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, 2018
(includes comparative financials for 2017)

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, 2018

(Includes comparative financials for 2017)

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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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, 2017

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
Yvette Levy	12-31-2019	Active Administrator
Paula Bentley	12-31-2019	Active Teacher
Sheila Goodwin	12-31-2020	Active Teacher
Bobbie Richardson	12-31-2021	Active Non-teacher
Justin Stein	12-31-2022	Active Non-teacher

Elected by Retired Members	Term Ends	Trustee Representation
Louis Cross	09-30-2019	Retired Teacher
Joseph Clark	09-30-2021	Retired Non-Teacher

SLPS Appointments	Term Ends	Trustee Representation
Richard Sullivan	12-31-2019	SLPS Board of Education
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

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 7, 2019

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, 2018. 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 2018.

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 2018.

Investment Activities

The overall investment return for the plan during 2018 was -5.0%, which was far below the actuarial assumed rate of return of 7.5%. Thus, the investment managers added no 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 2018 just ranked in the top three (3) quartiles at 75% 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 2018, the Funded Ratio was 78.1%, which is the lowest Funded Ratio for the System since this measurement began in 1992. The main reason for the low measurement 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 ($)
2016	15.14%	$37,210,752
2017	15.73%	$39,657,756
2018	19.10%	$49,693,589

Detailed actuarial information can be found in the Actuarial Section.

Legislative Information

There were no major legislative changes in 2018 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, Conduent HR Services, 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, 2017. This was the seventh 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.

