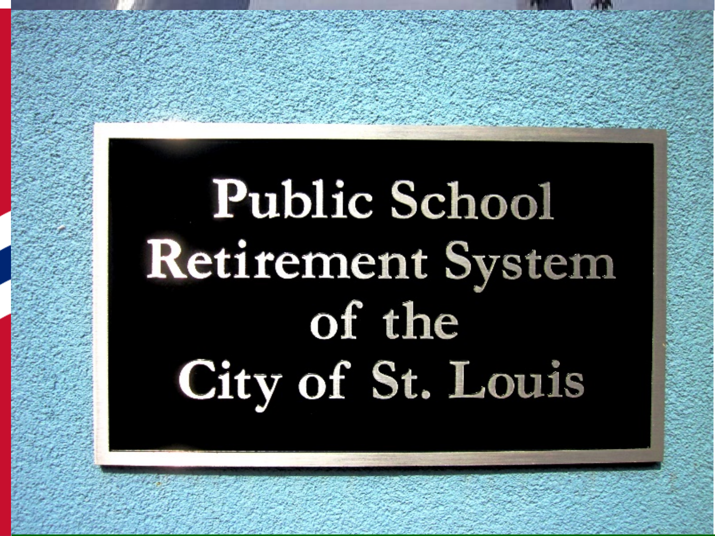
Public School Retirement System of the City of St. Louis, Missouri

A Pension Trust Fund for Public School Employees



Comprehensive Annual Financial Report

For the Fiscal Year Ended

December 31, 2019

(includes comparative financials for 2018)

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

Comprehensive Annual Financial Report

For the Fiscal Year Ended

December 31, 2019

(Includes comparative financials for 2018)

Prepared by:

Andrew Clark
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.

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Introductory Section

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 Comprehensive Annual
Financial Report
for the Fiscal Year Ended

December 31, 2018

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**
Sheila Goodwin	12-31-2020	Active Teacher
Bobbie Richardson	12-31-2021	Active Non-teacher
Justin Stein	12-31-2022	Active Non-teacher
Yvette Levy	12-31-2023	Active Administrator
Albert Sanders	12-31-2023	Active Teacher

Elected by Retired Members	**Term Ends**	**Trustee Representation**
Joseph Clark	09-30-2021	Retired Non-Teacher
Louis Cross	09-30-2023	Retired Teacher

SLPS Appointments	**Term Ends**	**Trustee Representation**
Darnetta Clinkscale	12-31-2020	SLPS Board of Education
Angela Banks	12-31-2021	SLPS Board of Education
Christina Bennett	12-31-2022	SLPS Board of Education
Donna Jones	12-31-2023	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, 2020

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

I am pleased to present the *Comprehensive Annual Financial Report (CAFR)* for the Public School Retirement System of the City of St. Louis ("PSRSSTL", "System", "fund" or "plan") for the fiscal year ended December 31, 2019. 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 year 2019.

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 2019.

Investment Activities

The overall investment return for the plan during 2019 was 16.8%, which was far above the actuarial assumed rate of return of 7.5%. Thus, the investment managers added much needed 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 2019 ranked in the top 79% 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 actuarial valuation has two main purposes: (1) to determine the annual required contribution (ARC), the portion of covered payroll, that employers must pay during a given year, including actuarially determined contributions that would ensure assets are available for benefit obligations into the future and to guarantee actuarial soundness of the fund and (2) 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 2019, the Funded Ratio was 78.5%, which is the third 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%, beginning in plan year 2017.

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.

The historic Annual Required Contribution (ARC) percentage rates of covered compensation and corresponding dollar amounts determined by the Actuary, and accepted by the Board of Trustees, for the past three fiscal years are summarized as follows:

Fiscal Year	ARC (%)	ARC ($)	ADC (%) *	ADC ($) *
2017	15.73%	$39,657,756	NA	NA
2018	19.10%	$49,693,589	NA	NA
2019	16.00%	$42,523,785	17.72%	$47,096,163

* Due to legislative changes in 2017 effecting annual required contribution (ARC) calculations, in 2018, the Actuary added an actuarial determined contribution (ADC)

component to the System's Annual Actuarial Valuation Report. It is important to note that the Actuary calculates the System's ARC for the next fiscal year; therefore, the System's contributions are recognized one fiscal year in arrears. Detailed actuarial information can be found in the Actuarial Section.

Legislative Information

There were no major legislative changes in 2019 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 60 & 61 in the Investment Section.

Certificate of Achievement

The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to the System for its comprehensive annual financial report for the fiscal year ended December 31, 2018. This was the eighth year the System has achieved this prestigious award. To be awarded a Certificate of Achievement, the System must publish an easily readable and efficiently organized comprehensive annual 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 this year's comprehensive annual financial report will again meet the Certificate of Achievement Program's requirements and it is being submitted to the GFOA to determine its eligibility for another certificate.

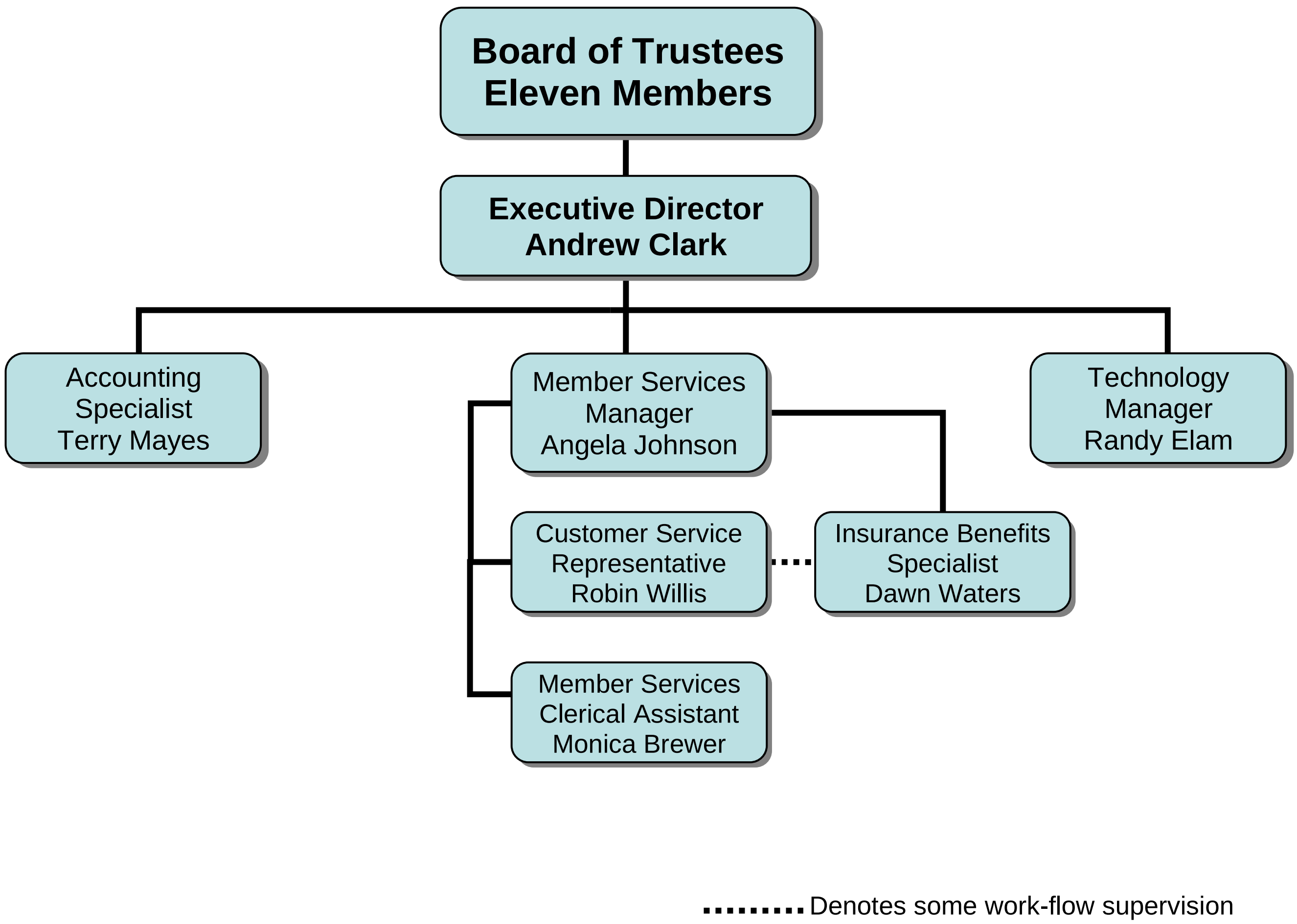
Acknowledgements

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,

Andrew Clark
Executive Director

Organizational Chart



Providers of Professional Services

Actuarial Services

Buck Global, LLC
Troy Jaros
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.)
Patrick Haraden
Boston, MA

Investment Consultant

NEPC, LLC
Kristin Finney-Cooke
Chicago, IL

Legal Counsel

Hartnett Reyes-Jones, L.L.C.
Jeffery E. Hartnett
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

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

Report on the Financial Statements

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, 2019 and 2018, and the related statements of changes in fiduciary net position for the years then ended, and the related notes to the financial statements.

Management's Responsibility for the Financial Statements

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

Auditors' Responsibility

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

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

Anders Minkler Huber & Helm LLP | 800 Market Street-Suite 500 | St. Louis, MO 63101-2501 | p (314) 655-5500 | f (314) 655-5501 | www.anderscpa.com

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

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the fiduciary net position of Public School Retirement System of the City of St. Louis as of December 31, 2019 and 2018, and the changes in its fiduciary net position for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Other Matters

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that 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, 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 - 47 is presented for purposes of additional analysis and is not a required part of the basic financial statements.

The other supplementary information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the financial statements. Such 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.

The introductory, investment, actuarial, and statistical sections of the System's Comprehensive Annual Financial Report ("CAFR") are not subject to the auditing procedures applied in the audit of the basic financial statements, and accordingly, the auditor does not express an opinion or provide any assurance on them. However, the auditor does acknowledge the relevance of these sections to the financial status of the System as reported in the CAFR.

Anders Minkler Huber & Helm LLP

April 20, 2020

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, 2019. 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, deferred inflows and outflows of resources, liabilities, and resulting fiduciary net position where (Assets + Deferred Outflows of Resources) – (Liabilities + Deferred Inflows of Resources) = Fiduciary Net Position held in trust for pension benefits available at the end of a fiscal year. These statements are a snapshot of the financial position of the System at specific points in time.
- 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 Management Discussion and Analysis 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 $893,039,689 at December 31, 2019, which represents an increase of $73,589,796 from December 31, 2018. This increase was due to investment returns during the 2019 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, 2019.

The System's investment returns were 16.8% in fiscal year 2019, (5.0%) in fiscal year 2018, and 16.2% in fiscal year 2017. The System's investment return in fiscal year 2019, when compared to fiscal year 2018, represents a strong upturn in investment values for most asset categories as experienced by 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 remained at 7.5% for fiscal year 2019.

Additions to fiduciary net position were $188.6 million, $21.4 million and $178.5 million for fiscal years 2019, 2018 and 2017, respectively. The two highest additions to fiduciary net position in 2019 were net investment income of $126.2 million and employer contributions of $43.9 million. The main additions to fiduciary net position in 2018 were $48.8 million of employer contributions and $14.2 million of member contributions. The key additions to fiduciary net position during 2017 were net investment income of $124.2 million and employer contributions of $41.1 million.

Deductions from fiduciary net position were $115.0 million, $116.0 million and $114.6 million in fiscal years 2019, 2018 and 2017, respectively. Almost 80% of the decrease of $1,043,805 in deductions from fiduciary net position between fiscal years 2019 and 2018 was due to the decrease in operating expenses and contribution refunds paid to terminated or deceased members in fiscal year 2019. More than half of the increase of $1,426,832 in deductions from fiduciary net position between fiscal years 2018 and 2017 was due to the increase in contribution refunds paid to terminated or deceased members in fiscal year 2018.

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 2019 that caused the change in fiduciary net position from fiscal year 2018 to fiscal year 2019.

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, 2019, total assets and deferred outflow of resources of the System were $895,621,204. Total assets consisted of cash, receivables, investments and an office building. When compared to fiscal year 2018, total assets and deferred outflows in fiscal year 2019 increased by 9.0%, or $73,588,669, and can be attributed to higher than expected investment returns.

On December 31, 2019, total liabilities and deferred inflow of resources of the System were $2,581,515. Total liabilities consisted of accounts payable and accrued expenses and net pension liability. Total liabilities and deferred inflows in fiscal year 2019, when compared to fiscal year 2018, decreased by $1,127, primarily because of the decrease in the System's net pension liability as required by GASB Statement No. 68.

On December 31, 2019, the fiduciary net position restricted for pensions was $893,039,689, an increase of 9.0%, or $73,589,796, from fiscal year 2018.

On December 31, 2018, total assets and deferred outflow of resources of the System were $822,032,535. Total assets consisted of cash, receivables, investments and an office building. When compared to fiscal year 2017, total assets and deferred outflows in fiscal year 2018 decreased by 10.2%, or $93,755,800, and can be attributed to lower than expected investment returns.

On December 31, 2018, total liabilities and deferred inflow of resources for the System were $2,582,642. Total liabilities consisted of accounts payable, accrued expenses, and net pension liability. Total liabilities and deferred inflows in fiscal year 2018, when compared to fiscal year 2017, increased by 51.4%, or $876,567, primarily because of the large increase in the System's net pension liability as required by GASB Statement No. 68.

On December 31, 2018, the fiduciary net position restricted for pensions was $819,449,893, a decrease of 10.4%, or $94,632,367, from fiscal year 2017.

Condensed Statements of Fiduciary Net Position

	FY 2019	FY 2018	FY 2017	FY 2019 % Change	FY 2018 % Change
Assets					
Cash	$ 9,803,323	$ 9,850,121	$ 10,108,913	(0.5)%	(2.6)%
Receivables	827,629	847,357	803,961	(2.3)%	5.4 %
Investments	882,624,263	808,635,191	902,745,605	9.1 %	(10.4)%
Property & building, net	1,623,368	1,680,266	1,747,704	(3.4)%	(3.9)%
Total Assets	894,878,583	821,012,935	915,406,183	9.0 %	(10.3)%
Deferred Outflows of Resources					
Deferred outflows of resources	742,621	1,019,600	382,152	(27.2)%	166.8 %
Total Assets & Deferred Outflows of Resources	895,621,204	822,032,535	915,788,335	9.0 %	(10.2)%
Liabilities					
Accounts payable & accrued expenses	728,909	708,970	800,653	2.8 %	(11.5)%
Net pension liability	1,621,273	1,727,361	876,434	(6.1)%	97.1 %
Total Liabilities	2,350,182	2,436,331	1,677,087	(3.5)%	45.3 %
Deferred Inflows of Resources					
Deferred inflows of resources	231,333	146,311	28,988	58.1 %	404.7 %
Total Liabilities & Deferred Inflows of Resources	2,581,515	2,582,642	1,706,075	- %	51.4 %
Fiduciary Net Position	$ 893,039,689	$ 819,449,893	$ 914,082,260	9.0 %	(10.4)%

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 2019, employer contributions were approximately $43.9 million; member contributions were approximately $17.0 million; and investments gained a net amount of approximately $126.2 million. For fiscal year 2018, employer contributions were approximately $48.8 million; member contributions were approximately $14.2 million; and investments lost a net of approximately $42.1 million.

Employer and member contributions combined decreased by $2.1 million in fiscal year 2019 compared to $9.4 million in fiscal year 2018. These fluctuations in the contribution amounts are primarily due to the increase of the employer contribution rate from 19.10% of covered compensation in fiscal year 2018 to 16.0% in fiscal year 2019, and the increase from 15.73% of covered compensation in fiscal year 2017 to 19.10% in fiscal year 2018.

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 $126.2 million, $(42.0) million and $124.2 million in fiscal years 2019, 2018 and 2017, respectively. These fluctuations in net investment income occurred because the investment earning rates were 16.8%, (5.0)% and 16.2% in fiscal years 2019, 2018 and 2017, 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 2019 were approximately .21% of assets, while operating expenses were approximately 0.24% and 0.18% of assets for 2018 and 2017, respectively.

