.193 | 57 | 4.344 | 3.908 | 84 | 84.893 | 59.146 |
| 31 | 0.427 | 0.239 | 58 | 4.758 | 4.385 | 85 | 94.233 | 67.435 |
| 32 | 0.481 | 0.273 | 59 | 5.165 | 4.929 | 86 | 104.477 | 76.970 |
| 33 | 0.540 | 0.298 | 60 | 5.656 | 5.525 | 87 | 118.458 | 87.853 |
| 34 | 0.601 | 0.319 | 61 | 6.358 | 6.166 | 88 | 134.192 | 97.854 |
| 35 | 0.662 | 0.337 | 62 | 7.004 | 6.852 | 89 | 148.298 | 111.198 |
| 36 | 0.720 | 0.354 | 63 | 7.918 | 7.582 | 90 | 167.257 | 122.890 |
| 37 | 0.774 | 0.369 | 64 | 8.761 | 8.372 | 91 | 182.177 | 134.949 |
| 38 | 0.800 | 0.386 | 65 | 9.703 | 9.235 | 92 | 202.142 | 147.094 |
| 39 | 0.821 | 0.406 | 66 | 11.004 | 10.170 | 93 | 218.060 | 162.763 |
| 40 | 0.841 | 0.442 | 67 | 12.182 | 11.175 | 94 | 233.954 | 174.573 |
| 41 | 0.890 | 0.484 | 68 | 13.160 | 12.271 | 95 | 255.453 | 185.756 |
| 42 | 0.987 | 0.533 | 69 | 14.537 | 13.503 | 96 | 271.129 | 196.137 |
| 43 | 1.133 | 0.586 | 70 | 15.686 | 14.919 | 97 | 286.358 | 210.344 |
| 44 | 1.328 | 0.644 | 71 | 17.356 | 16.177 | 98 | 308.123 | 218.852 |
| 45 | 1.572 | 0.689 | 72 | 19.271 | 17.994 | 99 | 322.695 | 226.123 |
| 46 | 1.864 | 0.778 | 73 | 21.465 | 19.543 | | | |

**Table 3: Withdrawal Rates – Annual Rates Per 1,000 Members**

| Age | Rate | Age | Rate |
|---|---|---|---|
| 20 | 204.0 | 43 | 59.0 |
| 21 | 197.0 | 44 | 52.0 |
| 22 | 190.0 | 45 | 44.0 |
| 23 | 184.0 | 46 | 41.0 |
| 24 | 177.0 | 47 | 37.0 |
| 25 | 171.0 | 48 | 34.0 |
| 26 | 161.0 | 49 | 31.0 |
| 27 | 151.0 | 50 | 28.0 |
| 28 | 141.0 | 51 | 26.0 |
| 29 | 131.0 | 52 | 25.0 |
| 30 | 121.0 | 53 | 24.0 |
| 31 | 117.0 | 54 | 23.0 |
| 32 | 112.0 | 55 | 22.0 |
| 33 | 108.0 | 56 | 21.0 |
| 34 | 103.0 | 57 | 20.0 |
| 35 | 99.0 | 58 | 19.0 |
| 36 | 96.0 | 59 | 18.0 |
| 37 | 92.0 | 60 | 17.0 |
| 38 | 89.0 | 61 | 0.0 |
| 39 | 86.0 | 62 | 0.0 |
| 40 | 83.0 | 63 | 0.0 |
| 41 | 75.0 | 64 | 0.0 |
| 42 | 67.0 | | |

**Table 4: Retirement Rates – Annual Rates Per 1,000 Members**

| Age | Rule of 80 Rate | Not Rule of 80 Rate |
|---|---|---|
| 50-51 | 200.0 | N/A |
| 52-59 | 150.0 | N/A |
| 60 | 200.0 | 100.0 |
| 61 | 200.0 | 100.0 |
| 62 | 250.0 | 150.0 |
| 63 | 250.0 | 150.0 |
| 64 | 250.0 | 200.0 |
| 65 | 300.0 | 350.0 |
| 66 | 300.0 | 200.0 |
| 67 | 300.0 | 200.0 |
| 68 | 300.0 | 200.0 |
| 69 | 300.0 | 200.0 |
| 70-71 | 300.0 | 300.0 |
| 72 | 1,000.0 | 1,000.0 |