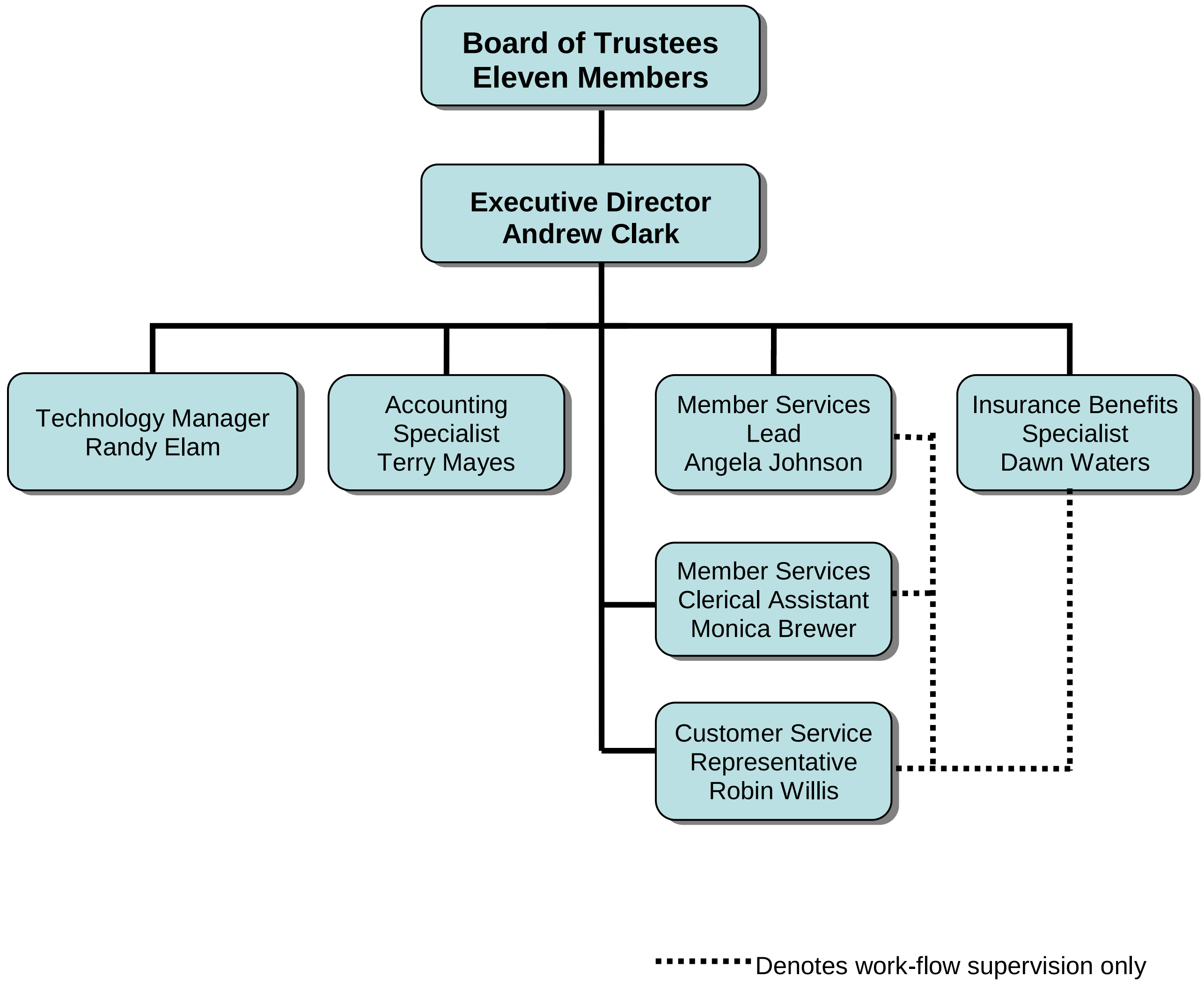
Acknowledgements

The System turned 75 years old on January 1st and as we celebrate this milestone, 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 success.

Sincerely,

Andrew Clark
Executive Director

Organizational Chart



Providers of Professional Services

Actuarial Services

Buck Global LLC
(formerly Conduent HR Services)
Troy Jaros
St. Louis, MO

Legal Counsel

Hartnett Reyes-Jones, L.L.C.
(formerly Hartnett Gladney Hetterman)
Jeffery E. Hartnett
St. Louis, MO

Auditor

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

Property Management

CB Richard Ellis
St. Louis, MO

Insurance Consultant

Gallagher Benefit Services, Inc.
(A division of Arthur J. Gallagher & Co.)
Patrick Haraden
Boston, MA

Computer Programming Consultant

Jupiter Consulting Services, LLC
St. Louis, MO

Investment Consultant

NEPC, LLC
Kristin Finney-Cooke
Chicago, IL

Computer Networking Consultant

Blade Technologies, Inc.
St. Louis, MO

BUCK Arthur J. Gallagher & Co. CBRE CB RICHARD ELLIS

ANDERS CPAs + ADVISORS NEPC, LLC BLADE TECHNOLOGIES, INC.

Financial Section

ANDERS
CPAs + ADVISORS

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, 2018 and 2017, 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, 2018 and 2017, 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 19, 2019

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, 2018. This MD&A is presented as required supplementary information to the financial statements and should be read in conjunction with the PSRSSTL financial statements, notes to the financial statements, required supplementary information, and other supplementary information.

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

- The Condensed Statements of Fiduciary Net Position illustrate the System's assets, liabilities, and resulting fiduciary net position where Assets - Liabilities = 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 $819,449,893 at December 31, 2018, which represents a decrease of $94,632,367 from December 31, 2017. This decrease was due to poor investment returns during the 2018 fiscal year that were far below the System's assumed rate of return. The poor performance results lowered the System's asset values for most investment categories at December 31, 2018.

The System's investment returns were (5.0)% in fiscal year 2018, 16.2% in fiscal year 2017, and 6.3% in fiscal year 2016. The System's investment return in fiscal year 2018, when compared to fiscal year 2017, represents a downturn 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 2018.

Additions to fiduciary net position were $21.4 million, $178.5 million and $96.7 million for fiscal years 2018, 2017 and 2016, respectively. The two highest additions to fiduciary net position in 2018 were employer contributions of $48.8 million and member contributions of $14.2 million. The main additions to fiduciary net position in 2017 were $124.2 million of net investment income and $41.1 million of employer contributions. The key additions to fiduciary net position during 2016 were net investment income of $43.3 million and employer contributions of $39.5 million.

Deductions from fiduciary net position were $116.0, $114.6 and $115.2 million in fiscal years 2018, 2017 and 2016, respectively. 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. The $598,746 decrease in deductions between fiscal years 2017 and 2016 was mostly due to decreased refunds paid to terminated or deceased members in fiscal year 2017.

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 2018 that caused the change in fiduciary net position from fiscal year 2017 to fiscal year 2018.

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, 2018, total assets and deferred outflows 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 inflows of resources of the System were $2,582,642. Total liabilities consisted of accounts payable and 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.