Condensed Statements of Changes in Fiduciary Net Position

	FY 2019	FY 2018	FY 2017	FY 2019 % Change	FY 2018 % Change
Additions					
Employer contributions	$ 43,902,706	$ 48,797,779	$ 41,077,344	(10.0)%	18.8 %
Member contributions	17,019,685	14,248,567	12,591,552	19.4 %	13.2 %
Net investment income (loss)	126,231,937	(42,116,945)	124,169,513	399.7 %	(133.9)%
Rental income	161,263	157,219	153,544	2.6 %	2.4 %
Other income	1,238,033	288,646	473,862	328.9 %	(39.1)%
Total Additions	188,553,624	21,375,266	178,465,815	782.1 %	(88.0)%
Deductions					
Retirement benefits	99,624,865	99,641,973	99,499,140	- %	0.1 %
Survivor benefits	3,043,126	3,082,696	3,056,046	(1.3)%	0.9 %
Disability benefits	3,575,042	3,616,435	3,512,352	(1.1)%	3.0 %
Health care subsidies	2,249,449	2,381,857	2,442,339	(5.6)%	(2.5)%
Operating expenses	1,862,658	1,996,981	1,613,506	(6.7)%	23.8 %
Refunds to members	4,608,688	5,287,691	4,440,594	(12.8)%	19.1 %
Total Deductions	114,963,828	116,007,633	114,563,977	(0.9)%	1.3 %
Change in Fiduciary Net Position	$ 73,589,796	$(94,632,367)	$ 63,901,838	177.8 %	(248.1)%

Financial Summary

For over 23 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 40% of similar public pension plans for the last 23 years through the period ended December 31, 2019.

The fiduciary net position over this same timeframe 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 2019, the fiduciary net position was $893.0 million. These fluctuations in the value of the System's fiduciary net position can be attributed to volatile financial market conditions 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 25 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 2019, 2018 and 2017 were 78.5%, 78.1% and 79.5%, 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.

In the months since the end of the 2019 fiscal year, the financial markets have been ravaged by the effects of the COVID-19 pandemic. As of the date of these financial statements for the 2019 fiscal year, the Board of Trustees continues to closely monitor the System's assets to minimize the possibility of substantial investment losses through the end of the 2020 fiscal year.

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.

Public School Retirement System of the City of St. Louis
Statements of Fiduciary Net Position
December 31, 2019 and 2018

Assets

	2019	2018
Cash	$ 9,803,323	$ 9,850,121
Receivables		
Accrued interest and dividends	806,651	824,179
Other receivable	20,978	23,178
Total Receivables	827,629	847,357
Investments, at fair value		
Cash equivalents	50,133,288	36,721,304
Bonds		
U.S. Government and agency issues	32,071,483	28,998,131
Corporate	31,181,568	32,811,378
Foreign investments (bonds and stocks)	86,066,721	73,501,212
Common and preferred stocks	201,795,327	185,412,081
Mutual and co-mingled funds	380,889,694	360,023,724
Real estate partnerships	48,419,609	48,471,908
Limited partnerships	52,066,573	42,695,453
Total Investments	888,624,263	808,635,191
Property and Building, net	1,623,368	1,680,266
Total Assets	894,878,583	821,012,935

Deferred Outflows of Resources

	2019	2018
Deferred Outflows of Resources Related to Pensions	742,621	1,019,600

Liabilities

	2019	2018
Accounts Payable and Accrued Expenses	728,909	708,970
Net Pension Liability	1,621,273	1,727,361
Total Liabilities	2,350,182	2,436,331

Deferred Inflows of Resources

	2019	2018
Deferred Inflows of Resources Related to Pensions	231,333	146,311

Net Position

	2019	2018
Net Position Restricted for Pensions	$ 893,039,689	$ 819,449,893

See notes to financial statements

Public School Retirement System of the City of St. Louis
Statements of Changes in Fiduciary Net Position
Years Ended December 31, 2019 and 2018

	2019	2018
Additions		
Employer contributions		
St. Louis Public Schools	$ 31,344,663	$ 37,376,323
Sick leave conversion	192,404	302,222
Charter Schools	12,267,081	11,018,669
Retirement System	98,558	100,565
Plan member contributions		
St. Louis Public Schools	12,306,381	10,282,093
Charter Schools	4,682,712	3,935,567
Retirement System	30,592	30,907
	60,922,391	63,046,346
Investment Income (loss)		
Cash equivalents	643,528	459,491
Bonds		
U.S. Government and agency issues	2,783,981	333,930
Corporate	2,768,870	78,150
Foreign investments (bonds and stocks)	17,214,207	(12,802,444)
Common and preferred stock	55,029,943	(12,045,029)
Mutual and co-mingled funds	48,125,629	(23,225,857)
Limited partnerships	3,566,441	6,387,880
Real estate partnerships	356,012	3,603,474
	130,488,611	(37,210,405)
Less investment expense	4,256,674	4,906,540
Net investment income (loss)	126,231,937	(42,116,945)
Rental income	161,263	157,219
Other miscellaneous income	1,238,033	288,646
Net Additions	188,553,624	21,375,266
Deductions		
Benefits paid		
Retirement benefits	99,624,865	99,641,973
Survivor benefits	3,043,126	3,082,696
Disability benefits	3,575,042	3,616,435
Health care subsidies	2,249,449	2,381,857
	108,492,482	108,722,961
Operating expenses	1,862,658	1,996,981
Contribution refunds due to death or resignation	4,608,688	5,287,691
Total Deductions	114,963,828	116,007,633
Net Increase (Decrease) in Net Position	73,589,796	(94,632,367)
Net Position Restricted for Pensions, Beginning of Year	819,449,893	914,082,260
Net Position Restricted for Pensions, End of Year	$ 893,039,689	$ 819,449,893

See notes to financial statements

Public School Retirement System of the City of St. Louis
Notes to Financial Statements
December 31, 2019 and 2018

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 the employees of the System. The System issues an annual Comprehensive Annual Financial Report ("CAFR"), 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, 2019	January 1, 2018
Active members	5,050	5,138
Inactive members	2,886	2,791
Total members not retired	7,936	7,929
Retired members		
Service and survivors	4,255	4,277
Disability	245	249
	4,500	4,526
Total membership	12,436	12,455

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 of yearly benefits equal to years of credited

1. **Description of System (continued)**

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 to age 65. 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 6.00% and 5.50% of covered compensation for the years ended December 31, 2019 and 2018, 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 for the year ended December 31, 2019 was 16.00% of annual payroll. For Charter School employers, the System's statutory required contribution rate was set at 15.50% of covered payroll for the year ended December 31, 2019. 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.

The System's contractually required contribution rate for the year ended December 31, 2018 was 19.10% of annual payroll, actuarially determined as an amount that, when combined with employee contributions, was expected to finance the costs of benefits earned by employees during the year, with an additional amount to finance any unfunded accrued liability. For Charter School employers, the System's statutory required contribution rate for the year ended December 31, 2018 was 16.00% of annual payroll.

1. Description of System (continued)

Contributions to the pension plan for System employees were $98,558 and $100,565 for the years ended December 31, 2019 and 2018, 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
U.S. Equity	22.0%	5.6%
Non-U.S. Equity	22.0%	7.5%
Global Equity	5.0%	6.2%
Fixed Income	24.0%	1.5%
Real Estate	7.0%	5.0%
Private Markets	10.0%	9.0%
Hedge Funds	5.0%	3.6%
Global Asset Allocation	5.0%	3.5%
Total / Average	100.0%	5.2%

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 government 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 receivable is an amount due the System from a member for overpaid benefits.

2. Summary of Significant Accounting Policies (continued)

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 5 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 market value exists, management, in consultation with their investment advisors, values these investments in good faith based upon audited financials, cash flow analysis, purchases 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 expenses 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.

2. Summary of Significant Accounting Policies (continued)

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. No asset impairment was recognized during the years ended December 31, 2019 and 2018.

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. These separate financial statement elements represent the use or acquisition of net position that applies to a future period or periods and will not be recognized as an outflow or inflow of resources until then. 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.

Recent Accounting Pronouncements

The following GASB Statements are effective for various reporting periods beginning after December 15, 2019.

GASB Statement No. 87: Leases
GASB Statement No. 89: Accounting for Interest Cost Incurred before the End of a Construction Period
GASB Statement No. 90: Majority Equity Interest - an amendment of GASB Statements No. 14 and No. 61
GASB Statement No. 91: Conduit Debt Obligations
GASB Statement No. 92: Omnibus 2020

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

3. Adoption of New Accounting Standards

During the year ended December 31, 2019, the System adopted GASB Statement No. 83: Certain Asset Retirement Obligations. The primary objective of the Statement is to improve accounting and financial reporting for asset retirement obligations ("AROs") by establishing uniform measurement criteria. The Statement requires an ARO to be measured at the estimated current value of future outlays or the most likely amount to be incurred. The current value should be adjusted annually for general inflation or deflation, or changes in factors used to estimate future outlays. The implementation of GASB Statement No. 83 did not significantly impact the System's financial statements.

3. Adoption of New Accounting Standards (continued)

During the year ended December 31, 2019, the System adopted GASB Statement No. 84: Fiduciary Activities. The primary objective of the Statement is to improve accounting and financial reporting of fiduciary activities by enhancing consistency and comparability. The Statement identifies four fiduciary funds that should be reported, as applicable, in a fiduciary fund in the basic financial statements. Additionally, the Statement addresses instances when a liability may be recognized as a result of the disbursement of fiduciary resources. The implementation of GASB Statement No. 84 did not significantly impact the System's financial statements.

During the year ended December 31, 2019, the System adopted GASB Statement No. 88: Certain Disclosures related to Debt, including Direct Borrowings and Direct Placements. The primary objective of the Statement is to improve disclosures surrounding debt. Additional requirements include unused lines of credit, collateral, and debt terms related to events of default, termination, and acceleration. The implementation of GASB Statement No. 88 did not significantly impact the System's financial statements.

4. Investments

At December 31, 2019 and 2018, investments consisted of the following:

	2019	
	Fair Value	Cost
Cash equivalents	$ 50,133,288	$ 50,133,288
Bonds		
U.S. Government and agency issues	32,071,483	31,866,509
Corporate	31,181,568	31,302,211
Foreign investments (bonds and stocks)	86,066,721	78,685,343
Common and preferred stocks	201,795,327	151,824,846
Mutual and co-mingled funds	380,889,694	283,264,849
Real estate partnerships	48,419,609	30,625,054
Limited partnerships	52,066,573	50,954,260
	$ 882,624,263	$ 708,656,360

	2018	
	Fair Value	Cost
Cash equivalents	$ 36,721,304	$ 36,721,304
Bonds		
U.S. Government and agency issues	28,998,131	29,592,471
Corporate	32,811,378	34,097,511
Foreign investments (bonds and stocks)	73,501,212	78,763,546
Common and preferred stocks	185,412,081	168,088,999
Mutual and co-mingled funds	360,023,724	288,610,690
Real estate partnerships	48,471,908	32,418,615
Limited partnerships	42,695,453	41,044,416
	$ 808,635,191	$ 709,337,552

5. 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, 2019 and 2018.

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.

5. Fair Value Measurements (continued)

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 tables present 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, 2019 and 2018:

	2019			
		Fair Value Measurements		
	Total	Level 1	Level 2	Level 3
Cash equivalents	$ 50,133,288	$ -	$ 50,133,288	$ -
U.S. Government and agency issues	32,071,483	-	32,071,483	-
Corporate bonds	31,181,568	-	31,181,568	-
Foreign investments	86,066,721	-	86,066,721	-
Common and preferred stocks	201,795,327	201,795,327	-	-
Mutual funds	230,056,856	230,056,856	-	-
Real estate partnerships	48,419,609	-	-	48,419,609
Limited partnerships	52,066,573	-	-	52,066,573
Total assets in fair value hierarchy	731,791,425	$ 431,852,183	$ 199,453,060	$100,486,182
Investments measured at NAV	150,832,838			
	$882,624,263			

	2018			
		Fair Value Measurements		
	Total	Level 1	Level 2	Level 3
Cash equivalents	$ 36,721,304	$ -	$ 36,721,304	$ -
U.S. Government and agency issues	28,998,131	-	28,998,131	-
Corporate bonds	32,811,378	-	32,811,378	-
Foreign investments	73,501,212	-	73,501,212	-
Common and preferred stocks	185,412,081	185,412,081	-	-
Mutual funds	234,330,113	234,330,113	-	-
Real estate partnerships	48,471,908	-	-	48,471,908
Limited partnerships	42,695,453	-	-	42,695,453
Total assets in fair value hierarchy	682,941,580	$ 419,742,194	$ 172,032,025	$ 91,167,361
Investments measured at NAV	125,693,611			
	$808,635,191			

5. Fair Value Measurements (continued)

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

December 31, 2019	Fair Value	Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Co-mingled funds	$ 150,832,838	N/A	Daily	30 days

December 31, 2018	Fair Value	Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Co-mingled funds	$ 125,693,611	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, 2019 and 2018, as follows:

	Limited Partnerships	Real Estate Partnerships	Total
December 31, 2017	$25,708,057	$55,324,668	$81,032,725
Realized gains (losses)	4,178,202	109,066	4,287,268
Unrealized gains	1,167,100	1,296,210	2,463,310
Purchases, sales, issuances, and settlements (net)	10,599,516	(10,000,000)	599,516
Investment income, net	1,042,578	2,198,198	3,240,776
Management fees	-	(456,234)	(456,234)
December 31, 2018	42,695,453	48,471,908	91,167,361
Realized gains	4,806,768	(38,069)	4,768,699
Unrealized gains	(899,960)	(1,741,262)	(2,641,222)
Purchases, sales, issuances, and settlements (net)	5,819,284	-	5,819,284
Investment income, net	(354,972)	2,135,343	1,780,371
Management fees	-	(408,311)	(408,311)
December 31, 2019	$52,066,573	$48,419,609	$100,486,182

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.

December 31, 2019	Fair Value	Valuation Technique	Unobservable Inputs
Limited Partnerships	$ 52,066,573	Basis in LLC	Undistributed Income
Real Estate Partnerships	$ 48,419,609	Basis in LLC	Undistributed Income

December 31, 2018	Fair Value	Valuation Technique	Unobservable Inputs
Limited Partnerships	$ 42,695,453	Basis in LLC	Undistributed Income
Real Estate Partnerships	$ 48,471,908	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 through December 31, 2019 and 2018 could result in a significantly higher or lower fair value measurement.

6. 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, 2019 and 2018, the System had approximately $10,212,000 and $10,061,000, respectively, 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, 2019 and 2018 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, 2019, and December 28, 2018, the System received $31,537,067 and $37,678,545, respectively, from the St. Louis Board of Education for the 2019 and 2018 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, 2019 and 2018, 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.

2019

Investments	Fair Value	Percentage of Total Net Assets
UBS Realty Investors, LLC	$ 48,419,609	5.4%
Causeway	$ 47,622,067	5.3%
Fidelity Institutional Asset Mgmt.	$ 47,035,883	5.3%
Mellon Capital Management	$ 45,109,801	5.1%

2018

Investments	Fair Value	Percentage of Total Net Assets
UBS Realty Investors, LLC	$ 48,471,908	5.9%
Loomis Sayles Strategic Alpha Trust	$ 44,802,896	5.5%

Credit Risk of Debt Securities

The System's debt investments as of December 31, 2019 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.