**Table 5: Disability Rates – Annual Rates Per 1,000 Members**

| | Rate | | | | |
|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **Age** | **Male** | **Female** |
| 20 | 0.00 | 0.00 | 43 | 1.25 | 0.90 |
| 21 | 0.00 | 0.00 | 44 | 1.40 | 0.95 |
| 22 | 0.00 | 0.00 | 45 | 1.50 | 1.00 |
| 23 | 0.00 | 0.00 | 46 | 1.60 | 1.10 |
| 24 | 0.00 | 0.00 | 47 | 1.70 | 1.20 |
| 25 | 0.00 | 0.00 | 48 | 1.80 | 1.30 |
| 26 | 0.00 | 0.00 | 49 | 1.90 | 1.40 |
| 27 | 0.00 | 0.00 | 50 | 2.00 | 1.50 |
| 28 | 0.00 | 0.00 | 51 | 2.50 | 1.70 |
| 29 | 0.00 | 0.00 | 52 | 3.00 | 1.90 |
| 30 | 0.40 | 0.40 | 53 | 3.50 | 2.10 |
| 31 | 0.40 | 0.40 | 54 | 4.00 | 2.30 |
| 32 | 0.40 | 0.40 | 55 | 4.50 | 2.50 |
| 33 | 0.40 | 0.40 | 56 | 4.70 | 2.60 |
| 34 | 0.40 | 0.40 | 57 | 4.90 | 2.75 |
| 35 | 0.40 | 0.40 | 58 | 5.10 | 2.85 |
| 36 | 0.45 | 0.45 | 59 | 5.30 | 3.00 |
| 37 | 0.50 | 0.50 | 60 | 5.50 | 3.25 |
| 38 | 0.60 | 0.60 | 61 | 6.00 | 3.50 |
| 39 | 0.70 | 0.70 | 62 | 6.50 | 3.50 |
| 40 | 0.80 | 0.75 | 63 | 7.00 | 3.50 |
| 41 | 0.95 | 0.80 | 64 | 7.50 | 3.50 |
| 42 | 1.10 | 0.85 | 65 | 0.00 | 0.00 |

**Table 6: Post-Disability Mortality Rates – Annual Rates Per 1,000 Members**

| | | | | Rate | | | | |
|---|---|---|---|---|---|---|---|---|
| **Age** | **Male** | **Female** | **Age** | **Male** | **Female** | **Age** | **Male** | **Female** |
| 20 | 0.000 | 0.000 | 47 | 25.124 | 8.959 | 74 | 77.512 | 48.895 |
| 21 | 22.571 | 7.450 | 48 | 26.404 | 9.775 | 75 | 82.067 | 52.230 |
| 22 | 22.571 | 7.450 | 49 | 27.687 | 10.634 | 76 | 86.951 | 55.777 |
| 23 | 22.571 | 7.450 | 50 | 28.975 | 11.535 | 77 | 92.149 | 59.545 |
| 24 | 22.571 | 7.450 | 51 | 30.268 | 12.477 | 78 | 97.640 | 63.545 |
| 25 | 22.571 | 7.450 | 52 | 31.563 | 13.456 | 79 | 103.392 | 67.793 |
| 26 | 22.571 | 7.450 | 53 | 32.859 | 14.465 | 80 | 109.372 | 72.312 |
| 27 | 22.571 | 7.450 | 54 | 34.152 | 15.497 | 81 | 115.544 | 77.135 |
| 28 | 22.571 | 7.450 | 55 | 35.442 | 16.544 | 82 | 121.877 | 82.298 |
| 29 | 22.571 | 7.450 | 56 | 36.732 | 17.598 | 83 | 128.343 | 87.838 |
| 30 | 22.571 | 7.450 | 57 | 38.026 | 18.654 | 84 | 134.923 | 93.794 |
| 31 | 22.571 | 7.450 | 58 | 39.334 | 19.710 | 85 | 141.603 | 100.203 |
| 32 | 22.571 | 7.450 | 59 | 40.668 | 20.768 | 86 | 148.374 | 107.099 |
| 33 | 22.571 | 7.450 | 60 | 42.042 | 21.839 | 87 | 155.235 | 114.512 |
| 34 | 22.571 | 7.450 | 61 | 43.474 | 22.936 | 88 | 162.186 | 122.464 |
| 35 | 22.571 | 7.450 | 62 | 44.981 | 24.080 | 89 | 169.233 | 130.972 |
| 36 | 22.571 | 7.450 | 63 | 46.584 | 25.293 | 90 | 183.408 | 140.049 |
| 37 | 22.571 | 7.450 | 64 | 48.307 | 26.600 | 91 | 199.769 | 149.698 |
| 38 | 22.571 | 7.450 | 65 | 50.174 | 28.026 | 92 | 216.605 | 159.924 |
| 39 | 22.571 | 7.450 | 66 | 52.213 | 29.594 | 93 | 233.662 | 170.433 |
| 40 | 22.571 | 7.450 | 67 | 54.450 | 31.325 | 94 | 250.693 | 182.799 |
| 41 | 22.571 | 7.450 | 68 | 56.909 | 33.234 | 95 | 267.491 | 194.509 |
| 42 | 22.571 | 7.450 | 69 | 59.613 | 35.335 | 96 | 283.905 | 205.379 |
| 43 | 22.571 | 7.450 | 70 | 62.583 | 37.635 | 97 | 299.852 | 215.240 |
| 44 | 22.571 | 7.450 | 71 | 65.841 | 40.140 | 98 | 315.296 | 223.941 |
| 45 | 22.571 | 7.450 | 72 | 69.405 | 42.851 | 99 | 330.207 | 231.387 |
| 46 | 23.847 | 8.184 | 73 | 73.292 | 45.769 | | | |

# Definition of Actuarial Terms

**Accrued Benefit**

The benefit earned by a participant as of the date at which the determination is made payable in the form of an annual benefit commencing at normal retirement age. The accrued benefit is payable for the member's lifetime only, however if the total monthly payments at the member's death are less than contributions accumulated with interest, the remaining employee contribution balance will be paid to the member's beneficiary.