On December 31, 2017, total assets and deferred outflows of resources for the System were $915,788,335. Total assets consisted of cash, receivables, investments and an office building. Total assets and deferred outflows in fiscal year 2017 increased by 7.5%, or $64,122,207, when compared to fiscal year 2016, and can be attributed to higher than expected investment returns.

On December 31, 2017, total liabilities and deferred inflows of resources for the System were $1,706,075. Total liabilities consisted of accounts payable and accrued expenses, and net pension liability. Total liabilities and deferred inflows in fiscal year 2017, when compared to fiscal year 2016, increased by 14.8%, or $220,369, primarily because of the increase in the System's net pension liability as required by GASB Statement No. 68.

On December 31, 2017, the fiduciary net position restricted for pensions was $914,082,260, an increase of 7.5%, or $63,901,838, from fiscal year 2016.

Condensed Statements of Fiduciary Net Position

	FY 2018	FY 2017	FY 2016	FY 2018 % Change	FY 2017 % Change
Assets					
Cash	$ 9,850,121	$ 10,108,913	$ 9,815,722	(2.6)%	3.0 %
Receivables	847,357	803,961	1,816,539	5.4 %	(55.7)%
Investments	808,635,191	902,745,605	837,967,631	(10.4)%	7.7 %
Property & building, net	1,680,266	1,747,704	1,815,142	(3.9)%	(3.7)%
Total Assets	821,012,935	915,406,183	851,415,034	(10.3)%	7.5 %
Deferred Outflows of Resources					
Deferred outflows of resources	1,019,600	382,152	251,094	166.8 %	52.2 %
Total Assets & Deferred Outflows of Resources	822,032,535	915,788,335	851,666,128	(10.2)%	7.5 %
Liabilities					
Accounts payable & accrued expenses	708,970	800,653	780,536	(11.5)%	2.6 %
Net pension liability	1,727,361	876,434	649,399	97.1 %	35.0 %
Total Liabilities	2,436,331	1,677,087	1,429,935	45.3 %	17.3 %
Deferred Inflows of Resources					
Deferred inflows of resources	146,311	28,988	55,771	404.7 %	(48.0)%
Total Liabilities & Deferred Inflows of Resources	2,582,642	1,706,075	1,485,706	51.4 %	14.8 %
Fiduciary Net Position	$ 819,449,893	$ 914,082,260	$ 850,180,422	(10.4)%	7.5 %

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 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. For fiscal year 2017, employer contributions were approximately $41.1 million; member contributions were approximately $12.6 million; and investments gained a net of approximately $124.2 million.

Employer and member contributions combined increased by $9.4 million in fiscal year 2018 compared to $1.5 million in fiscal year 2017. This was due to the required employer contribution rates increasing from 15.73% of covered compensation in fiscal year 2017 to 19.10% in fiscal year 2018, and from 15.14% of covered compensation in fiscal year 2016 to 15.73% in fiscal year 2017. 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.

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 $166.3 million less in fiscal year 2018 than in fiscal year 2017 because investment earnings were negative 5.0% for fiscal year 2018 as compared to a positive 16.2% for fiscal year 2017. Net investment income was $80.9 million more in fiscal year 2017 than in fiscal year 2016 because investment earnings were 16.2% in fiscal year 2017 as compared to 6.3% for fiscal year 2016.

The net investment income or (loss) of $(42,116,945), $124,169,513 and $43,310,266 in fiscal years 2018, 2017 and 2016, respectively, reflect 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 2018 were approximately 0.24% of assets, while operating expenses for both 2017 and 2016 were each approximately 0.18% of assets.