6. Risks and Uncertainties (continued)

As of December 31, 2019, 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	US Government and agency issues	Total
Aaa	$ 2,296,753	$ -	$ 12,080,385	$ 14,377,138
Aa1	168,378	-	-	168,378
Aa2	313,093	24,870	-	337,963
Aa3	401,215	64,925	358,060	824,200
A1	656,502	-	90,485	746,987
A2	1,218,582	76,139	-	1,294,721
A3	1,321,606	-	-	1,321,606
Baa1	1,659,077	35,546	-	1,694,623
Baa2	2,497,025	203,222	-	2,700,247
Baa3	5,300,458	696,906	-	5,997,364
Ba1	1,085,387	425,855	-	1,511,242
Ba2	391,052	339,149	-	730,201
Ba3	665,771	-	-	665,771
B1	348,202	68,160	-	416,362
B2	373,508	34,213	-	407,721
B3	774,118	56,110	-	830,228
Caa1	152,053	32,010	-	184,063
Caa2	128,951	128,212	-	257,163
Not rated	11,429,837	1,231,591	19,542,553	32,203,981
Total	$ 31,181,568	$ 3,416,908	$ 32,071,483	$ 66,669,959

As of December 31, 2018, 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	US Government and agency issues	Total
Aaa	$ 5,496,358	$ 338,360	$ 11,808,055	$ 17,642,773
Aa1	150,740	-	96,251	246,991
Aa2	432,913	-	70,998	503,911
Aa3	396,182	105,853	207,191	709,226
A1	796,864	-	83,683	880,547
A2	732,916	246,476	-	979,392
A3	955,374	-	-	955,374
Baa1	1,580,449	-	-	1,580,449
Baa2	2,769,148	96,355	-	2,865,503
Baa3	4,415,266	895,499	-	5,310,765
Ba1	1,115,843	266,138	-	1,381,981
Ba2	513,248	355,343	-	868,591
Ba3	807,590	-	-	807,590
B1	378,213	24,094	-	402,307
B2	274,890	120,560	-	395,450
B3	529,920	102,900	-	632,820
Caa1	81,315	-	-	81,315
Caa2	194,633	33,950	-	228,583
Not rated	11,189,516	1,973,031	16,731,953	29,894,500
Total	$ 32,811,378	$ 4,558,559	$ 28,998,131	$ 66,368,068

6. Risks and Uncertainties (continued)

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, 2019 follows:

Currency	Cash Equivalents	Equities	Total
Australian Dollar	$ -	$ 763,487	$ 763,487
British Pound Sterling	342	17,715,244	17,715,244
Canadian Dollar	-	3,719,271	3,719,271
Danish Krone	-	235,371	235,371
Euro	-	20,284,166	20,284,166
Hong Kong Dollar	-	2,615,290	2,615,290
Israeli New Sheqel	-	79,998	79,998
Japanese Yen	-	10,028,512	10,028,512
Korean Won	-	2,359,050	2,359,050
Norwegian Krone	-	51,138	51,138
Singapore Dollar	-	62,596	62,596
South African Rand	-	47,173	47,173
Swedish Krona	-	67,516	67,516
Swiss Franc	-	4,932,765	4,932,765
Thai Baht	-	44,724	44,724
	$ 343	$ 63,006,301	63,006,644
Foreign investment denominated in US Dollars			23,060,420
			$ 86,067,064

The System's exposure to foreign currency risk in U.S. dollars as of December 31, 2018 follows:

Currency	Cash Equivalents	Equities	Total
Australian Dollar	$ -	$ 319,764	$ 319,764
British Pound Sterling	1	16,172,686	16,172,687
Canadian Dollar	-	4,159,773	4,159,773
Danish Krone	-	208,230	208,230
Euro	-	14,292,430	14,292,430
Hong Kong Dollar	-	2,347,154	2,347,154
Israeli New Sheqel	-	76,132	76,132
Japanese Yen	-	9,678,124	9,678,124
Korean Won	-	1,872,655	1,872,655
Norwegian Krone	-	99,123	99,123
South African Rand	-	16,035	16,035
Swedish Krona	-	63,418	63,418
Swiss Franc	-	4,485,084	4,485,084
Thai Baht	-	82,773	82,773
Turkish Lira	-	150,539	150,539
	$ 1	$ 54,023,920	54,023,921
Foreign investment denominated in US Dollars			19,477,291
			$ 73,501,212

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

6. Risks and Uncertainties (continued)

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, 2019 follows:

Type	2019 Fair Value	Less Than 1 year	1 to 5 years	6 to 10 years	More than 10 years
Corporate bonds	$ 31,181,568	$ 255,331	$ 8,787,327	$ 9,256,456	$ 12,882,454
Foreign Government & corporate obligations	3,416,908	-	1,030,359	1,798,680	587,868
U.S. Government & agency issues	32,071,483	-	4,486,057	1,853,196	25,732,230
Total	$ 66,669,959	$ 255,331	$ 14,303,743	$ 12,908,332	$ 39,202,552

The segmented time distribution of the various investment types of the System's debt securities at December 31, 2018 follows:

Type	2018 Fair Value	Less Than 1 year	1 to 5 years	6 to 10 years	More than 10 years
Corporate bonds	$ 32,811,378	$ 909,070	$ 13,257,837	$ 7,530,246	$ 11,114,225
Foreign Government & corporate obligations	4,558,559	26,873	1,386,655	2,013,896	1,131,135
U.S. Government & agency issues	28,998,131	371,779	2,219,744	5,380,334	21,026,274
Total	$ 66,368,068	$ 1,307,722	$ 16,864,236	$ 14,924,476	$ 33,271,634

7. Property and Building

Property and building as of December 31st, consists of:

	2019	2018
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	829,264	772,366
Property and Building, net	$ 1,623,368	$ 1,680,266

Depreciation expense totaled $56,897 and $67,438 for the years ended December 31, 2019 and 2018, respectively.

8. Occupancy

The System occupies offices in a building it owns. Occupancy expenses for the years ended December 31, 2019 and 2018 were $34,857 and $33,392, respectively.

On May 7, 2009, the System entered into an agreement to lease a portion of its building to an unrelated party. The initial lease term was five years with five one-year renewal options with annual rent ranging from $144,047 to $158,821 through May 2019. The lease agreement was renewed during the year ended December 31, 2018, extending the term to May 2021 with annual rent ranging from $162,514 to $166,208. Rental income received for the years ended December 31, 2019 and 2018 totaled $161,263 and $157,219, respectively.

9. 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.

10. Retirement Plan of the System

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

At December 31, 2019 and 2018, the System reported a liability of $1,621,273 and $1,727,361, respectively, as its proportionate share of the net pension liability. The net pension liability was measured as of December 31, 2018 and 2017, respectively, and the total pension liability used to calculate the net pension liability was determined by an actuarial valuation as of those dates.

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, 2018 and 2017. At December 31, 2018 and 2017, the System's portion was 0.19% and 0.23%, respectively.

Benefit changes effective as of August 28, 2017, for year ended December 31, 2018:

1. Reduce the "Rule of 85" to "Rule of 80."
2. Change the percent of pay benefit multiplier from 2.00 percent of Average Final Compensation to 1.75 percent of Average Final Compensation for members hired on or after January 1, 2018.

Contribution changes effective as of August 28, 2017, for year ended December 31, 2018:

1. Increase the employee contribution requirement from a flat 5.00 percent of compensation during 2017 to 9.00 percent in 0.50 percent annual increments for employees hired before January 1, 2018.
2. Set employee contribution rate to a flat 9.00 percent for employees hired on or after January 1, 2018.
3. Set the employer contribution rate to a flat 16.00 percent of covered payroll for plan year 2018 with annual decreases of 0.50 percent until reaching 9.00 percent of covered payroll.

Assumption change effective as of December 31, 2019 is as follows:

1. Revised blended discount of 4.78 percent to 7.50 percent.

For the year ended December 31, 2019, the System recognized pension expense of $371,203 consisting of the current year contribution, pension liability adjustment, and amortization of deferred outflows and inflows of resources. At December 31, 2019, 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	$ 3,089	$ 39,693
Changes in assumptions	397,711	-
Net difference between projected and actual earnings on pension plan investments	215,095	73,304
Changes in proportion and differences between employer contributions and proportionate share of contributions	28,168	118,336
System contributions subsequent to the measurement date of December 31, 2018	98,558	-
Total	$ 742,621	$ 231,333

10. Retirement Plan of the System (continued)

For the year ended December 31, 2018, the System recognized pension expense of $431,367 consisting of the current year contribution, pension liability adjustment, and amortization of deferred outflows and inflows of resources. At December 31, 2018, 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	$ 7,274	$ 21,064
Changes in assumptions	746,330	-
Net difference between projected and actual earnings on pension plan investments	119,079	115,090
Changes in proportion and differences between employer contributions and proportionate share of contributions	46,352	10,157
System contributions subsequent to the measurement date of December 31, 2017	100,565	-
Total	$ 1,019,600	$ 146,311

The System's total pension liability in the December 31, 2018 and 2017 actuarial valuations were determined using the actuarial assumptions disclosed in Note 12.

Deferred outflows of resources of $98,558 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, 2020. 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 31st as follows:

Amortization Schedule

Year	Amount
2020	264,202
2021	154,157
2022	(17,218)
2023	11,589
Total	$ 412,730

Discount Rate

The discount rates used to measure the total pension liability were 7.50 percent and 4.78 percent at December 31, 2019 and 2018, respectively. 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, 2019. 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 4.78 percent for the years ended December 31, 2019 and 2018, respectively, 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 for the year ended December 31,	1% Decrease (3.78%)	Current Discount Rate (4.78%)	1% Increase (5.78%)
2019	$ 1,973,164	$ 1,621,273	$ 1,279,017

System's proportionate share of the net pension liability for the year ended December 31,	1% Decrease (3.78%)	Current Discount Rate (4.78%)	1% Increase (5.78%)
2018	$ 2,212,568	$ 1,727,361	$ 1,358,300

11. Annual Money Weighted Rate of Return

The annual money-weighted rate of return was 16.83 percent and (5.09) percent for the years ended December 31, 2019 and 2018, respectively. The annual money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

12. Funding Status

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

	2019	2018
Actuarial value of assets	$ 886,156,011	$ 899,816,911
Actuarial accrual liability (AAL)	$ 1,129,155,379	$ 1,152,728,218
Unfunded AAL (UAAL)	$ 242,999,368	$ 252,911,307
Funded ratio	78.5%	78.1%
Annual covered payroll	$ 263,772,380	$ 265,773,659
UAAL as a percentage of payroll	92.1%	95.2%

The funded ratio increased 0.4% from the previous year. The schedule of funding progress, presented in the actuarial section, presents similar information but uses a multi-year format to show trend information. These trends indicate whether the actuarial value of plan assets is 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, 2019	January 1, 2018
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 & membership year based on actual experience	Various by age & membership year 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. 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. 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

13. 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, 2019, 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 2016. The net pension liability as of December 31, 2019 and 2018 was $378,254,650 and $838,901,660, respectively, based on actuarial valuations. The 2019 valuation was performed as of June 2019, with a measurement date of January 1, 2019, rolled forward and updated to December 31, 2019, using generally accepted actuarial procedures. The 2018 valuation was performed as of June 2018, with a measurement date of January 1, 2018, rolled forward and updated to December 31, 2018, using generally accepted actuarial procedures.

Schedule of Net Pension Liability

The components of the net pension liability of all participating employers at December 31, 2019 and 2018, are as follows:

	2019	2018
Total pension liability	$ 1,271,294,939	$ 1,658,351,553
Less: Plan fiduciary net position	893,039,689	819,449,893
Employers' net pension liability	$ 378,254,650	$ 838,901,660
Plan fiduciary net position as a percentage of total pension liability	70.25%	49.41%

Sensitivity of Net Pension Liability to Changes in the Discount Rate

The following presents the net pension liability at December 31, 2019 and 2018, calculated using the discount rates of 7.50 and 4.78 percent, respectively, 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 rates:

	1% Decrease (6.50%)	Current Discount Rate (7.50%)	1% Increase (8.50%)
Net pension liability - 2019	$ 501,254,030	$ 378,254,650	$ 273,373,890

	1% Decrease (3.78%)	Current Discount Rate (4.78%)	1% Increase (5.78%)
Net pension liability - 2018	$ 1,038,507,504	$ 838,901,660	$ 673,166,844

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. See page 46.

Under GASB Statement No. 68, employers participating in the plan would recognize a proportionate share of total pension expense of $71,428,049 and $192,072,941 for their fiscal years beginning after June 15, 2019 and 2018, respectively.

Required schedules of changes in the net pension liability for the years ended December 31, 2019 and 2018 are provided on page 38.

A schedule of projected fiduciary net position is provided on page 47.

13. Employers' Net Pension Liability (continued)

The System selected the assumptions used for the accounting results on page 38. Management believes that these assumptions are reasonable and comply with the requirements of GASB Statement No. 67 as applicable.

14. Subsequent Events

The System has evaluated subsequent events through April 27, 2020, the date the financial statements were available to be issued.

As of the date of the independent auditors' report, the market values of the investments have decreased as a result of the recent economic decline. The market values of the investments in the accompanying financial statements relate to investments on hand as of December 31, 2019.

Public School Retirement System of the City of St. Louis
Schedules of Changes of Employer Net Pension Liability*
For the Fiscal Years Ended December 31,

	2019	2018	2017	2016	2015	2014
Total pension liability						
Service cost	$ 40,762,465	$ 41,332,913	$ 19,950,269	$ 19,260,511	$ 19,136,245	$ 18,728,870
Interest	78,546,085	79,257,906	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	(631,432)	(21,350,805)	(8,215,370)	6,392,416	(10,065,347)	-
Changes of assumptions	(392,633,162)	-	397,218,720	70,532,232	-	-
Benefit payments	(113,101,170)	(114,010,652)	(112,950,471)	(113,608,409)	(113,384,329)	(113,082,656)
Net change in total pension liability	(387,057,214)	(14,770,638)	407,259,991	74,934,865	(11,070,803)	(1,048,067)
Total pension liability - beginning	1,658,351,553	1,673,122,191	1,265,862,200	1,190,927,335	1,201,998,138	1,203,046,205
Total pension liability - ending	$ 1,271,294,339	$ 1,658,351,553	$ 1,673,122,191	$ 1,265,862,200	$ 1,190,927,335	$ 1,201,998,138
Plan fiduciary net position						
Employer contributions	$ 43,902,706	$ 48,797,779	$ 41,077,344	$ 39,519,979	$ 40,708,503	$ 41,757,458
Employee contributions	17,019,685	14,248,567	12,591,552	12,652,029	11,664,711	11,887,933
Net investment income	127,614,501	(41,671,079)	124,796,919	44,492,088	(5,342,651)	35,000,792
Benefit payments including refunds of employee contributions	(113,101,170)	(114,010,652)	(112,950,471)	(113,608,409)	(113,384,329)	(113,082,656)
Administrative expense	(1,590,013)	(1,996,982)	(1,613,506)	(1,554,314)	(1,466,261)	(1,350,393)
Other	(255,913)	-	-	-	(431,423)	-
Net change in plan fiduciary net position	73,589,796	(94,632,367)	63,901,838	(18,498,627)	(68,251,450)	(25,786,866)
Plan fiduciary net position - beginning	819,449,893	914,082,260	850,180,422	868,679,049	936,930,499	962,717,365
Plan fiduciary net position - ending	$ 893,039,689	$ 819,449,893	$ 914,082,260	$ 850,180,422	$ 868,679,049	$ 936,930,499
Net pension liability - ending	$ 378,254,650	$ 838,901,660	$ 759,039,931	$ 415,681,778	$ 322,248,286	$ 265,067,639
Total pension liability	$ 1,271,294,339	$ 1,658,351,553	$ 1,673,122,191	$ 1,265,862,200	$ 1,190,927,335	$ 1,201,998,138
Less: Plan fiduciary net position	893,039,689	819,449,893	914,082,260	850,180,422	868,679,049	936,930,499
Employer net pension liability	$ 378,254,650	$ 838,901,660	$ 759,039,931	$ 415,681,778	$ 322,248,286	$ 265,067,639
Plan fiduciary net position as a percentage of the total pension liability	70.25%	49.41%	54.63%	67.16%	72.94%	77.95%
Covered payroll	$ 263,772,380	$ 265,773,659	$ 260,223,066	$ 252,127,288	$ 245,699,583	$ 243,280,015
Employer net pension liability as a percentage of covered payroll	143%	316%	292%	165%	131%	109%

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

See independent auditors' report

Public School Retirement System of the City of St. Louis
Schedules of Changes of Employer Net Pension Liability (continued)
For the Year Ended December 31, 2019 and 2018

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

Changes of Employer Net Pension Liability for the year ended December 31, 2018 were as follows:

Benefit Changes

1. Reduce the "Rule of 85" to "Rule of 80"
2. Change the percent of pay benefit multiplier from 2.0 percent of Average Final Compensation to 1.75 percent of Average Final Compensation for members hired on or after January 1, 2018

Contribution Changes

1. Increase the employee contribution requirement from 5.5 percent to 6.0 percent of compensation during 2019 to 9.00 percent in 0.50 percent annual increments for employees hired before January 1, 2018
2. Set employee contribution rate to a flat 9.00 percent for employees hired on or after January 1, 2018
3. Set the employer contribution rate to a flat 15.50 percent of covered payroll for plan year 2019 with annual decreases of 0.50 percent until reaching 9.00 percent of covered payroll

Assumption Changes

1. Revised investment return assumption of 7.50 percent to a blended discount rate of 4.78 percent. Blended discount rate is a municipal bond rate of 3.16 percent and long-term rate of return of 7.50 percent

Public School Retirement System of the City of St. Louis
Schedules of the System's Proportionate Share of the Net Pension Liability
For the Years Ended December 31,

	2019	2018	2017	2016	2015	2014
System's proportion of the net pension liability	0.19%	0.23%	0.21%	0.20%	0.22%	0.22%
System's proportionate share of the net pension liability	$ 1,621,273	$ 1,727,361	$ 876,434	$ 649,399	$ 570,232	$ 517,013
System's covered payroll	$ 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	357.19%	322.81%	183.25%	143.00%	120.59%	not available
Plan fiduciary net position as a percentage of the total pension liability	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.

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

Year Ended December 31,	2019	2018	2017	2016	2015	2014
Annual money-weighted rate of return, net of investment expense, adjusted for the changing amounts actually invested	16.83%	(5.09)%	15.55%	5.52%	(1.00)%	3.93%

See independent auditors' report

Public School Retirement System of the City of St. Louis
Schedules of Employer Contributions
December 31, 2019

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
2010	16,790,176	16,790,176	-		202,943,889	8.27%
2011	19,933,761	19,933,761	-		198,775,945	10.03%
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%

*The Board of Education paid the statutory required contribution that was recognized by the System for the year ended December 31, 2019.