**Accumulated Plan Benefits**

The accrued benefits and any other benefits, whether vested or not, that have been earned by the participants covered by the plan as of the date at which the determination is made. These other benefits include any death, early retirement or disability benefits provided under the plan.

**Actuarial Accrued Liability**

Equal to the actuarial present value of future benefits less the present value of future annual normal costs.

**Actuarial Cost Method**

The method for allocating the actuarial present value of a pension plan's benefits and expenses to various time periods. An actuarial cost method is also referred to as a funding method.

**Actuarial Gain/(Loss)**

The difference between the plan's actual experience and that expected based upon a set of actuarial assumptions. A gain occurs when the experience of the plan is more favorable (in terms of cost) than the assumptions projected; a loss occurs when experience is less favorable. May also be referred to as experience gains/(losses).

**Actuarial Present Value**

See present value.

**Actuarial Valuation**

The determination, as of a valuation date, of the annual normal cost, actuarial accrued liability, actuarial value of assets and related actuarial present values for a pension plan.

**Actuarial Value of Assets**

The value of cash, investments and other property belonging to a pension plan determined by the actuary for the purpose of an actuarial valuation. Actuarial asset methods are generally designed to reduce fluctuations in asset value due to large variations in returns from year to year. Actuarial values are generally a smoothed market value that recognize gains and losses over time.

**Amortization**

The spreading of a present value or a cost over a period of years. A plan's unfunded actuarial accrued liability is amortized over a period of years.

**Fiscal Year**

The year on which the plan sponsor maintains its financial records.

**Funded**

Provided by plan assets. A liability is fully funded when assets exceed or equal the liability.

**Normal Cost**

That portion of the actuarial present value of pension plan benefits and expenses which is allocated to a valuation year by the actuarial cost method.

**Normal Retirement Age**

An age defined in the plan for purposes of establishing when a terminated participant is entitled to an accrued benefit.

**Participant**

A person covered by a pension plan in accordance with its terms including active participants, retired participants and beneficiaries, vested terminations and vested transfers.

**Plan Year**

The year on which the plan maintains its financial records.

**Present Value**

The value of an amount or series of amounts payable at various times, determined as of a given date by the application based on a particular set of actuarial assumptions. It is a single sum which reflects the time value of money and the probabilities of payment.

**Rate of Return**

The actual or expected investment income as a percentage of a plan's average assets.

**System**

Public School Retirement System of the City of St. Louis, Missouri.

**Unfunded Actuarial Accrued Liability**

The excess of the actuarial accrued liability over the actuarial value of assets.

**Vested Benefit**

A benefit that is not forfeited if the participant terminates employment.

# Statistical Section



"prudently administered in an effective and efficient manner."

# Summary

The statistical section contains information about the System not found elsewhere in the Annual Report that is broken down into several different parts.

The first part, found on page 107, is a Schedule of Changes in Fiduciary Net Position for the last 10 fiscal years that provides detail on the additions and deductions from the plan's assets and concludes with the annual change to the fiduciary net position for each year.

The second part, found on pages 108 – 111, contains membership schedules and a graph that detail information about the plan's retired, active and inactive members. The information found on these pages includes census data for retirees by payment option and type of retirement, average benefit payments for new retirees for the last five fiscal years, covered members for the last ten fiscal years and a summary of membership changes in fiscal year 2019.

There are several historical charts and graphs on pages 112 – 114 that provide information on the progress of the plan's market value of assets, employer and employee contributions, and investment income.

The last page in the statistical section provides a summary of the plan's legislative history that began on January 1, 1944, when the Missouri General Assembly created the retirement system.

# Schedule of Changes in Fiduciary Net Position Last 10 Fiscal Years Ended December 31,

| Fiscal Year | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|
| Additions by Source | | | (as restated) | | |
| Employer Contributions | $ 29,551,964 | $ 37,034,907 | $ 41,757,458 | $40,708,503 | $39,519,979 |
| Employee Contributions | 12,147,663 | 11,814,124 | 11,887,933 | 11,664,711 | 12,652,029 |
| Investment Income (loss) | 97,514,207 | 129,102,935 | 34,857,035 | (5,488,658) | 44,341,661 |
| Other Income | 134,813 | 138,506 | 143,754 | 146,007 | 150,427 |
| Total Additions (depreciation) | $139,348,647 | $178,090,472 | $88,646,180 | $47,030,563 | $96,664,096 |
| Deductions by Type | | | | | |
| Retirement Benefits | $ 96,073,967 | $ 98,000,369 | $ 99,874,101 | $99,634,429 | $ 99,419,975 |
| Survivor Benefits | 2,595,094 | 2,654,895 | 2,784,937 | 2,877,844 | 2,973,225 |
| Disability Benefits | 3,246,806 | 3,402,037 | 3,524,388 | 3,510,745 | 3,479,852 |
| Health Care Subsidies | 2,752,751 | 2,726,158 | 2,726,158 | 2,600,225 | 2,515,000 |
| Operating Expenses | 1,450,265 | 1,441,183 | 1,441,183 | 1,466,261 | 1,554,314 |
| Contribution Refunds | 4,773,609 | 3,690,639 | 4,203,229 | 4,761,086 | 5,220,357 |
| Total Deductions by Type | $110,892,492 | $ 111,915,281 | $ 114,850,590 | $114,850,590 | $ 115,162,723 |
| Change in Fiduciary Net Position | $ 28,456,155 | $ 66,175,191 | $(25,786,866) | $ 63,901,838 | $(18,498,627) |