Condensed Statements of Changes in Fiduciary Net Position

	FY 2018	FY 2017	FY 2016	FY 2018 % Change	FY 2017 % Change
Additions					
Employer contributions	$ 48,797,779	$ 41,077,344	$ 39,519,979	18.8 %	3.9 %
Member contributions	14,248,567	12,591,552	12,652,029	13.2 %	(0.5)%
Net investment income (loss)	(42,116,945)	124,169,513	43,310,266	(133.9)%	186.7 %
Rental income	157,219	153,544	150,427	2.4 %	2.1 %
Other income	288,646	473,862	1,031,395	(39.1)%	(54.1)%
Total Additions	21,375,266	178,465,815	96,664,096	(88.0)%	84.6 %
Deductions					
Retirement benefits	99,641,973	99,499,140	99,419,975	0.1 %	0.1 %
Survivor benefits	3,082,696	3,056,046	2,973,225	0.9 %	2.8 %
Disability benefits	3,616,435	3,512,352	3,479,852	3.0 %	0.9 %
Health care subsidies	2,381,857	2,442,339	2,515,000	(2.5)%	(2.9)%
Operating expenses	1,996,981	1,613,506	1,554,314	23.8 %	3.8 %
Refunds to members	5,287,691	4,440,594	5,220,357	19.1 %	(14.9)%
Total Deductions	116,007,633	114,563,977	115,162,723	1.3 %	(0.5)%
Change in Fiduciary Net Position	$(94,632,367)	$ 63,901,838	$ (18,498,627)	(248.1)%	445.4%

Financial Summary

For over 22 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 25% of similar public pension plans for the last 22 years through the period ended December 31, 2018.

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 2018, the fiduciary net position was $819.4 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 2018, 2017 and 2016 were 78.1%, 79.5% and 84.9%, respectively. The large dip in the System’s funded ratio from fiscal year 2016 to 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.

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, 2018 and 2017

Assets

	2018	2017
Cash	$ 9,850,121	$ 10,108,913
Receivables		
Accrued interest and dividends	824,179	778,383
Other receivable	23,178	25,578
Total Receivables	847,357	803,961
Investments, at fair value		
Cash equivalents	36,721,304	40,773,921
Bonds		
U.S. Government and agency issues	28,998,131	28,241,695
Corporate	32,811,378	33,283,520
Foreign investments (bonds and stocks)	73,501,212	91,518,408
Common and preferred stocks	185,412,081	216,329,735
Mutual and co-mingled funds	360,023,724	411,565,601
Real estate partnerships	48,471,908	55,324,668
Limited partnerships	42,695,453	25,708,057
Total Investments	808,635,191	902,745,605
Property and Building, net	1,680,266	1,747,704
Total Assets	821,012,935	915,406,183

Deferred Outflows of Resources

Deferred Outflows of Resources Related to Pensions	1,019,600	382,152

Liabilities

Accounts Payable and Accrued Expenses	708,970	800,653
Net Pension Liability	1,727,361	876,434
Total Liabilities	2,436,331	1,677,087

Deferred Inflows of Resources

Deferred Inflows of Resources Related to Pensions	146,311	28,988

Net Position

Net Position Restricted for Pensions	$ 819,449,893	$ 914,082,260

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, 2018 and 2017

	2018	2017
Additions		
Employer contributions		
St. Louis Public Schools	$ 37,376,323	$ 30,459,434
Sick leave conversion	302,222	412,970
Charter Schools	11,018,669	10,130,296
Retirement System	100,565	74,644
Plan member contributions		
St. Louis Public Schools	10,282,093	9,289,039
Charter Schools	3,935,567	3,275,759
Retirement System	30,907	26,754
	63,046,346	53,668,896
Investment Income (loss)		
Cash equivalents	459,491	294,142
Bonds		
U.S. Government and agency issues	333,930	1,165,283
Corporate	78,150	2,048,420
Foreign investments (bonds and stocks)	(12,802,444)	24,292,282
Common and preferred stock	(12,045,029)	48,544,033
Mutual and co-mingled funds	(23,225,857)	47,184,871
Limited partnerships	6,387,880	2,622,170
Real estate partnerships	3,603,474	3,103,993
Venture capital partnerships	-	(26,146)
	(37,210,405)	129,229,048
Less investment expense	4,906,540	5,059,535
Net investment income (loss)	(42,116,945)	124,169,513
Rental income	157,219	153,544
Other miscellaneous income	288,646	473,862
Net Additions	21,375,266	178,465,815
Deductions		
Benefits paid		
Retirement benefits	99,641,973	99,499,140
Survivor benefits	3,082,696	3,056,046
Disability benefits	3,616,435	3,512,352
Health care subsidies	2,381,857	2,442,339
	108,722,961	108,509,877
Operating expenses	1,996,981	1,613,506
Contribution refunds due to death or resignation	5,287,691	4,440,594
Total Deductions	116,007,633	114,563,977
Net Increase (Decrease) in Net Position	(94,632,367)	63,901,838
Net Position Restricted for Pensions, Beginning of Year	914,082,260	850,180,422
Net Position Restricted for Pensions, End of Year	$ 819,449,893	$ 914,082,260

See notes to financial statements

Public School Retirement System of the City of St. Louis
Notes to Financial Statements
December 31, 2018 and 2017

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, 2018	January 1, 2017
Active members	5,138	5,101
Inactive members	2,791	2,554
Total members not retired	7,929	7,655
Retired members		
Service and survivors	4,277	4,310
Disability	249	251
	4,526	4,561
Total membership	12,455	12,216

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 compensation.