The actuarial determined 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
2010	48,617	48,617	-	587,617	8.27%
2011	57,964	57,964	-	578,006	10.03%
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%

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

See independent auditors' report

Public School Retirement System of the City of St. Louis
Schedules of Employer Contributions (continued)
December 31, 2019

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
2010	2,568,929	3,843,486	(1,274,557)	*	31,050,800	12.38%
2011	4,272,457	4,521,680	(249,223)	*	42,604,182	10.61%
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%

*Charter Schools report and pay employer contributions in the current year as service is credited.

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

Employer Contributions

Year Ended December 31,	Annual Required Contribution	Percent Contributed
2010	19,407,722	134.4
2011	24,264,182	118.4
2012	25,928,658	114.0
2013	35,367,598	104.7
2014	37,267,278	109.2
2015	38,597,230	102.4
2016	37,210,752	110.4
2017	39,657,956	123.0
2018	49,693,589	88.3
2019	42,523,785	*

* To be determined at the end of the year

The actuarial information presented in the required supplementary schedules was determined as part of the actuarial valuation prepared by Buck Global, LLC as of January 1, 2019.

See independent auditors' report

Public School Retirement System of the City of St. Louis
Schedules of Employer Contributions (continued)
December 31, 2019

Additional information related to the actuarial valuation 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 2018 and 2017
Participant account interest crediting rate:	5.00% for 2019 and 2018
Turnover or withdrawal rates:	Varies 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 2019 and 2018 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 2019 and 2018 plan years.
Disability rates:	RP-2014 Disabled Mortality Table (rolled back to 2006) projected fully generationally using projection scale MP-2015 for the 2019 and 2018 plan years.
Rates of retirement between the ages of 55 & 70:	Varies 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 2019 and 2018 plan years.
Asset valuation method:	The assumed yield method of valuing assets

The Unfunded Actuarial Accrued Liability (“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.

See independent auditors’ report

Public School Retirement System of the City of St. Louis
Schedules of Operating Expenses
Years Ended December 31, 2019 and 2018

	2019	2018
Actuarial services	$ 134,575	$ 139,075
Accounting and auditing fees	85,821	69,533
Computer programming and consulting	88,741	107,981
Conventions, conferences, seminars		
Trustees (see below)	24,683	21,636
Depreciation expense	56,897	67,438
Dues and subscriptions	6,198	5,914
Employee benefits	130	3,192
Health insurance consulting	39,843	39,843
Insurance - group health	71,281	67,610
Insurance - casualty and bonding	100,355	92,974
Legal fees and expenses	136,381	128,598
Medical fees	500	700
Miscellaneous expense	(3,705)	20,404
Occupancy expense	34,857	33,392
Office repairs and maintenance	55,128	36,154
Office supplies and expenses	18,387	18,636
Payroll taxes	33,879	38,788
Pension expense	371,203	431,367
Postage	72,074	69,505
Printing and publishing	34,393	32,687
Salaries - administrative and clerical	453,634	524,826
Telephone	16,074	13,962
Utilities	31,329	32,766
Total Operating Expenses	$ 1,862,658	$ 1,996,981

<u>Trustees' Expenses</u>

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:

	2019	2018
Lodging, meals, and miscellaneous	$ 11,922	$ 9,791
Transportation and registration	12,761	11,845
Total Trustees Expenses	$ 24,683	$ 21,636

Public School Retirement System of the City of St. Louis
Summary of Investment Expenses
Years Ended December 31, 2019 and 2018

	2019	2018
Investment management fees	$ 4,051,945	$ 4,421,726
Consultant fees	179,888	183,362
Limited partnership initial interest	0	274,883
Banking services	24,841	26,569
Total investment expenses	$ 4,256,674	$ 4,906,540

See independent auditors’ report

Public School Retirement System of the City of St. Louis
Schedules of Professional/Consultant Fees
Years Ended December 31, 2019 and 2018

	2019	2018
Actuarial services	$ 134,575	$ 139,075
Accounting and auditing fees	85,821	69,533
Building property management	34,857	33,392
Health insurance consulting	39,843	39,843
Legal expenses	136,381	128,598
Technology consulting	88,741	107,981
Total fees	$ 520,218	$ $518,422

Public School Retirement System of the City of St. Louis
Schedules of Limited Partnerships
Year Ended December 31, 2019 and 2018

Partnership Name	Style	Investments at Fair Value as of December 31, 2019
BIG Real Estate Fund I, L.P.	Private Equity & Private Debt	$ 3,428,863
Brightwood Capital Fund IV, L.P.	Private Equity & Private Debt	9,686,290
ElmTree U.S. Net Lease Fund III, L.P.	Private Equity & Private Debt	133,850
Fort Washington Private Equity Investors IX, L.P.	Private Equity & Private Debt	7,183,229
Landmark Equity Partners XIV, L.P.	Private Equity & Private Debt	802,469
Landmark Equity Partners XV, L.P.	Private Equity & Private Debt	3,941,428
Landmark Equity Partners XVI, L.P.	Private Equity & Private Debt	4,151,057
Lighthouse Capital Partners VI, L.P.	Private Equity & Private Debt	115,985
Mesirow Financial Private Equity Partnership Fund III, L.P.	Private Equity & Private Debt	709,735
Monroe Capital Private Credit Fund II L.P.	Private Equity & Private Debt	7,839,969
Monroe Capital Private Credit Fund III L.P.	Private Equity & Private Debt	7,798,536
Pantheon Global Secondary Fund III B, L.P.	Private Equity & Private Debt	822,421
SW Pelham Fund III, L.P.	Private Equity & Private Debt	96,988
Vista Foundation Fund II, L.P.	Private Equity & Private Debt	5,355,753
		$ 52,066,573

Partnership Name	Style	Investments at Fair Value as of December 31, 2018
BIG Real Estate Fund I, L.P.	Private Equity & Private Debt	$ 2,356,420
Brightwood Capital Fund IV, L.P.	Private Equity & Private Debt	4,437,878
ElmTree U.S. Net Lease Fund III, L.P.	Private Equity & Private Debt	6,464,914
Fort Washington Private Equity Investors IX, L.P.	Private Equity & Private Debt	5,454,336
Landmark Equity Partners XIV, L.P.	Private Equity & Private Debt	1,058,754
Landmark Equity Partners XV, L.P.	Private Equity & Private Debt	4,185,944
Landmark Equity Partners XVI, L.P.	Private Equity & Private Debt	426,988
Lighthouse Capital Partners VI, L.P.	Private Equity & Private Debt	131,297
Mesirow Financial Private Equity Partnership Fund III, L.P.	Private Equity & Private Debt	1,021,122
Monroe Capital Private Credit Fund II, L.P.	Private Equity & Private Debt	8,394,289
Monroe Capital Private Credit Fund III, L.P.	Private Equity & Private Debt	2,770,084
Pantheon Global Secondary Fund III B, L.P.	Private Equity & Private Debt	1,313,060
Siguler Guff Distressed Opportunities Fund II, L.P.	Private Equity & Private Debt	47,886
SW Pelham Fund III, L.P.	Private Equity & Private Debt	173,181
Vista Foundation Fund II, L.P.	Private Equity & Private Debt	4,459,300
		$ 42,695,453

See independent auditors' report

Public School Retirement System of the City of St. Louis
Schedules of Annual Required Contributions
December 31, 2019 and 2018

As determined by the actuary, the annual required contribution is as follows at January 1, 2019:

	Board of Education	Retirement System	Charter Schools	Total
Normal Cost contribution	$ 17,304,304	$ 36,134	$ 6,331,652	$ 23,671,923
Actuarial accrued liability contribution	118,829,013	39,318	6,889,609	25,757,940
Actuarially determined contribution (ADC)	$ 36,133,150	$ 75,452	$ 13,221,261	$ 49,429,8633
Covered payroll	$ 192,817,182	$ 402,634	$ 70,552,564	$ 263,772,380
ADC as % of covered payroll	18.74%	18.74%	18.74%	18.74%
Statutory required contribution rate	15.50%	15.50%	15.50%	15.50%
Statutory annual required contribution (ARC)	$ 29,886,663	$ 62,408	$ 10,935,647	$ 40,884,719

As determined by the actuary, the annual required contribution is as follows at January 1, 2018:

	Board of Education	Retirement System	Charter Schools	Total
Normal Cost contribution	$ 15,508,017	$ 44,028	$ 5,486,930	$ 21,038,975
Actuarial accrued liability contribution	19,206,986	54,530	6,795,672	26,057,188
Actuarially determined contribution (ADC)	$ 34,715,003	$ 98,558	$ 12,282,602	$ 47,096,163
Covered payroll	$ 195,904,143	$ 556,184	$ 69,313,332	$ 265,773,659
ADC as % of covered payroll	17.72%	17.72%	17.72%	17.72%
Statutory required contribution rate	16.00%	16.00%	16.00%	16.00%
Statutory annual required contribution (ARC)	$ 31,344,663	$ 88,989	$ 11,090,133	$ 42,523,785

The ADC and ARC are determined from the prior years' census for the Board of Education and Retirement System; therefore, the contributions are recognized one year in arrears.

See independent auditors' report

Public School Retirement System of the City of St. Louis
Schedule of Actuarial Present Values of Projected Benefit Payments
000's omitted
December 31, 2019

		Benefit Payments			Present Value of Benefit Payments		
Fiscal Year Ending 12/31	Beginning Fiduciary Net Position	Benefit Payments	Funded Portion	Unfunded Portion	Funded Portion at 7.50%	Unfunded Portion at 3.26%	Using a Single Discount Rate of 7.50%
2020	$ 893,040	$ 110,101	$ 110,101	$ -	$ 106,191	$ -	$ 106,191
2021	$ 902,359	$ 109,638	$ 109,638	$ -	$ 98,367	$ -	$ 98,367
2022	$ 911,236	$ 108,677	$ 108,677	$ -	$ 90,702	$ -	$ 90,702
2023	$ 920,548	$ 107,697	$ 107,697	$ -	$ 83,613	$ -	$ 83,613
2024	$ 930,570	$ 107,016	$ 107,016	$ -	$ 77,288	$ -	$ 77,288
2025	$ 941,256	$ 106,575	$ 106,575	$ -	$ 71,599	$ -	$ 71,599
2026	$ 952,465	$ 106,162	$ 106,162	$ -	$ 66,346	$ -	$ 66,346
2027	$ 963,463	$ 106,848	$ 106,848	$ -	$ 61,499	$ -	$ 61,499
2028	$ 974,189	$ 105,332	$ 105,332	$ -	$ 56,963	$ -	$ 56,963
2029	$ 984,744	$ 104,877	$ 104,877	$ -	$ 52,759	$ -	$ 52,759
2030	$ 995,128	$ 104,439	$ 104,439	$ -	$ 48,874	$ -	$ 48,874
2031	$ 1,005,314	$ 103,964	$ 103,964	$ -	$ 42,257	$ -	$ 42,257
2032	$ 1,015,300	$ 103,651	$ 103,651	$ -	$ 41,973	$ -	$ 41,973
2033	$ 1,024,857	$ 103,296	$ 103,296	$ -	$ 38,911	$ -	$ 38,911
2034	$ 1,033,978	$ 102,801	$ 102,801	$ -	$ 36,023	$ -	$ 36,023
2035	$ 1,044,418	$ 102,284	$ 102,284	$ -	$ 33,341	$ -	$ 33,341
2036	$ 1,056,342	$ 101,661	$ 101,661	$ -	$ 30,826	$ -	$ 30,826
2037	$ 1,070,037	$ 100,997	$ 100,997	$ -	$ 28,488	$ -	$ 28,488
2038	$ 1,085,737	$ 100,273	$ 100,273	$ -	$ 26,310	$ -	$ 26,310
2039	$ 1,103,677	$ 99,537	$ 99,537	$ -	$ 24,295	$ -	$ 24,295
2040	$ 1,124,108	$ 98,907	$ 98,907	$ -	$ 22,457	$ -	$ 22,457
2041	$ 1,147,130	$ 98,182	$ 98,182	$ -	$ 20,737	$ -	$ 20,737
2042	$ 1,173,092	$ 97,488	$ 97,488	$ -	$ 19,154	$ -	$ 19,154
2043	$ 1,202,240	$ 96,795	$ 96,795	$ -	$ 17,691	$ -	$ 17,691
2044	$ 1,234,863	$ 95,874	$ 95,874	$ -	$ 16,300	$ -	$ 16,300
2045	$ 1,271,532	$ 94,941	$ 94,941	$ -	$ 15,015	$ -	$ 15,015
2046	$ 1,312,650	$ 93,869	$ 93,869	$ -	$ 13,810	$ -	$ 13,810
2047	$ 1,358,731	$ 92,694	$ 92,694	$ -	$ 12,686	$ -	$ 12,686
2048	$ 1,410,342	$ 91,284	$ 91,284	$ -	$ 11,621	$ -	$ 11,621
2049	$ 1,468,223	$ 89,885	$ 89,885	$ -	$ 10,645	$ -	$ 10,645
2050	$ 1,532,897	$ 88,361	$ 88,361	$ -	$ 9,734	$ -	$ 9,734
2051	$ 1,605,077	$ 86,514	$ 86,514	$ -	$ 8,866	$ -	$ 8,866
2052	$ 1,685,720	$ 84,414	$ 84,414	$ -	$ 8,047	$ -	$ 8,047
2053	$ 1,775,781	$ 82,146	$ 82,146	$ -	$ 7,285	$ -	$ 7,285
2054	$ 1,876,204	$ 79,815	$ 79,815	$ -	$ 6,584	$ -	$ 6,584
2055	$ 1,987,889	$ 77,323	$ 77,323	$ -	$ 5,933	$ -	$ 5,933
2056	$ 2,111,905	$ 74,679	$ 74,679	$ -	$ 5,331	$ -	$ 5,331
2057	$ 2,249,386	$ 71,870	$ 71,870	$ -	$ 4,772	$ -	$ 4,772
2058	$ 2,401,553	$ 69,046	$ 69,046	$ -	$ 4,265	$ -	$ 4,265
2059	$ 2,569,586	$ 66,237	$ 66,237	$ -	$ 3,806	$ -	$ 3,806
2060	$ 2,764,699	$ 63,429	$ 63,429	$ -	$ 3,390	$ -	$ 3,390
2061	$ 2,958,224	$ 60,638	$ 60,638	$ -	$ 3,015	$ -	$ 3,015

See independent auditors' report

Public School Retirement System of the City of St. Louis
Schedule of Projection of Fiduciary Net Position
000's omitted
December 31, 2019

Year	Projected Beginning Fiduciary Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Investment Earnings	Projected Ending Fiduciary Net Position
2020	$ 893,040	$ 55,983	$ 110,101	$ 63,437	$ 902,359
2021	$ 902,359	$ 54,377	$ 109,638	$ 64,138	$ 911,236
2022	$ 911,236	$ 53,158	$ 108,677	$ 64,831	$ 920,548
2023	$ 920,548	$ 52,157	$ 107,697	$ 65,562	$ 930,570
2024	$ 930,570	$ 51,363	$ 107,016	$ 66,339	$ 941,256
2025	$ 941,256	$ 50,626	$ 106,575	$ 67,158	$ 952,465
2026	$ 952,465	$ 49,172	$ 106,162	$ 67,988	$ 963,463
2027	$ 963,463	$ 47,712	$ 105,787	$ 68,801	$ 974,189
2028	$ 974,189	$ 46,288	$ 105,332	$ 69,599	$ 984,744
2029	$ 984,744	$ 44,875	$ 104,877	$ 70,386	$ 995,128
2030	$ 995,128	$ 43,465	$ 104,439	$ 71,160	$ 1,005,314
2031	$ 1,005,314	$ 42,028	$ 103,964	$ 71,922	$ 1,015,300
2032	$ 1,015,300	$ 40,545	$ 103,651	$ 72,663	$ 1,024,857
2033	$ 1,024,857	$ 39,044	$ 103,296	$ 73,373	$ 1,033,978
2034	$ 1,033,978	$ 39,184	$ 102,801	$ 74,057	$ 1,044,418
2035	$ 1,044,418	$ 39,366	$ 102,284	$ 74,842	$ 1,056,342
2036	$ 1,056,342	$ 39,613	$ 101,661	$ 75,743	$ 1,070,037
2037	$ 1,070,037	$ 39,917	$ 100,997	$ 76,780	$ 1,085,737
2038	$ 1,085,737	$ 40,244	$ 100,273	$ 77,969	$ 1,103,677
2039	$ 1,103,677	$ 40,640	$ 99,537	$ 79,328	$ 1,124,108
2040	$ 1,124,108	$ 41,059	$ 98,907	$ 80,870	$ 1,147,130
2041	$ 1,147,130	$ 41,533	$ 98,182	$ 82,611	$ 1,173,092
2042	$ 1,173,092	$ 42,064	$ 97,488	$ 84,572	$ 1,202,240
2043	$ 1,202,240	$ 42,645	$ 96,795	$ 86,773	$ 1,234,863
2044	$ 1,234,863	$ 43,299	$ 95,874	$ 89,244	$ 1,271,532
2045	$ 1,271,532	$ 44,028	$ 94,941	$ 92,031	$ 1,312,650
2046	$ 1,312,650	$ 44,814	$ 93,869	$ 95,136	$ 1,358,731
2047	$ 1,358,731	$ 45,675	$ 92,694	$ 98,630	$ 1,410,342
2048	$ 1,410,342	$ 46,616	$ 91,284	$ 102,549	$ 1,468,223
2049	$ 1,468,223	$ 47,620	$ 89,885	$ 106,939	$ 1,532,897
2050	$ 1,532,897	$ 48,697	$ 88,361	$ 111,844	$ 1,605,077
2051	$ 1,605,077	$ 49,831	$ 86,514	$ 117,326	$ 1,685,720
2052	$ 1,685,720	$ 51,023	$ 84,414	$ 123,452	$ 1,775,781
2053	$ 1,775,781	$ 52,278	$ 82,146	$ 130,291	$ 1,876,204
2054	$ 1,876,204	$ 53,589	$ 79,815	$ 137,911	$ 1,987,889
2055	$ 1,987,889	$ 54,957	$ 77,323	$ 146,382	$ 2,111,905
2056	$ 2,111,905	$ 56,376	$ 74,679	$ 155,784	$ 2,249,386
2057	$ 2,249,386	$ 57,835	$ 71,870	$ 166,202	$ 2,401,553
2058	$ 2,401,553	$ 59,356	$ 69,046	$ 177,723	$ 2,569,586
2059	$ 2,569,586	$ 60,917	$ 66,237	$ 190,433	$ 2,754,699
2060	$ 2,754,699	$ 62,529	$ 63,429	$ 204,425	$ 2,958,224
2061	$ 2,958,224	$ 64,196	$ 60,638	$ 219,565	$ 3,181,347