| Fiscal Year | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|
| Additions by Source | | | | | |
| Employer Contributions | $ 41,077,344 | $ 48,797,779 | $ 43,902,706 | $41,822,334 | $ 41,226,981 |
| Employee Contributions | 12,591,552 | 14,248,567 | 17,019,685 | 17,607,279 | 20,880,189 |
| Investment Income (loss) | 124,643,375 | (41,828,299) | 127,469,970 | 76,730,861 | 110,983,648 |
| Other Income | 153,544 | 157,219 | 161,263 | 164,877 | 170,397 |
| Total Additions (depreciation) | $178,465,815 | $ 21,375,266 | $188,553,624 | $136,325,351 | $173,261,215 |
| Deductions by Type | | | | | |
| Retirement Benefits | $ 99,499,140 | $ 99,641,973 | $99,624,865 | $ 99,692,129 | $ 99,362,102 |
| Survivor Benefits | 3,056,046 | 3,082,696 | 3,043,126 | 3,007,912 | 2,987,195 |
| Disability Benefits | 3,512,352 | 3,616,435 | 3,575,042 | 3,412,356 | 3,347,554 |
| Health Care Subsidies | 2,442,339 | 2,381,857 | 2,249,449 | 2,129,938 | 2,093,653 |
| Operating Expenses | 1,613,506 | 1,441,183 | 1,862,658 | 1,906,813 | 1,523,071 |
| Contribution Refunds | 4,440,594 | 3,690,639 | 4,608,688 | 4,438,938 | 5,896,938 |
| Total Deductions by Type | $114,563,977 | $ 111,915,281 | $114,963,828 | $114,588,086 | $ 115,210,513 |
| Change in Fiduciary Net Position | $ 63,901,838 | $ 66,175,191 | $73,589,796 | $ 21,737,265 | $58,050,702 |

## Retired Members and Beneficiaries by Payment Option & Type on January 1, 2021

| Option | Service Benefit | Disability Benefit | Survivor Benefit | Total |
|---|---|---|---|---|
| 0 | 3,289 | 178 | 268 | 3,735 |
| 1 | 131 | 15 | - | 146 |
| 2 | 78 | 5 | - | 83 |
| 3 | 184 | 15 | - | 199 |
| 4 | 173 | 6 | - | 179 |
| 5 | 22 | 1 | - | 23 |
| 6 | 13 | 5 | - | 18 |
| 7 | 3 | - | - | 3 |
| Total | 3,893 | 225 | 268 | 4,386 |

## Amount of Annual Benefits by Payment Option & Type on January 1, 2021

| Option | Service Benefit | Disability Benefit | Survivor Benefit | Total |
|---|---|---|---|---|
| 0 | $84,998,462 | $ 2,717,228 | $3,355,674 | $ 91,071,364 |
| 1 | 2,323,179 | 191,613 | - | 2,514,792 |
| 2 | 1,911,138 | 117,333 | - | 2,028,471 |
| 3 | 3,946,435 | 227,238 | - | 4,173,673 |
| 4 | 4,639,911 | 136,665 | - | 4,776,576 |
| 5 | 543,686 | 9,911 | - | 553,597 |
| 6 | 262,947 | 48,317 | - | 311,264 |
| 7 | 72,357 | - | - | 72,357 |
| Total | $98,698,115 | $3,448,305 | $3,355,674 | $105,502,094 |

Option 1: Same retirement allowance continued after death to the beneficiary.

Option 2: One-half of the retirement allowance continued after death to the beneficiary.

Option 3: Same retirement allowance continued after death to the beneficiary. If the beneficiary predeceases the participant, the retirement allowance is adjusted back to the unreduced allowance.

Option 4: One-half of retirement allowance continued after death to the beneficiary. If the beneficiary predeceases the participant, the retirement allowance is adjusted back to the unreduced allowance.

Option 5: Increased retirement allowance is provided up to age 62, such that benefit provided prior to age 62 is approximately equal to the sum of the reduced retirement allowance paid after age 62 and Social Security.

Option 6: Options 1 and 5 combined.

Option 7: Options 2 and 5 combined.

## Average Annual Benefit Payments By Payment Option & Type on January 1, 2021

| Option | Service Benefit | Disability Benefit | Survivor Benefit | All |
|---|---|---|---|---|
| 0 | $25,843 | $15,265 | $12,521 | $24,383 |
| 1 | 16,971 | 12,774 | - | 17,225 |
| 2 | 24,502 | 23,467 | - | 24,439 |
| 3 | 21,448 | 15,149 | - | 20,973 |
| 4 | 26,820 | 22,778 | - | 26,685 |
| 5 | 24,713 | 9,911 | - | 24,069 |
| 6 | 20,227 | 9,663 | - | 17,292 |
| 7 | 24,119 | - | - | 24,119 |
| All | $25,353 | $15,326 | $12,521 | $24,054 |