See independent auditors' report

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

Investment Section

NEPC, LLC

KRISTIN FINNEY-COOKE, CAIA
SENIOR CONSULTANT

WILL FORDE, CAIA
CONSULTANT

DEANNA I. JONES
SENIOR ANALYST

April 24, 2019

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,

NEPC, LLC currently serves as the pension consultant for the Public School Retirement System of the City of St. Louis. In our role as the pension consultant, we assist the Board in several manners. We guide the overall asset allocation strategy of the Plan; draft the investment policy of the Plan (and amendment of when necessary); conduct investment manager searches (both traditional and alternative asset classes); provide ongoing performance evaluation for each individual investment manager, each asset class composite, and the overall investment portfolio as a whole; and on an ongoing basis we provide pertinent education to the Board.

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 postemployment benefits to members and their beneficiaries. To ensure a solid foundation for the future of the System, the Public School Retirement System of the City of St. Louis has implemented an investment program designed to achieve the actuarial assumed rate of return in the long term, while prudently managing the risk of the portfolio.

Although investment manager performance is key to the future "success" of the Plan, the overall asset allocation policy will be the primary determinant of such "success." Modern portfolio theory maintains that long term investors, who assume prudent levels of risk, will be rewarded with incremental returns above lower returning and risk free assets (i.e. T-Bills). The pension fund, in its asset allocation policy, is required to satisfy the need to pay accumulated/earned retirement benefits today, while at the same time be prepared for "uncertain" future benefits. As such, the asset allocation policy looks to meet this objective. It takes into consideration the diversification of asset classes, but more importantly, the diversification of the risk contribution of each asset class to the investment program which in turn reduces the overall volatility of the portfolio while garnering the highest expected risk adjusted returns.

Return data for the Fund was reconciled from manager provided time-weighted returns that were calculated in accordance with the CFA Institute's Global Investment Performance Standards (GIPS). Valuations, where available, are based on published national securities exchange prices, as provided by PSRS's custodian, US Bank.

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This letter summarizes the structure and performance of the Public School Retirement System of the City of St. Louis Fund through the Fiscal Year ending December 31, 2019.

Asset Allocation and Investment Performance

During the year ending December 31, 2019, the Fund returned +16.8% gross of fees, which ranked it in the 79th percentile of public funds with assets between $250 million and $1.0 billion within the InvestorForce Public Fund Defined Benefit Universe. Assets increased from $809.37 million at the end of fiscal year 2018 to approximately $887.12 million as of year-end 2019. Over the trailing 5-year period ending December 31, 2019, the Fund earned an annualized rate of return of 6.4%, ranking in the 77th percentile of the comparative universe. Over the trailing 10-year period ending December 31, 2019, the Fund earned an annualized rate of return of 7.9%, ranking in the 64th percentile.

At the December 31, 2019 fiscal year end, the asset allocation of the Plan was 49.7% equities, 22.9% fixed income, 5.3% global asset allocation strategies, 5.5% hedge funds, 6.5% real estate, 2.3% private equity, 2.9% private debt strategies, and 4.9% cash.

Market Commentary

Calendar year 2019 couldn't come quickly enough for investors; not only did most major asset classes end 2018 in the red, but US equities suffered their worst December since the 1930s. This wave of risk aversion was felt broadly as safe-haven fixed income rallied with Treasury yields declining in the final weeks of last year. Still, those looking to 2019 for respite may be disappointed. We believe investors, accustomed to the extended period of calm in the markets, need to reset their expectations and brace for higher levels of volatility. In addition, the US economy has entered the late stage of its expansionary cycle, negatively skewing the range of market outcomes in the coming years. As a result, our investment outlook reflects a more risk-averse posture. That said, the late stage of an expansionary economic cycle does not imply the end of the cycle. Currently, we see scant evidence to suggest a recession is imminent in the United States. Looking back, investors had few places to hide in 2018. Using a proxy of 10 major asset classes, core bonds were the only ones to avoid negative territory, finishing a rounding error above zero. While the magnitude of losses for 2018 was far less than 2008 or 2000, the breadth of asset classes performing poorly was unparalleled over the last 30 years.

Global Equity Markets

Equities ended 2019 in a blaze of glory with emerging markets leading the way with fourth-quarter returns of 11.8%, bolstered by a trade pact between the United States and China; non-US developed market stocks were up 8.2% and US small-cap equities gained 9.9% during the same period. In the US, growth outperformed value by 3.2%, in line with a trend established in the aftermath of the financial crisis, with the annualized difference totaling 3.6% over the last 10 years. We continue to recommend a balanced exposure across value and growth stocks. While small caps edged out large caps for the three months ended December 31, large caps carried the year with returns of 31.5%, according to the S&P 500 Index, trouncing the Russell 2000 Index's gains of 25.4%. Outside the US, developed market small caps outperformed large caps by 3% with returns of 24.9%.

Elsewhere, private equity fundraising totaled $182 billion globally in the fourth quarter, bringing the total for the year to $614 billion, in line with the past three-year average of $603 billion, according to data from Preqin. Buyout activity in the fourth quarter stood at $140 billion compared to an average of $176 billion over the prior four quarters, according to PitchBook data. Additionally, buyout exit activity slowed for the three months ended December 31, totaling $73 billion compared to an average of $88 billion in the earlier four quarters. Buyout activity totaled $318 billion, the lowest since 2012. On the other hand, venture capital deal activity ticked up in the fourth quarter to $34 billion, up $2 billion from the previous quarter. Venture capital exit activity in the same period stood at $19 billion, down from $43 billion in the third quarter; however, for the year, venture capital-backed exit value hit a 10-year high of $256 billion, according to PitchBook.

Global Fixed Income Markets

Fixed-income securities ended 2019 in the black, reversing declines from the year earlier. Spreads on high-yield credit narrowed for most part of the year, but segments in the high yield and bank loan market showed signs of stress towards the end of 2019. On a risk adjusted basis, high-yield and bank loan CCC-bonds posted their worst performance since the financial crisis. US credit ended the year up 13.7%, according to the Bloomberg Barclays Aggregate Index, while the Bloomberg Barclays High Yield Index gained 14.3% in 2019; the S&P LSTA Leveraged Loan Index returned 10.6% during the same period. Meanwhile, credit hedge funds had a positive quarter, underscoring the flight to quality as investors gravitated towards higher-rated assets while distressed strategies lagged. The HFRI Credit Index was up 6.7% in 2019, while the HFRI ED: Distressed/Restructuring Index returned 2.9% last year. Outside the US, emerging market debt performed robustly but concerns were elevated due to heightened geo-political risks and an overall slowdown in global growth. The JPM EMBI Index was up 15%, while the JPM GBI Index was in the black, gaining 13.4% last year. The significant growth of credit since the financial crisis, combined with deteriorating quality and increasing amounts of leverage, may eventually create opportunities in distressed debt. Niche lending and investment-grade collateralized loan obligations (CLOs) offer the potential for risk-compensation given their structural nuances and potential for credit selection.

Real Assets

The Bloomberg Commodity Index rose 4.4% in the fourth quarter. Mining, agriculture and energy equities were in the black during the same period, with gains of 12.6%, 9.8% and 6.2%, respectively. Given persistent negative-roll yields for most commodities and low interest rates, we still believe that equities of natural resources—and not direct ownership—offer a more efficient way to gain exposure to this asset class. Midstream energy ended the year up more than 24%. Performance between master limited partnerships (MLPs) and c-corps diverged significantly in 2019, with the Alerian MLP Index underperforming the Alerian Midstream Energy Index, a broader index inclusive of c-corps.

Meanwhile, real estate investment trusts (REITs), represented by the FTSE NAREIT Composite Index, wavered in the fourth quarter as concerns over valuations put a stop to the year-long rally. Still, REITs ended the year as one of the strongest performers within real assets, returning 28%; property types with robust demographic drivers (data centers, industrial, healthcare) as well as defensive properties (net lease) led performance. Overall, REITs are trading at a premium of over 15% to consensus net asset values, although discounts can still be found in the retail and office space.

In private real estate, core returns were modest compared to the past 10 years, with the NCREIF ODCE Index reporting a third quarter gross return of 1.3% (the most recent quarterly data available). Our view is that core real estate returns will continue to moderate, with most of the gains coming from current income. Retail continues to show weakness as e-commerce cuts into sales of traditional retailers; regional malls are the hardest hit, while grocery-anchored centers have proven resilient.

Sincerely,

Kristin Finney Cooke, CAIA
Senior Consultant

Public School Retirement System
of the City of St. Louis

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-regulations-statutes/

Public School Retirement System of the City of St. Louis

Schedule of Investments
Year Ended December 31, 2019

Investment Category	% of MV	Market Value (MV)	Cost	MV Over (Under) Cost
Cash Equivalents	5.68%	$50,133,288	$50,133,288	$0
U.S. Government and Agency Issues	3.63%	32,071,483	31,866,509	204,974
Corporate Bonds	3.53%	31,181,568	31,302,211	(120,643)
Foreign Investments (bonds & stocks)	9.75%	86,066,721	78,685,343	7,381,378
Common and Preferred Stocks	22.86%	201,795,327	151,824,846	49,970,481
Mutual and Co-Mingled Funds	43.15%	380,889,694	283,264,849	97,624,845
Real Estate Partnerships	5.49%	48,419,609	30,625,054	17,794,555
Limited Partnerships	5.90%	52,066,573	50,954,260	1,112,313
Total	**100.0%**	**$882,624,263**	**$708,656,360**	**$173,967,903**

Market Value of All Assets
Years Ended December 31, 2017 – 2019

Investment Category	December 31, 2017		December 31, 2018		December 31, 2019	
	Market Value	% of Total	Market Value	% of Total	Market Value	% of Total
Cash, Receivables, Cash Equivalents	$51,686,795	5.64%	$47,418,782	5.77%	$60,764,240	6.78%
Property and Building	1,747,704	0.19%	1,680,266	0.20%	1,623,368	0.18%
U.S. Government & Agency Issued Bonds	28,241,695	3.08%	28,998,131	3.53%	32,071,483	3.58%
Corporate Bonds	33,283,520	3.63%	32,811,378	3.99%	31,181,568	3.48%
Foreign Investments (bonds and stocks)	91,518,408	9.99%	73,501,212	8.94%	86,066,721	9.61%
Common and Preferred Stocks	216,329,735	23.62%	185,412,081	22.56%	201,795,327	22.53%
Mutual and Co-Mingled Funds	411,565,601	44.94%	360,023,724	43.80%	380,889,694	42.53%
Real Estate Partnerships	55,324,668	6.04%	48,471,908	5.90%	48,419,609	5.41%
Limited Partnerships	25,708,057	2.81%	42,695,453	5.19%	52,066,573	5.81%
Other Assets	382,152	0.04%	1,019,600	0.12%	742,621	0.08%
Total	**$915,788,335**	**100.0%**	**$822,032,535**	**100.0%**	**$895,621,204**	**100.0%**

Public School Retirement System of the City of St. Louis

For the fiscal year ended December 31, 2019, the PSRSSTL portfolio posted a gain of 16.8%, ranking 79th within the Investor Force Universe (IFU) of Public Funds. For the three-year and five-year periods ending December 31, 2019, the PSRSSTL portfolio ranked 69th and 77th, returning 8.9% and 6.4%, respectively.

Investment returns for the retirement system's portfolio, stocks, fixed income and other investments for the one-year, three-year and five-year periods ending December 31, 2019 are set forth below.

	Annualized Returns for Periods Ended[1] December 31, 2019, gross of fees		
Investment Category	**One Year**	**Three Years**	**Five Years**
PSRS Total Portfolio	16.8%	8.9%	6.4%
Allocation Index[2]	17.2%	8.8%	6.7%
PSRS Domestic Equity	29.9%	14.4%	10.8%
Russell 3000	31.0%	14.6%	11.2%
PSRS International Equity	23.5%	9.5%	5.5%
MSCI EAFE	22.0%	9.6%	5.7%
PSRS Emerging Market Equity	20.7%	13.2%	6.8%
MSCI Emerging Markets	18.4%	11.6%	5.6%
PSRS Global Equity	27.1%	12.8%	-
MSCI All Country World	27.7%	12.6%	8.7%
PSRS Global Asset Allocation	16.5%	7.7%	5.4%
60% MSCI World 40% FTSE WGBI	18.8%	9.3%	6.2%
PIMCO All Asset Index	11.3%	5.1%	4.3%
65% MSCI World 35% Barc Agg	21.0%	9.7%	6.9%
PSRS Fixed Income	8.2%	4.8%	3.8%
Barclays US Aggregate	8.7%	4.0%	3.6%
Barclays GL Aggregate Hedged	8.2%	4.3%	3.4%
3-Month LIBOR + 3%	5.4%	5.1%	4.5%
50% JPM GBI-EM/50% JPM EMBI	13.9%	6.9%	4.3%
PSRS Hedge Funds	5.1%	2.6%	1.4%
HFRI FOFs Composite	8.3%	3.9%	2.4%
HFRI RV Multi-Strategy	5.3%	3.0%	3.2%
PSRS Real Estate	-0.1%	5.0%	6.9%
NCREIF	6.2%	6.8%	8.6%

[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 pension fund.

Asset Allocation and Investment Managers
As of December 31, 2019 (in thousands)

	RELATIVE TO:	TOTAL PORTFOLIO						ASSET CLASS	
ASSET CLASS		MARKET VALUE		TARGET VALUE		VARIANCE		MARKET VALUE	
Money Manager	Management Style	Value	%	Value	%	Value	%	Value	%
LARGE CAP GROWTH DOMESTIC EQUITIES		59,781	6.7%	49,128	5.5%	10,653	1.2%		
Intech	Large Cap Growth							26,064	43.6%
TCW Asset Management	Large Cap Growth							33,717	56.4%
LARGE CAP CORE DOMESTIC EQUITIES		4,566	0.5%	17,865	2.0%	(13,299)	-1.5%		
Mellon Stock Index Fund	Large Cap Core							4,566	100.0%
LARGE CAP VALUE DOMESTIC EQUITIES		76,014	8.5%	49,128	5.5%	26,886	3.0%		
Chicago Equity Partners	Large Cap Value							43,636	57.4%
The Edgar Lomax Company	Large Cap Value							32,378	42.6%
MID/SMALL/MICRO CAP DOMESTIC EQUITIES		78,193	8.8%	80,391	9.0%	(2,198)	-0.2%		
Westfield Capital Management	Small Cap Growth							26,979	34.5%
Systematic Financial Management	Small Cap Value							28,797	36.8%
Dimensional Fund Advisors (DFA)	Micro Cap							22,417	28.7%
GLOBAL TACTICAL ASSET ALLOCATION		46,806	5.2%	44,662	5.0%	2,144	0.2%		
GMO	Balanced Fund							16,021	34.2%
Mellon Global Alpha	Balanced Fund							15,362	32.8%
PIMCO	Balanced Fund							15,423	33.0%
GLOBAL EQUITIES*		50,576	5.7%	44,662	5.0%	5,914	0.7%		
ARGA	Global Equities							14,255	28.2%
Ativo Capital Management	Global Equities							14,261	28.2%
Brown Capital Management	Global Equities							3,373	6.7%
Channing	Global Equities							2,811	5.6%
Strategic Global Advisors	Global Equities							15,876	31.4%
INTERNATIONAL EQUITIES		171,377	19.2%	196,512	22.0%	(25,135)	-2.8%		
Dimensional Fund Advisors (DFA)	Emerging Markets							17,479	10.2%
Invesco *(formerly OFI Global Asset Management)*	Emerging Markets							30,758	17.9%
LMCG Investments LLC	Emerging Markets Small Cap							28,375	16.6%
Fidelity Institutional Asset Mangement	International Equities							47,036	27.4%
Causeway	International Equities							47,729	27.9%
CORE DOMESTIC BONDS		68,522	7.7%	71,459	8.0%	(2,937)	-0.3%		
EARNEST Partners	Core Domestic Bonds							12,426	18.1%
Manulife Asset Management	Core Domestic Bonds							43,324	63.2%
Piedmont Investment Advisors (formerly NCM)	Core Domestic Bonds							12,772	18.6%
ABSOLUTE RETURN DOMESTIC BONDS		42,658	4.8%	44,662	5.0%	(2,004)	-0.2%		
Loomis Sayles	Unconstrained Fixed Income							42,658	100.0%
TREASURY INFLATION-PROTECTED SECURITIES	TIPS	25,182	2.8%	26,797	3.0%	(1,615)	-0.2%		
Mellon TIPS Index Fund								25,182	100.0%
EMERGING MARKETS DEBT		28,002	3.1%	26,797	3.0%	1,205	0.1%		
Lazard Asset Management	Emerging Markets							28,002	100.0%
GLOBAL MULTI-SECTOR BONDS		38,570	4.3%	44,662	5.0%	(6,092)	-0.7%		
Neuberger Berman Trust Co.	Global Opportunistic Bonds							38,570	100.0%
HEDGED STRATEGIES		49,067	5.5%	44,662	5.0%	4,405	0.5%		
EnTrustPermal	Fund of Funds							1,591	3.2%
Grosvenor Capital Management	Fund of Funds							28,256	57.6%
Whitebox Advisors	Multi-Strategy Direct							19,220	39.2%
REAL ESTATE		48,420	5.4%	62,526	7.0%	(14,106)	-1.6%		
UBS Trumbull Property & Income Funds	Commercial Real Estate							48,420	100.0%
PRIVATE MARKETS		52,067	5.8%	89,324	10.0%	(37,257)	-4.2%		
Private Equity, Private Debt, Private Real Estate	Limited Partnerships							52,067	100.0%
CASH *(Does Not Include Managers' Residual Cash)*		53,434	6.0%	0	0.0%	53,434	6.0%		
U.S. Bank (checking & operating accounts)	Cash Accounts							53,434	
TOTAL (000's Omitted)		**$893,235**	**100.0%**	**$893,235**	**100.0%**			**$893,235**	

*Managed by Progress Investments Management Co, at end of fiscal year 2019.

The target values above represent the Asset Allocation Policy adopted by the Board of Trustees on February 25, 2019. Entrust Permal was terminated in 2018 for poor performance and remained in liquidation at the end of fiscal year 2019. There were several investment money manager changes in fiscal year 2019 that required action by the Board of Trustees. The System hired LMCG Investments and Mellon to manage a $25 million emerging markets small cap portfolio and a $25 million TIPS portfolio, respectively. The new investments were funded by reallocating assets from other investment asset classes. OFI Global Asset Management merged with Invesco in 2019, and Progress Investments Management Company announced its closure at the end of May 2020. As of the 2019 fiscal year end, the Board of Trustees was expected to begin the search for a manager to replace Progress Investments during the first quarter of fiscal year 2020.

Domestic Equity Investments

Domestic Equity Performance & Characteristics	
2019 Return	29.9%
Weighted Avg. Market Capitalization	$218.55 Billion
P/E Ratio	22.25
Price/Book Ratio	5.06
Five-Year Annualized Return	10.8%

PSRSSTL Ten Largest Domestic Equity Holdings

Company	% of Holdings	Company	% of Holdings
Target	1.5	Chevron	1.1
Apple	1.4	J.P. Morgan Chase & Co.	1.1
Amazon.com	1.3	Alphabet ‘C’	1.0
First American	1.2	Verizon Communications	1.0
Visa ‘A’	1.2	Facebook Class A	1.0

Top Ten Contributors to the PSRSSTL Domestic Equity Portfolio Relative to the Russell 3000 Stock Index

Company	Contribution %	Return%	Company	Contribution %	Return%
Medicines Company	0.2	69.9	Cohu	0.1	69.7
Target	0.2	20.6	Eldorado Resorts	0.1	49.6
Align Technologies	0.1	54.2	Ironwood Pharms	0.1	55.0
Ascendis Pharma ADR	0.1	44.4	Adobe (NAS)	0.1	19.4
Splunk	0.1	27.1	Trade Desk CL.A	0.1	38.5

Bottom Ten Contributors to the PSRSSTL Domestic Equity Portfolio Relative to the Russell 3000 Stock Index

Company	Contribution %	Return%	Company	Contribution %	Return%
Apple	-0.7	31.5	Netflix	-0.1	20.9
Microsoft	-0.5	13.8	Johnson & Johnson	-0.1	13.5
United Health Group	-0.2	35.8	Facebook Class A	-0.1	15.3
Alphabet A	-0.1	9.7	Amazon.com	-0.1	6.4
Amgen	-0.1	25.4	Berkshire Hathaway ‘B’	-0.1	8.9

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, 2019, excluding pooled or mutual funds.

PSRSSTL Domestic Bond Portfolio Performance & Characteristics	
2019 Return	0.4%
Average Yield to Maturity	3.1%
Average Duration	5.2 Years
Average Quality Rating	A
Five-Year Annualized Return	3.8%

The PSRSSTL Investment & Operating Guidelines require the average duration (interest rate sensitivity) of the PSRSSTL domestic bond portfolio to remain seven years or less. Since the average duration of the PSRSSTL domestic bond portfolio was 5.2 years at the end of fiscal year 2019, the System's domestic bond money managers met this requirement in 2019.

PSRSSTL Domestic Bond Portfolio Quality Ratings	Percentage of PSRSSTL Domestic Bond Portfolio (%)
AAA	6.3
AA	46.2
A	13.2
BBB	23.5
BB and Below	10.8
Not Rated	0.0

The PSRSSTL Board of Trustees requires the overall average quality rating of high-grade fixed income investments to be "AA" or better. Although the System no longer invests in a traditional high-yield fixed income strategy, the average quality rating of securities held in these types of bonds is required to be "B" or better. Since almost 100% of the PSRSSTL domestic bond portfolio was rated "BB" or better at the end of fiscal year 2019, the System's domestic bond money managers met the plan's requirements for the year.

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, 2019, excluding pooled or mutual funds.

Public School Retirement System
of the City of St. Louis

Brokerage Commissions Paid
Year Ended December 31, 2019

Company	Commissions	Company	Commissions	Company	Commissions
Autonomous	$ 28.38	Guzman & Co.	$ 409.12	Oppenheimer & Co.	$ 110.00
Baird & Company	744.82	Haitong International Securities	285.05	Parel	202.56
Barclays Capital	3,939.62	Hong Kong & Shanghai Bank	14.12	Penserra Securities	943.53
Berenberg Gossler	825.92	HSBC	2,549.97	Pershing Securities	525.96
BMO Capital Markets	48.00	Instinet	9,491.00	Piper Jaffray	1,016.27
BNP Paribas Security Services	2,034.71	ITG	7,516.75	Raymond James	403.47
BofA Securities, Inc.	637.53	J P Morgan	3,987.71	RBC Capital Markets	2,888.77
BTIG LLC	74.80	Jeffries & Co.	9,556.19	Redburn Partners	361.92
Cabrera Capital Markets	8,125.09	JMP Securities	126.38	Rosenblatt Securities	1,111.64
Cantor Fitzgerald	170.31	Johnson Rice & Co.	12.16	Sandler O'Neill & Partners	145.80
Cap Institutional Services	5,386.37	Jones Trading	458.87	Sanford C. Bernstein & Co	3,268.73
Citigroup	5,334.07	Keefe Bruyette & Woods	279.79	Seaport Group Securities	94.93
CL King & Associates	1,833.75	Keybanc Capital Markets	212.82	SG Securities	1,158.24
CLSA Limited	1,404.65	Leerink Partners LLC	56.00	SMBC Securities	501.39
Cornerstone	98.71	Liquidnet Inc.	5,855.01	State Street	7,846.72
Cowen & Co.	9,660.65	Longbow Securities LLC	66.40	Stephens Inc.	149.55
Cowen Execution Services	9,279.08	Loop Capital Markets	6,312.29	Stifel Nicolaus & Co.	309.61
Credit Suisse Securities	8,614.71	Luminex Trading & Analytics	645.92	Sturdivant & Co., Inc.	2,646.89
CV Brokerage	2,368.54	Macquarie Securites	1,439.43	Suntrust Capital	307.42
Daiwa	1,683.35	Merrill Lynch	3,715.48	Telsey Advisory Group	15.99
Davidson & Co.	60.36	Mischler Financial Group	13,036.60	UBS	7,918.98
Deutsche Bank Securities	977.13	Mizuho Securities USA	314.85	Virtu Americas LLC	1,076.61
Evercore	438.66	MKM Partners	658.61	Wedbush Morgan Securities	14.60
Exane SA	608.40	Morgan Stanley	4,589.19	Weeden & Co.	1,217.89
FIG Partners	6.36	Needham & Company	214.70	Wells Fargo Securities LLC	1,539.68
Goldman Sachs	597.54	North South Capital	522.02	William Blair & Co. LLC	27.07
Goodbody	5.70	Numis Securities Inc.	24.18	Williams Capital Group	275.62
Guggenheim Securities	92.00	O'Neil Securities Inc.	79.20		
				2019 Total Commissions	**$ 173,588.86**

Public School Retirement System of the City of St. Louis

Investment Management Fees and Expenses
Years Ended December 31, 2019 and 2018

Investment management fees	2019	2018
Ativo Capital Management	$ 90,280	$ 86,353
Arga Investment Management	90,535	92,986
Brown Capital Management	20,510	22,434
Causeway Capital Management	307,270	312,167
Channing Capital Management	17,107	17,495
Chicago Equity Partners	159,787	163,020
Earnest Partners	32,298	30,586
Edgar Lomax Company	174,801	171,119
Entrust Capital Diversified Fund LTD	8,265	256,211
Fidelity Institutional Asset Management	262,075	284,865
Intech Investment Management	134,874	129,963
Lazard Asset Management	224,686	226,965
Loomis Sayles & Company, LP	228,616	224,510
Manulife Asset Management	136,970	128,204
Mellon Capital Management	195,639	261,362
NCM Capital (Piedmont)	36,877	34,450
OFI Global Asset Management	227,917	237,374
Strategic Global	110,339	113,537
Systematic Financial Management	287,991	293,730
TCW Asset Management Company	212,735	213,531
UBS Realty Investors LLC	408,311	456,234
US Bank Trust	125,358	114,805
Westfield Capital Management	271,750	267,684
Whitebox Multi-Strategy Fund, L.P.	286,954	282,141
Total Investment Management Fees	4,051,945	4,421,726
NEPC, LLC	179,888	183,362
Limited partnership initial interest	-	274,883
Banking services	24,841	26,569
Total Investment Expenses	$ 4,256,674	$ 4,906,540

"through benefit programs and services which are soundly financed and…

Actuarial Section

231 South Bemiston
Suite 400
Clayton, MO 63105

June 2019

Mr. Andrew Clark
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, 2019 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, 2019 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, 2019.

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 on page 68. 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 my opinion, the actuarial assumptions used are reasonable, taking into account the experience of the System and reasonable long-term expectations, and represent my 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 beginning on page 80.

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 the Annual Required Contribution schedules, 10-year Schedules of Employer Contributions, Actuarial Assumptions, Schedule of Actuarial Present Values of Projected Benefit Payments, and Schedule of Projection of Fiduciary Net Position found in the Financial Section of this report.

Buck prepared the Annual Required Contribution schedules, Actuarial Balance Sheet, Schedule of Funding Progress, schedule of Projected Unit Credit Funding Status, Prioritized Solvency Test Results, Development of the Actuarial Value of Assets worksheet, History of the Expense and Contingency Reserve, Investment Performance worksheets, Member Census data, and all tables found in the actuarial Summary of Methods and Assumptions in this Actuarial Section.

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.

I 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. I 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,

Troy Jaros

Troy Jaros, FSA, EA, MAAA, FCA
Director, Retirement Actuary

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, 2019; and
- Determine the required contribution rate for 2020.

After the summary and analysis of the valuation results, this report is divided into sections. One section contains the results of the valuation and includes the experience of the System during the 2018 plan year, the actuarially required costs and funded levels.

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

The final section of this report 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.

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 2018 plan year, total (net) actuarial losses due to plan experience were $52.8 million. Approximately $24.4 million is a loss attributable to the System's actuarial rate of return on assets which was 4.5%, or 3.0% lower than the assumed rate of return of 7.5% for plan year 2018. By comparison, the rate of return on the market value of assets during plan year 2018 was -4.7%. The difference in these returns is due to the asset smoothing. Market value returns were lower than expected, but these returns are smoothed over 5 years in the actuarial value, rather than realized immediately. As of January 1, 2019, the actuarial value of assets of $886.2 million is above market value of assets (excluding the expense and contingency reserve) by approximately $97.5 million.

An actuarial loss of approximately $28.4 million attributable to demographic experience is included in the above total (net) actuarial loss of $52.8 million.

Assumption Changes

For the 2019 valuation, no assumptions were changed. A detailed description of the assumptions appears in the basis of the valuation section under the summary of methods and assumptions.

Plan Changes

For the 2019 valuation, the new tier employees hired on or after January 1, 2018 came into the plan due to legislation that was passed on August 28, 2017. These employees have a pension multiplier of 1.75% and a contribution rate of 9.00%. This Plan change decreased the January 1, 2019 actuarial accrued liability by approximately $1.9 million.

Normal cost rate

The normal cost is determined annually and equals the product of the normal cost rate times covered payroll. For plan year 2019, the annual normal cost contribution is $23,671,923, as compared to $21,038,975 for plan year 2018. This increase is primarily due to the legislative changes in future employee contributions, slightly offset by the new tier of employees coming into the plan with a 1.75% pension multiplier. The annual normal cost rate increased from 7.63% to 8.65% due to these legislative changes. Covered payroll decreased from $265.8 million to $263.8 million.

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 2018 were $0.9 million lower than the annual required contribution, which increased the UFAAL more than expected. However, the legislative changes for the new tier of employees decreased the UFAAL by $1.9 million. As a result, the net amortization payment decreased from $26,057,188 to $25,757,940. The amortization payment component of the contribution rate stayed level at 9.8% 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 2019, due to the Plan no later than December 31, 2020. 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, 2020, decreased to $29,884,664 for plan year 2019 from $31,344,663 for plan year 2018.

As a percentage of covered payroll in plan year 2019, the contribution rate for plan year 2019 decreased to 15.50% from 16.00% for plan year 2018. 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 15.50% that Charter Schools should be paying beginning with payroll periods ending on or after January 1, 2019.

According to the 2019 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 18.74% versus the 15.50% contribution rate for plan year 2019 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.

Annual Required Contribution

	Board of Education		Retirement System		Charter Schools		Total
2019							
Normal cost contribution	$	17,304,137	$	36,134	$ 6,331,652	$	23,671,923
Actuarial accrued liability contribution		18,829,013		39,318	6,889,609		25,757,940
Actuarially determined contribution (ADC)	$	36,133,150	$	75,452	$ 13,221,261	$	49,429,863
Covered payroll		192,817,182		402,634	70,552,564		263,772,380
ADC as % of covered payroll		18.74%		18.74%	18.74%		18.74%
Statutory required contribution rate		15.50%		15.50%	15.50%		15.50%
Statutory annual required contribution (ARC)	$	29,884,664	$	64,408	$ 10,935,647	$	40,884,719
2018							
Normal cost contribution	$	15,508,017	$	44,028	$ 5,486,930	$	21,038,975
Actuarial accrued liability contribution		19,206,986		54,530	6,795,672		26,057,188
Actuarially determined contribution (ADC)	$	34,715,003	$	98,558	$ 12,282,602	$	47,096,163
Covered payroll		195,904,143		556,184	69,313,332		265,773,659
ADC as % of covered payroll		17.72%		17.72%	17.72%		17.72%
Statutory required contribution rate		16.00%		16.00%	16.00%		16.00%
Statutory annual required contribution (ARC)	$	31,344,663	$	88,989	$ 11,090,133	$	42,523,785

	January 1, 2019	January 1, 2018
System Assets		
Expense and contingency reserve	$ 30,776,068	$ 30,751,247
Market value, excluding expense & contingency reserve	788,673,825	883,331,012
Actuarial value	886,156,011	899,816,911
System liabilities		
Unfunded actuarial accrued liability	$ 242,999,368	$ 252,911,307
Projected Unit Credit (PUC) Actuarial Accrued Liability	$1,238,153,321	$1,235,909,034
Entry Age Normal (EAN) Actuarial Accrued Liability	$1,268,885,279	$1,266,012,715
PUC Funding Ratio		
Actuarial value funding ratio	71.6%	72.8%
Market value funding ratio	63.7%	71.5%
EAN Funding Ratio		
Actuarial value funding ratio	69.8%	71.1%
Market value funding ratio	62.2%	69.8%

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 2018 was -4.69%. The approximate actuarial value rate of return was 4.50%.