## Average Monthly Benefit Payments by Payment Option & Type on January 1, 2021

| Option | Service Benefit | Disability Benefit | Survivor Benefit | Total |
|---|---|---|---|---|
| 0 | $2,154 | $1,272 | $1,043 | $2,032 |
| 1 | 1,414 | 1,065 | - | 1,435 |
| 2 | 2,042 | 1,956 | - | 2,037 |
| 3 | 1,787 | 1,262 | - | 1,748 |
| 4 | 2,235 | 1,898 | - | 2,224 |
| 5 | 2,059 | 826 | - | 2,006 |
| 6 | 1,686 | 805 | - | 1,441 |
| 7 | 2,010 | - | - | 2,010 |
| Total | $2,082 | $1,277 | $1,043 | $2,005 |

Option 1: Same retirement allowance continued after death to the beneficiary.

Option 2: One-half of the retirement allowance continued after death to the beneficiary.

Option 3: Same retirement allowance continued after death to the beneficiary. If the beneficiary predeceases the participant, the retirement allowance is adjusted back to the unreduced allowance.

Option 4: One-half of retirement allowance continued after death to the beneficiary. If the beneficiary predeceases the participant, the retirement allowance is adjusted back to the unreduced allowance.

Option 5: Increased retirement allowance is provided up to age 62, such that benefit provided prior to age 62 is approximately equal to the sum of the reduced retirement allowance paid after age 62 and Social Security.

Option 6: Options 1 and 5 combined.

Option 7: Options 2 and 5 combined.

# Schedule of Average Benefit Payments Last Five Fiscal Years Ended December 31st

| Retirement Year(s) | 0 - 5 | 6 - 10 | 11 - 15 | 16 - 20 | 21 - 25 | 26 - 30 | 31+ |
|---|---|---|---|---|---|---|---|
| **2017** | | | | | | | |
| Average Monthly Benefit | $397 | $706 | $1,034 | $1,576 | $2,184 | $3,165 | $3,740 |
| Average Monthly Salary | $4,273 | $4,259 | $4,030 | $4,588 | $5,012 | $5,559 | $6,385 |
| Number of Retirees | 10 | 23 | 13 | 21 | 14 | 27 | 33 |
| **2018** | | | | | | | |
| Average Monthly Benefit | $340 | $724 | $1,006 | $1,942 | $2,500 | $2,741 | $3,293 |
| Average Monthly Salary | $3,524 | $4,779 | $4,346 | $5,136 | $5,430 | $4,894 | $5,603 |
| Number of Retirees | 11 | 22 | 16 | 32 | 25 | 20 | 20 |
| **2019** | | | | | | | |
| Average Monthly Benefit | $474 | $646 | $1,095 | $1,505 | $2,418 | $2,872 | $4,002 |
| Average Monthly Salary | $4,790 | $4,204 | $4,412 | $4,167 | $5,333 | $5,156 | $6,696 |
| Number of Retirees | 10 | 31 | 20 | 26 | 19 | 26 | 23 |
| **2020** | | | | | | | |
| Average Monthly Benefit | $424 | $583 | $1,344 | $1,838 | $2,297 | $3,020 | $3,455 |
| Average Monthly Salary | $5,196 | $3,742 | $4,906 | $4,752 | $4,818 | $5,662 | $5,945 |
| Number of Retirees | 13 | 20 | 25 | 34 | 20 | 20 | 31 |
| **2021** | | | | | | | |
| Average Monthly Benefit | $717 | $744 | $978 | $1,887 | $2,329 | $2,853 | $3,652 |
| Average Monthly Salary | $5945 | $4646 | $4721 | $5,032 | $5,258 | $5,543 | $6,404 |
| Number of Retirees | 11 | 28 | 20 | 25 | 25 | 17 | 22 |
| **2017 – 2021** | | | | | | | |
| **Average Monthly Benefit** | **$470** | **$681** | **$1,091** | **$1,750** | **$2,346** | **$2,930** | **$3,628** |
| **Average Monthly Salary** | **$4,746** | **$4,326** | **$4,483** | **$4,735** | **$5,170** | **$5,363** | **$6,207** |
| **Number of Retirees** | **55** | **124** | **94** | **138** | **103** | **110** | **129** |

Note: The calculations for the 2017 – 2021 monthly averages are weighted using the sum of an average for each year x number of retirees each year ÷ by the 2017 – 2021 number of retirees.

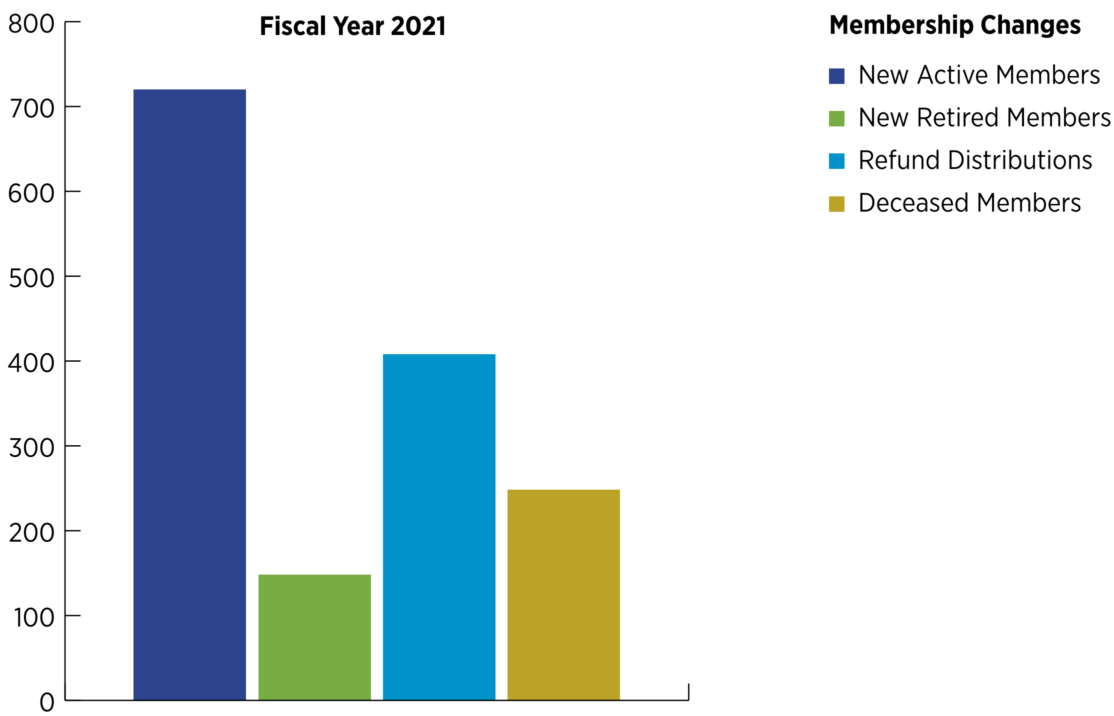
# Schedule of Covered Members Last 10 Fiscal Years Ended December 31,

| Member Type | 2021 Covered Members | 2021 Percentage of Total | 2020 Covered Members | 2020 Percentage of Total | 2019 Covered Members | 2019 Percentage of Total | 2018 Covered Members | 2018 Percentage of Total | 2017 Covered Members | 2017 Percentage of Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Active | 4,984 | 38.5% | 5,108 | 39.7% | 5,050 | 40.6% | 5,138 | 41.3% | 5,101 | 41.8% |
| Inactive | 3,560 | 27.5% | 3,274 | 25.5% | 2,886 | 23.2% | 2,791 | 22.4% | 2,554 | 20.9% |
| Retired (includes Beneficiaries) | 4,386 | 34.0% | 4,477 | 34.8% | 4,500 | 36.2% | 4,526 | 36.3% | 4,561 | 37.3% |
| Total | 12,930 | 100% | 12,859 | 100% | 12,436 | 100% | 12,455 | 100% | 12,216 | 100% |

| Member Type | 2016 Covered Members | 2016 Percentage of Total | 2015 Covered Members | 2015 Percentage of Total | 2014 Covered Members | 2014 Percentage of Total | 2013 Covered Members | 2013 Percentage of Total | 2012 Covered Members | 2012 Percentage of Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Active | 5,034 | 42.3% | 5,011 | 43.0% | 4,880 | 42.9% | 4,788 | 43.7% | 4,784 | 40.4% |
| Inactive | 2,271 | 19.1% | 2,012 | 17.3% | 1,798 | 15.8% | 1,643 | 15.0% | 1,958 | 17.4% |
| Retired (includes Beneficiaries) | 4,587 | 38.6% | 4,624 | 39.7% | 4,689 | 41.3% | 4,516 | 41.3% | 4,540 | 40.2% |
| Total | 11,892 | 100% | 11,647 | 100% | 11,367 | 100% | 10,945 | 100% | 11,282 | 100% |

# The Year in Review

During the fiscal year ended December 31, 2021, PSRSSTL added 720 new active members and 148 new retired members to payroll. The retirement system processed 408 refund distributions for members who left the System and bid farewell to 248 members due to death.