(2) Demographic Experience

The number of active members decreased from 5,138 to 5,049 for the period. The average service of active members increased slightly, while the average age remained unchanged, and the average annual salary increased by $505 (1.0%). There were small changes in the inactive statistics. The membership statistics can be found under Member Census Information of this Actuarial Section.

(3) Salary Increases

The average annual salary increased by 1.0% between January 1, 2018 and January 1, 2019. Total annual covered payroll decreased by 0.8% between January 1, 2018 and January 1, 2019.

(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

Effective August 28, 2017, legislation was passed that changed the benefit provisions of employees hired on or after January 1, 2018. These employees have a pension multiplier of 1.75% and a contribution rate of 9.00%. The impact of this change was to decrease the January 1, 2019 Entry Age Normal Actuarial Accrued Liability by $1.9 million.

Details of the legislative changes can be found on page 94 of the Statistical Section.

(7) Other Changes

There have been no other changes since the prior valuation.

(8) Summary

The overall effect of experience during the period, along with the changes in assumptions, resulted in a decrease in the PUC funding ratio utilizing the actuarial value of assets from 72.8% to 71.6%. The total actuarially determined contribution rate increased from 17.72% to 18.74% of covered payroll.

Actuarial Balance Sheet as of January 1, 2019

Actuarial assets		
Actuarial value of current assets		$ 886,156,011
Actuarial present value of future participant contributions		136,416,579
Actuarial present value of future employer contributions for:		
Normal costs		148,810,129
Unfunded actuarial accrued liability		242,999,368
Total current and future assets		$ 1,414,382,087
Actuarial liabilities		
Actuarial present value of benefits now payable		$ 897,846,332
Actuarial present value of benefits payable in the future:		
Active participants	$ 482,313,861	
Terminated vested participants	25,287,842	
Terminated non-vested participants	8,934,052	
Total payable in the future		516,535,755
Total liabilities for benefits		$ 1,414,382,087
Surplus / (deficit)		0

Funding Progress

The Retirement System uses the “frozen entry age actuarial cost” funding method. Please refer to the actuarial Summary of Methods and Assumptions for an explanation on the method. Here is the schedule of the System’s funding progress over the last ten years.

Schedule of Funding Progress

Last Ten Years

Actuarial Valuation Date January 1,	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) Frozen Entry Age (b)	Unfunded AAL (UAAL) (b – a)	Funded Ratio (a / b)	Annual Covered Payroll (c)	UAAL as a % of Annual Covered Payroll ((b – a) / c)
2010	$ 950,709,944	$ 1,076,002,070	$ 125,292,126	88.4%	$ 241,958,133	51.8%
2011	$ 944,356,735	$ 1,066,270,852	$ 121,914,117	88.6%	$ 218,308,239	55.8%
2012	$ 925,389,359	$ 1,090,318,706	$ 164,929,347	84.9%	$ 234,760,091	70.3%
2013	$ 914,494,335	$ 1,085,124,658	$ 170,630,323	84.3%	$ 225,893,514	75.5%
2014	$ 922,922,386	$ 1,093,394,768	$ 170,472,382	84.4%	$ 243,280,015	70.1%
2015	$ 926,905,797	$ 1,093,593,248	$ 166,687,451	84.8%	$ 245,699,583	67.8%
2016	$ 915,391,079	$ 1,077,693,143	$ 162,302,064	84.9%	$ 252,127,288	64.4%
2017	$ 901,076,683	$ 1,133,555,454	$ 232,478,771	79.5%	$ 260,223,066	89.3%
2018	$ 899,816,911	$ 1,152,728,218	$ 252,911,307	78.1%	$ 265,773,659	95.2%
2019	$ 886,156,011	$ 1,129,155,379	$ 242,999,368	78.5%	$ 263,772,380	92.1%

Projected Unit Credit Funding Ratios

The funding objective of the System is to meet long-term pension obligations 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 projected pension obligation attributable to current active participants.

Here is a comparison of this liability measure to the value of assets to produce a snapshot measure of the System's funding ratios.

Projected Unit Credit Funding Status

As of January 1, 2019, the Projected Unit Credit Actuarial Accrued Liability was:

1.	Retired members and beneficiaries currently receiving benefits and terminated members not yet receiving benefits	$ 932,068,226
	a. Current active participants	
	i. Accumulated member contributions, including interest	126,636,422
	ii. Employer-financed benefits	179,448,673
	Total Projected Unit Credit Actuarial Accrued Liability	$ 1,238,153,321

As of January 1, 2019 the Projected Unit Credit AAL was funded as follows:

2.	Net assets available for benefits at actuarial value	$ 886,156,011
3.	Unfunded Projected Unit Credit AAL	351,997,310
4.	Actuarial value funding ratio, (2) / (1)	71.6%
5.	Net assets available for benefits at market value	$ 788,673,825
6.	Unfunded Projected Unit Credit AAL	449,479,496
7.	Market value funding ratio, (5) / (1)	63.7%

Prioritized Solvency Test

Another way to check the funding progress of the System is through a prioritized solvency test. In a prioritized solvency test, the plan's present assets (cash and investments) are sequentially allocated and compared with three priorities of liabilities as follows:

- Liability 1: Active participant contributions, accumulated with interest;
- Liability 2: The liabilities for future pensions to current inactive participants and beneficiaries; and
- Liability 3: The liabilities for future pensions 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 pensions since additional pensions typically are expected to be earned in the future. Here is a history of the System's funding progress under this test.

Prioritized Solvency Test Results
(1999 – 2019)

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%

Actuarial Value of Assets

The amount of assets used in the actuarial valuation is known as the "actuarial value of assets." The method is discussed under the Summary of Methods and Assumptions. The development of the actuarial value of assets is shown here.

Development of the Actuarial Value of Assets

1.	Actuarial value of assets as of January 1, 2018	$ 899,816,911
2.	Participant contributions	14,248,567
3.	Employer contributions	48,780,955
4.	Benefit payments and expenses	115,990,809
5.	Investment increment at 7.50%, 7.50% x {(1) + .5 x [(2) – (4)]}	63,670,934
6.	Expected actuarial value on January 1, 2019, (1) + (2) + (3) – (4) + (5)	910,526,558
7.	Market value of assets on January 1, 2019	819,449,893
8.	Expense and contingency reserve on January 1, 2019, prior to adjustment	30,776,068
9.	Adjustment to the investment contingency reserve	0
10.	Excess of market value over expected actuarial value, (7) – (6) – (8) – (9)	(121,852,733)
11.	Market value adjustment, 20% x (10)	(24,370,547)
12.	Actuarial value of assets as of January 1, 2019, (6) + (11)	886,156,011

Expense and Contingency Reserve

An important element in the development of the actuarial value of assets is the expense and contingency reserve. The amount of the reserve is determined pursuant to a policy adopted by the Board of Trustees.

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.

Here is the history of the expense and contingency reserve:

History of the Expense and Contingency Reserve
(1998 – 2019)

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

Investment Performance

The fund had a rate of return of 4.50% on an actuarial value basis, which is 3.00% below the assumed rate of return of 7.50% for plan year 2018. According to Rule X, the actuarial return on assets was not within 1.00% of 7.50% during plan year 2018; however, since the entire contingency reserve was released in 2009, no adjustment can be made to the actuarial value of assets.

The rate of return on an actuarial value basis is intended to be a more stable rate of return and fluctuate less than the rate of return on a market value basis. Thus, the rate of return on an actuarial basis is not always a fair measure of the annual investment performance of the fund. Another indicator of actual performance during the year is the rate of return on a market value basis, which was -4.69% for plan year 2018.

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

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, 2018	$ 914,082,259
ii.	B = Market value of assets as of January 1, 2019	819,449,893
iii.	C = Contributions during the period	63,029,522
iv.	D = Disbursements during the period	115,990,809
v.	Rate of return: $\frac{B - A + D - C}{A + \frac{1}{2}\,(C - D)}$	-4.69%
vi.	Actuarial assumed rate of return for 2018	7.50%
vii.	Difference between actual and assumed rates of return, (v) – (vi)	-12.19%

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, 2018	$ 899,816,911
ii.	B = Actuarial value of assets as of January 1, 2019	886,156,011
iii.	C = Contributions during the period	63,029,522
iv.	D = Disbursements during the period	115,990,809
v.	Rate of return: $\frac{B - A + D - C}{A + \frac{1}{2}\,(C - D)}$	4.50%
vi.	Actuarial assumed rate of return for 2018	7.50%
vii.	Difference between actual and assumed rates of return, (v) – (vi)	-3.00%

Plan Provisions and Members Census

The plan provisions of the System and the census of members are the foundation of the valuation, since these are the present facts upon which pension payments will depend.

Summary of Plan Provisions

The effects of administering the System's plan provisions have a direct impact on actuarial costs. The System uses the projected unit credit actuarial cost method discussed on page 71 for actuarial funding purposes, and the frozen entry age normal actuarial cost method discussed on page 81 for actuarial financial reporting purposes. The System's plan provisions follow.

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

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.

Summary of Plan Provisions (continued)

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 a month.
b. A widow with dependent, unmarried children under age 22 receives $60 a 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.

Summary of Plan Provisions (continued)

Return of contributions upon death

If after the death of a participant, no further monthly benefits 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.

DROP

Effective July 1, 2001, active participants may elect to enter the deferred retirement option plan (DROP) for up to four years. Upon entering the DROP, the participant's retirement benefit is frozen and credited to the participant's DROP account. At the end of the DROP, or upon earlier termination of employment, the DROP account is paid in a lump sum or installments, at the participant's option. During the DROP, the participant continues as an active participant, but does not pay contributions. To enter the DROP the participant must be age 65 or meet the Rule of 85. The DROP program is no longer available, ending June 30, 2008.

Contributions by participants

Participants hired before January 1, 2018, contribute 5.50% of compensation in 2018. This rate increases 0.50% per year until it reaches 9.00%. After this, the contribution rate will remain at 9.00% of compensation.

Participants hired on or after January 1, 2018, contribute 9.00% of compensation.

Accumulated contributions are credited at the rate of interest established by the board of trustees. The current crediting rate is 5% per year.

Contributions by employers

The employer contribution rate will be set at a flat 16.00% of covered payroll for Plan year 2018. This contribution rate shall be decreased by 0.50% in each subsequent Plan year until reaching 9.00% of covered payroll. After this, the employer contribution rate will remain at 9.00% of covered payroll.

Expenses

Administrative expenses are paid out of investment income.

Member Census (Last Two Years)

As of January 1	2018	2019
Active Members		
Number	5,138	5,050
Average Age	43.53	43.53
Average Service	7.64	7.71
Average Annual Base Pay	$ 51,727	$ 52,232
Vested Terminated Members		
Number	549	566
Average Account Balance	$ 30,722	$ 32,522
Non-vested Terminated Members		
Number	2,242	2,320
Average Account Balance	$ 3,470	$ 4,085
Benefit Recipients		
Number	4,526	4,500
Average Age	74.29	74.51
Average Monthly Benefit	$ 1,951	$ 1,963

Note: Please see the Statistical Section for a ten-year history of the System's membership census.

Schedule of Active Member Valuation Data (Last Six Years)

Plan Year	Number of Active Members	Annual Payroll	Average Annual Pay	% Increase in Average Pay
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%

Schedule of Retirees & Beneficiaries Added or Removed from Rolls (Last Six Years)

	Added to Rolls		Removed from Rolls		Rolls – End of Year		% Increase	Average
Plan Year	No.	Annual Allowances	No.	Annual Allowances	No.	Annual Allowances	in Annual Allowances	Annual Allowance
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

Summary of Methods and Assumptions

The valuation is based upon the premise that the System will continue in existence, so that future events must also be considered. These future events are assumed to occur in accordance with the actuarial assumptions and concern such events as the earnings of the fund; the number of members who will retire, die or terminate their services; their ages at such termination and their expected benefits.

The following actuarial assumptions and the actuarial cost or funding method have been adopted to guide the Board of Trustees in funding the System in a reasonable and acceptable manner.

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

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.

Disability Mortality

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

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%

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.

Retirement

Retirements occur at rates based on the actual experience of the retirement system. 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.

Summary of Methods and Assumptions (continued)

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. For married participants, husbands are assumed to be 3 years older than their wives.

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). 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 result 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, the 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.

Summary of Methods and Assumptions (continued)

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 summary of these changes appears at the end of the last page in the Statistical Section.

Non-Annuitant Rates of Withdrawal, Disability and Retirement

Attained	Withdrawal Rates		Disability Rates		Retirement Rates
Age	Males	Females	Males	Females	Rule of 80 / Age
20	20.40%	20.40%	.000%	.000%	0.00%
25	17.10%	17.10%	.000%	.000%	0.00%
30	12.10%	12.10%	.040%	.040%	0.00%
35	9.90%	9.90%	.040%	.040%	0.00%
40	8.30%	8.30%	.080%	.075%	0.00%
45	4.40%	4.40%	.150%	.100%	0.00%
50	2.80%	2.80%	.200%	.150%	20.00% / 0.00%
55	2.20%	2.20%	.450%	.250%	15.00% / 0.00%
60	1.70%	1.70%	.550%	.325%	20.00% / 10.00%
65	0.00%	0.00%	.000%	.000%	30.00% / 35.00%
70	0.00%	0.00%	.000%	.000%	30.00% / 30.00%
72	0.00%	0.00%	.000%	.000%	100.00% / 100.00%

Summary of Methods and Assumptions (continued)

Non-Annuitant Mortality Rates

Death Rates Male	Age	Death Rates Female	Death Rates Male	Age	Death Rates Female
.000380	30	.000193	.018448	75	.015385
.000662	35	.000337	.051083	80	.039034
.000841	40	.000442	.094233	85	.067435
.001005	45	.000682	.167257	90	.122890
.001217	50	.000985	.255453	95	.185756
.001671	55	.001969	.271129	96	.196137
.002959	60	.003365	.286358	97	.210344
.004892	65	.004983	.308123	98	.218852
.006210	70	.006517	.322695	99	.226123

Annuitant Mortality Rates

Death Rates Male	Age	Death Rates Female	Death Rates Male	Age	Death Rates Female
.000380	30	.000193	.027356	75	.023365
.000662	35	.000337	.051083	80	.039034
.000841	40	.000442	.094233	85	.067435
.001572	45	.000689	.167257	90	.122890
.003521	50	.001580	.255453	95	.185756
.003798	55	.002935	.271129	96	.196137
.005656	60	.005521	.286358	97	.210344
.009703	65	.009235	.308123	98	.218852
.015686	70	.014919	.322695	99	.226123

Disability Mortality Rates

Death Rates Male	Age	Death Rates Female	Death Rates Male	Age	Death Rates Female
.022571	30	.007450	.082067	75	.052230
.022571	35	.007450	.109372	80	.072312
.022571	40	.007450	.141603	85	.100203
.022571	45	.007450	.183408	90	.140049
.028975	50	.011535	.267491	95	.194509
.035442	55	.016544	.283905	96	.205379
.042042	60	.021839	.299852	97	.215240
.050174	65	.028026	.315296	98	.223941
.062583	70	.037635	.330207	99	.231387

“prudently administered in an effective and efficient manner.”

Statistical Section

Summary

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

The first part, found on page 87, 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 88 - 92, 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 page 93 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.