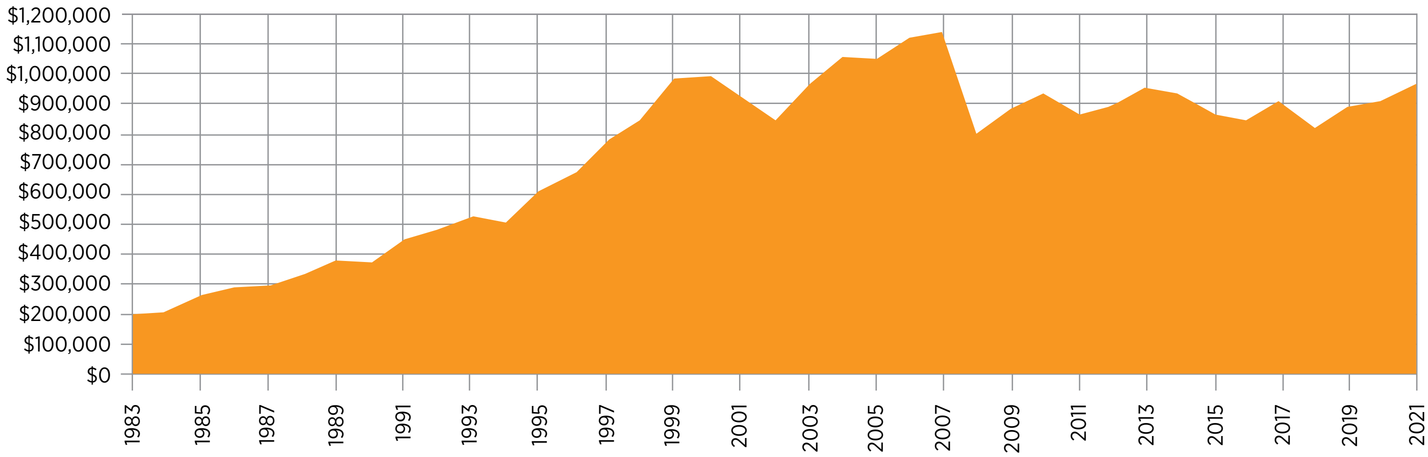


**Statistical Section**

These charts and graphs show changes in market value of assets, contributions, and investment earnings for fiscal years ended December 31, 1984 through December 31, 2021.

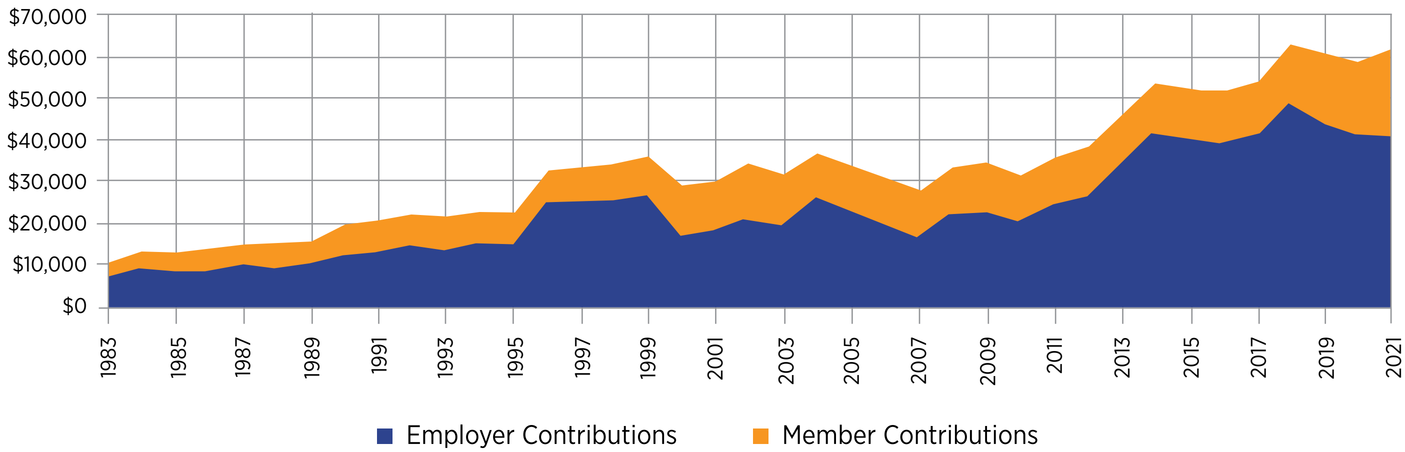
**Market Value of Assets**

(add 000's)



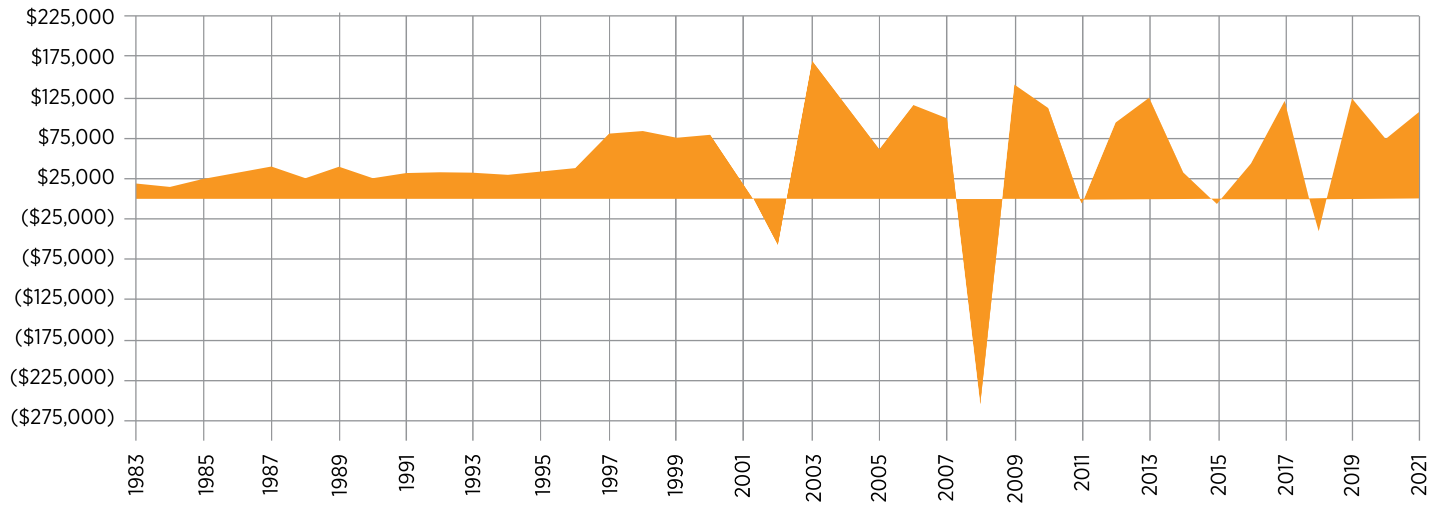

**Employer & Employee Contributions**

(add 000's)