Public School Retirement System of the City of St. Louis

Schedule of Changes in Fiduciary Net Position

Last 10 Fiscal Years Ended December 31,

Fiscal Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Additions by source	(as restated)				(as restated)					
Employer contributions	$ 26,075,146	$ 28,720,193	$ 29,551,964	$ 37,034,907	$ 41,757,458	$ 40,708,503	$ 39,519,979	$ 41,077,344	$ 48,797,779	$ 43,902,706
Employee contributions	11,188,919	11,879,052	12,147,663	11,814,124	11,887,933	11,664,711	12,652,029	12,591,552	14,248,567	17,019,685
Investment income (loss)	115,925,274	(5,319,851)	97,514,207	129,102,935	34,857,035	(5,488,658)	44,341,661	124,643,375	(41,828,299)	127,469,970
Other income	127,426	131,119	134,813	138,506	143,754	146,007	150,427	153,544	157,219	161,263
Total additions(depreciation)	153,316,765	35,410,513	139,348,647	178,090,472	88,646,180	47,030,563	96,664,096	178,465,815	21,375,266	188,553,624
Deductions by type*										
Retirement benefits	99,277,919	96,303,329	96,073,967	98,000,369	99,874,101	99,634,429	99,419,975	99,499,140	99,641,973	99,624,865
Survivor benefits		2,540,407	2,595,094	2,654,895	2,784,937	2,877,844	2,973,225	3,056,046	3,082,696	3,043,126
Disability benefits		3,149,322	3,246,806	3,402,037	3,524,388	3,510,745	3,479,852	3,512,352	3,616,435	3,575,042
Health care subsidies	2,808,370	2,825,430	2,752,751	2,726,158	2,696,001	2,600,225	2,515,000	2,442,339	2,381,857	2,249,449
Operating expenses	1,499,302	1,432,914	1,450,265	1,441,183	1,350,390	1,466,261	1,554,314	1,613,506	1,996,981	1,862,658
Contribution refunds	3,203,714	3,242,200	4,773,609	3,690,639	4,203,229	4,761,086	5,220,357	4,440,594	5,287,691	4,608,688
Total deductions by type	106,789,305	109,493,602	110,892,492	111,915,281	114,433,046	114,850,590	115,162,723	114,563,977	116,007,633	114,963,828
Change in fiduciary net position	$ 46,527,460	$ (74,083,089)	$ 28,456,155	$ 66,175,191	$ (25,786,866)	$ (67,820,027)	$ (18,498,627)	$ 63,901,838	$ (94,632,367)	$ 73,589,796

*Note: The retirement system began providing dollar breakouts of retirement, survivor and disability benefits back to fiscal year 2011 with the annual report for the fiscal year ended December 31, 2013. Prior to fiscal year 2011, this detail is combined in the retirement benefits line item. This detailed information will appear in the schedule of changes in fiduciary net position as it occurs.

Public School Retirement System
of the City of St. Louis

Retired Members and Beneficiaries By Payment Option & Type
On January 1, 2019

Option	Service Benefit	Disability Benefit	Survivor Benefit	Total
0	3,350	198	300	3,848
1	128	13	-	141
2	76	3	-	79
3	183	17	-	200
4	180	8	-	188
5	23	1	-	24
6	12	5	-	17
7	3	-	-	3
Total	3,955	245	300	4,500

Amount of Annual Benefits By Payment Option & Type
On January 1, 2019

Option	Service Benefit	Disability Benefit	Survivor Benefit	Total
0	$ 85,070,987	$ 2,959,093	$ 3,567,915	$ 91,597,995
1	2,395,160	174,128	-	2,569,288
2	1,785,552	69,634	-	1,855,186
3	3,857,872	238,317	-	4,096,189
4	4,745,601	181,068	-	4,926,669
5	581,680	9,911	-	591,591
6	237,524	48,317	-	285,841
7	72,357	-	-	72,357
Total	$ 98,746,733	$ 3,680,468	$ 3,567,915	$ 105,995,116

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.

Public School Retirement System of the City of St. Louis

Option	Service Benefit	Disability Benefit	Survivor Benefit	All
0	$ 25,445	$ 14,945	$ 11,893	$ 23,804
1	18,712	13,394	-	18,222
2	23,494	23,211	-	23,483
3	21,081	14,019	-	21,788
4	26,364	22,634	-	26,206
5	25,290	9,911	-	24,650
6	19,794	9,663	-	16,814
7	24,119	-	-	24,119
All	$ 24,982	$ 15,022	$ 11,893	$ 23,554

Average Monthly Benefit Payments By Payment Option & Type On January 1, 2019

Option	Service Benefit	Disability Benefit	Survivor Benefit	All
0	$ 2,120	$ 1,245	$ 991	$ 1,984
1	1,559	1,116	-	1,519
2	1,958	1,934	-	1,957
3	1,757	1,168	-	1,816
4	2,197	1,886	-	2,184
5	2,108	826	-	2,054
6	1,650	805	-	1,401
7	2,010	-	-	2,010
All	$ 2,082	$ 1,252	$ 991	$ 1,963

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Public School Retirement System of the City of St. Louis

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+
2015							
Average Monthly Benefit	$307	$604	$1,188	$1,513	$2,356	$3,031	$3,829
Average Monthly Salary	$3,211	$3,624	$4,624	$4,526	$5,183	$5,305	$6,436
Number of Retirees	8	20	27	17	18	27	16
2016							
Average Monthly Benefit	$539	$682	$986	$1,638	$2,608	$2,951	$3,476
Average Monthly Salary	$5,156	$3,971	$4,327	$4,718	$5,570	$5,393	$5,793
Number of Retirees	6	17	17	30	16	24	14
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
2015 - 2019							
Average Monthly Benefit	**$403**	**$671**	**$1,078**	**$1,660**	**$2,425**	**$2,965**	**$3,691**
Average Monthly Salary	**$4,134**	**$4,190**	**$4,393**	**$4,663**	**$5,323**	**$5,280**	**$6,234**
Number of Retirees	**45**	**113**	**93**	**126**	**92**	**124**	**106**

Note: The calculations for the 2015 – 2019 monthly averages are weighted using the sum of an average for each year x number of retirees each year ÷ by the 2015 – 2019 number of retirees.

Public School Retirement System
of the City of St. Louis

Schedule of Covered Members
Last Ten Fiscal Years Ended December 31st

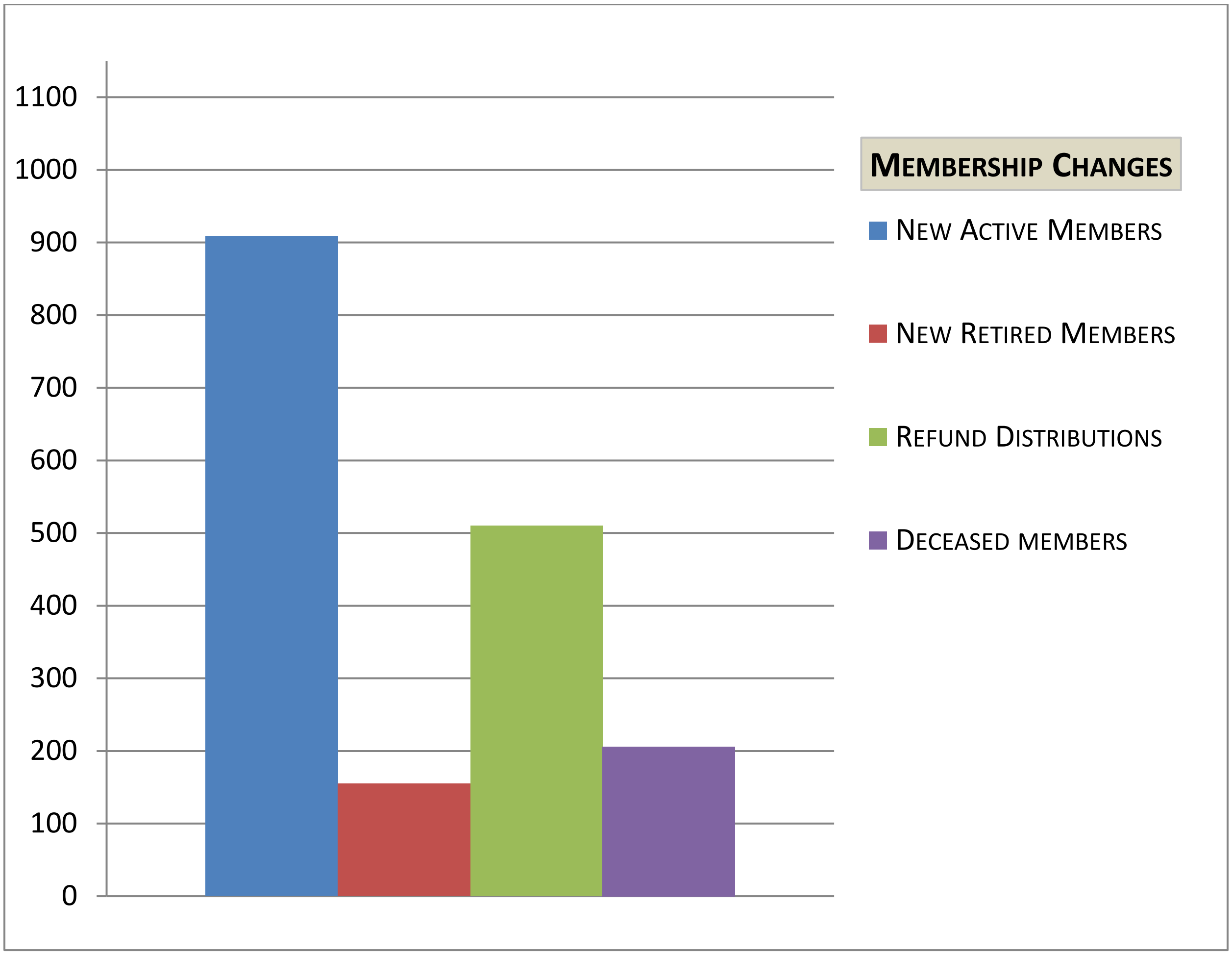
	2019		2018		2017		2016		2015	
Member Type	**Covered Members**	**Percentage of Total**	**Covered Members**	**Percentage of Total**	**Covered Members**	**Percentage of Total**	**Covered Members**	**Percentage of Total**	**Covered Members**	**Percentage of Total**
Active	5,050	40.6%	5,138	41.3%	5,101	41.8%	5,034	42.3%	5,011	43.0%
Inactive	2,886	23.2%	2,791	22.4%	2,554	20.9%	2,271	19.1%	2,012	17.3%
Retired (includes Beneficiaries)	4,500	36.2%	4,526	36.3%	4,561	37.3%	4,587	38.6%	4,624	39.7%
Total	12,436	100%	12,455	100%	12,216	100%	11,892	100%	11,647	100%

	2014		2013		2012		2011		2010	
Member Type	**Covered Members**	**Percentage of Total**	**Covered Members**	**Percentage of Total**	**Covered Members**	**Percentage of Total**	**Covered Members**	**Percentage of Total**	**Covered Members**	**Percentage of Total**
Active	4,880	42.9%	4,786	43.7%	4,784	42.4%	4,336	40.0%	4,825	43.5%
Inactive	1,798	15.8%	1,643	15.0%	1,958	17.4%	1,935	17.8%	1,896	17.1%
Retired (includes Beneficiaries)	4,689	41.3%	4,516	41.3%	4,540	40.2%	4,587	42.2%	4,370	39.4%
Total	11,367	100%	10,945	100%	11,282	100%	10,858	100%	11,091	100%

The Year in Review

During the fiscal year ended December 31, 2019, PSRSSTL added 909 new active members and 155 new retired members to payroll. The retirement system processed 510 refund distributions for members who left the System and bid farewell to 206 members due to death.

Fiscal Year 2019

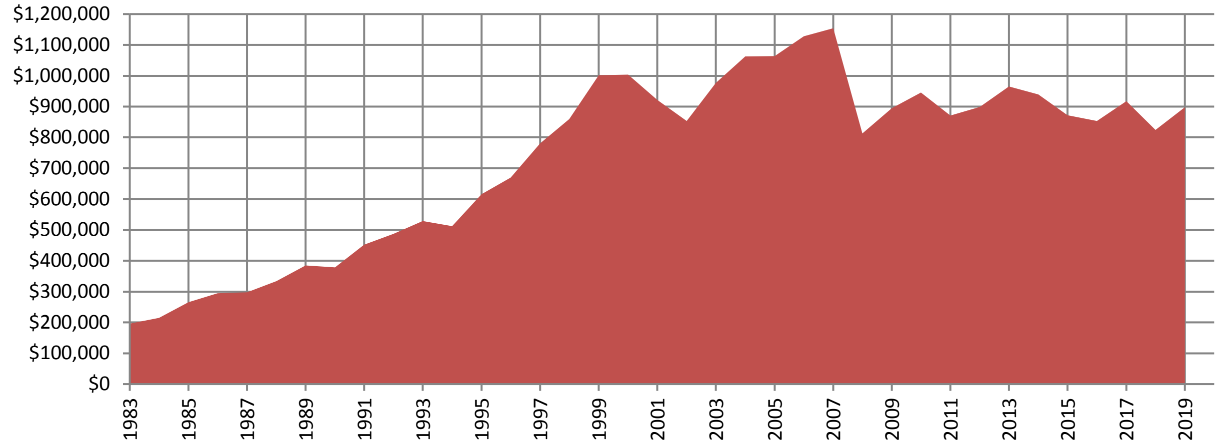


Charts and Graphs

These charts and graphs show changes in market value of assets, contributions, and investment earnings for fiscal years ended December 31, 1983 thru December 31, 2019.

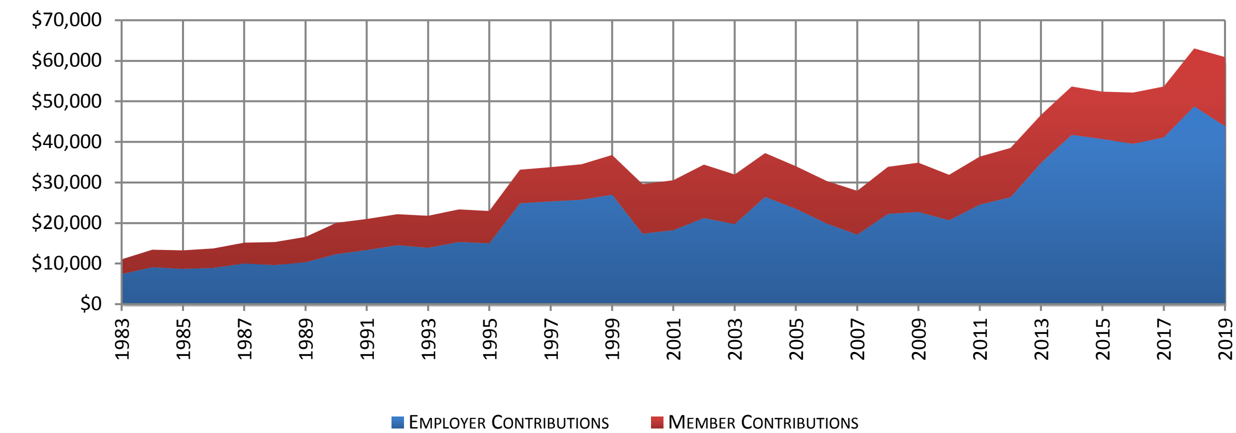
Market Value of Assets

(add 000's)



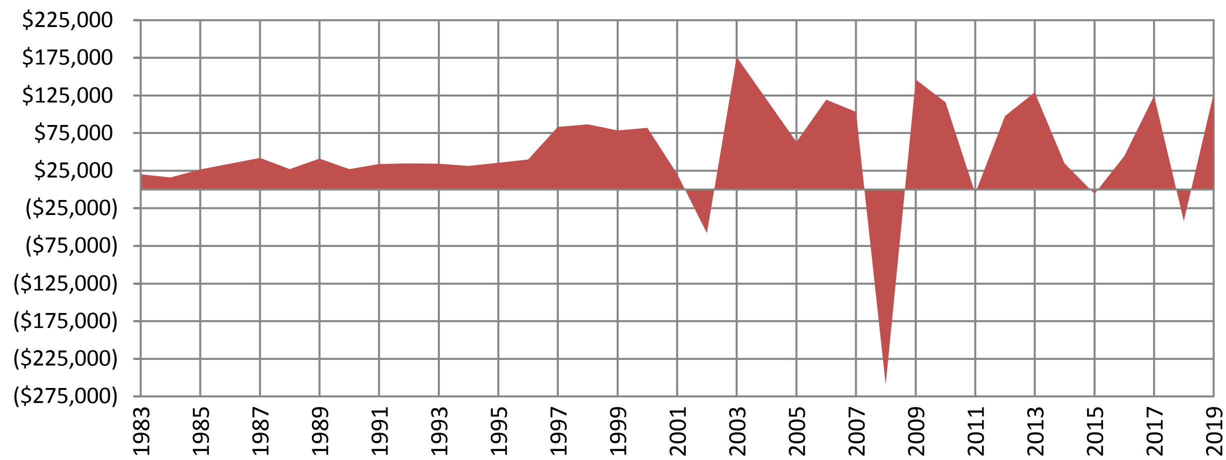
Employer & Employee Contributions

(add 000's)



Investment Income (Loss)

(add 000's)



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"

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