**Investment Income (Loss)**

(add 000's)



# Participating Employers

| | Covered Employees | % of Total | Covered Employees | % of Total |
|---|---|---|---|---|
| | 2021 | | 2020 | |
| St. Louis Public Schools | 3,503 | 70% | 3,614 | 71% |
| All Others | 1,481 | 30% | 1,494 | 29% |
| Total – 19 Employers | 4,984 | 100% | 5,108 | 100% |
| | 2019 | | 2018 | |
| St. Louis Public Schools | 3,679 | 73% | 3,733 | 73% |
| All Others | 1,371 | 27% | 1,405 | 27% |
| Total – 18 Employers | 5,050 | 100% | 5,138 | 100% |
| | 2017 | | 2016 | |
| St. Louis Public Schools | 3,808 | 75% | 3,800 | 75% |
| All Others | 1,293 | 25% | 1,234 | 25% |
| Total – 20 Employers | 5,101 | 100% | 5,034 | 100% |
| | 2015 | | 2014 | |
| St. Louis Public Schools | 3,826 | 76% | 3,806 | 78% |
| All Others | 1,185 | 24% | 1,074 | 22% |
| Total – 20 Employers | 5,011 | 100% | 4,880 | 100% |
| | 2013 | | 2012 | |
| St. Louis Public Schools | 3,829 | 80% | 3,620 | 76% |
| All Others | 957 | 20% | 1,164 | 24% |
| Total – 20 Employers | 4,786 | 100% | 4,784 | 100% |

# Public School Retirement System of the City of St. Louis

| | |
|---|---|
| 1944 | Creation of the retirement system by the Missouri General Assembly |
| 1961 | Plan provisions revised, active members able to choose the “old plan” or “new plan” |
| 1969 | Credited Service allowed for time lost from 1944 - 1947 |
| 1972 | Credited Service options added, survivor, disability and minimum benefits added, another chance for “old plan” members to upgrade to the “new plan” |
| 1975 | First increase in benefits granted to certain retired teacher |
| 1978 | Service limits removed, survivor benefits revised, employee contributions set at 3%, Trustees granted rule-making authority, 1st back-to-work provision for some retirees |
| 1979 | Plan provisions revised to allow sick leave balances to be added to credited service and age requirements for retirement, early retirement and survivor benefits revised |
| 1981 | Plan provisions upgraded, insurance benefits improved, actuarial cost method changed, broadening of investment authority for the Board of Trustees |
| 1984 | Survivor and disability benefits upgraded, 2nd back-to-work provision for some retirees |
| 1985 | First supplemental early retirement benefit added for certain retirees |
| 1987 | Another chance for “old plan” members to join “new plan,” increase in minimum pension benefit, administrative changes made |
| 1988 | Survivor and supplemental benefits enhanced |
| 1989 | Certain plan provision improvements |
| 1990 | Supplemental benefits extended for some retirees |
| 1993 | Supplemental benefits enhanced for some retirees |
| 1996 | Service purchases allowed for some lay-off periods, investment trustee replaced with school administrator trustee, COLA provisions added |
| 1997 | COLA provision added for certain retirees |
| 1998 | Employee contribution rate set at 4.5%, pension factor set at 2%, catch-up COLA for some retirees, employer contribution rate set at 8.3% for three years |
| 1999 | Employee contribution rate set at 5% |

2001 COLA provisions added for some retirees, DROP added until 2005, employer contribution rate set at 8%, employer contribution rate to be actuarial determined beginning in 2002 and future years

2002 Credited service rules revised, pre-tax transfers allowed between certain retirement plans, Charter School provisions added and clarified, new social security leveling pension benefit options, actuarial provisions revised for more Board of Trustees flexibility, amortization limit set at 30 years

2007 Some administrative changes, granted the Board of Trustees authority to increase pension within strict guidelines, Board of Trustees educational requirements expanded, actuarial cost reporting revised for all Missouri retirement plans

2009 State reporting requirements revised for all Missouri retirement plans

2014 General provisions revised for all Missouri retirement plans

2017 Plan provisions changed, effective January 1, 2018, new active members required to contribute 9%, current active members to contribute 9% after a series of annual increases of 0.5% reaches ceiling, beginning with 16% employers to contribute 9% after a series of annual decreases of 0.5% reaches floor, pension factor for new active members reduced to 1.75%, pension factor for current members to remain 2.0%, and effective August 28, 2017, “Rule of 85” changed to “Rule of 80”

**Public School Retirement System**
**of the City of St. Louis**

A Pension Trust Fund for Public School Employees

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