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 at age 60 with five years of service. 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 contribute 5.50% of covered compensation for the year ended December 31, 2018. 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. Active participants contributed 5.00% of covered compensation for the year ended December 31, 2017.

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 contractually required contribution rate applied to St. Louis Public Schools and the Retirement System 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 all other employers, the System's contractually required contribution rate will be set at 16.00% of covered payroll for the year ended December 31, 2018. This contribution rate 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. St. Louis Public Schools and the Retirement System will apply the contractually required contribution rate of 16.00% in the year ended December 31, 2019, which shall be decreased by 0.50% in each subsequent year until reaching 9.00% of covered payroll.

1. Description of System (continued)

The System's contractually required contribution rate for the year ended December 31, 2017 was 15.73% 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.

Contributions to the pension plan for System employees were $100,565 and $74,644 for the years ended December 31, 2018 and 2017, 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 Board adopted asset allocation policy as of February 27, 2017.

Asset Class	Target Allocation	Long-term Expected Real Rate of Return
U.S. Equity	22.0%	6.2%
Non-U.S. Equity	19.0%	7.4%
Global Equity	5.0%	6.7%
Fixed Income	21.0%	1.9%
Real Estate	7.0%	4.4%
Private Markets	9.0%	7.6%
Hedge Funds	7.0%	3.9%
Global Asset Allocation	10.0%	3.7%
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, 2018 and 2017.

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.

Subsequent Events

The System has evaluated subsequent events through April 19, 2019, the date the financial statements were available to be issued.

Recent Accounting Pronouncements

The following GASB Statements are effective for various reporting periods beginning after December 15, 2018.

- GASB Statement No. 83: *Certain Asset Retirement Obligations*
- GASB Statement No. 84: *Fiduciary Activities*
- GASB Statement No. 86: *Certain Debt Extinguishment Issues*
- GASB Statement No. 87: *Leases*
- GASB Statement No. 88: *Certain Disclosures Related to Debt, including Direct Borrowings and Direct Placements*
- 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*

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, 2018, the System adopted GASB Statement No. 82: *Pension Issues - An Amendment of GASB Statements No. 67, No. 68, and No. 73*. This Statement addresses issues regarding (1) the presentation of payroll-related measures in required supplementary information, (2) the selection of assumptions and the treatment of deviations from the guidance in an Actuarial Standard of Practice for financial reporting purposes, and (3) the classification of payments made by employers to satisfy employee (plan member) contribution requirements. The implementation of GASB Statement No. 82 did not significantly impact the System's financial statements.

During the year ended December 31, 2018, the System adopted GASB Statement No. 75: *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions*. This Statement improves accounting and financial reporting by state and local governments for postemployment benefits other than pensions. GASB Statement No. 75 did not significantly impact the System's financial statements.

During the year ended December 31, 2018, the System adopted GASB Statement No. 85: *Omnibus 2017*. This Statement addresses a variety of topics including issues related to blending component units, goodwill, fair value measurement and application, and postemployment benefits. GASB Statement No. 85 did not significantly impact the System's financial statements.

4. Investments

At December 31, 2018 and 2017, investments consisted of the following:

	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

	2017	
	Fair Value	Cost
Cash equivalents	$ 40,773,921	$ 40,773,921
Bonds		
U.S. Government and agency issues	28,241,695	35,684,055
Corporate	33,283,520	33,198,524
Foreign investments (bonds and stocks)	91,518,408	77,783,061
Common and preferred stocks	216,329,735	159,263,388
Mutual and co-mingled funds	411,565,601	312,847,221
Real estate partnerships	55,324,668	40,567,585
Limited partnerships	25,708,057	23,450,683
	$ 902,745,605	$ 723,568,438

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, 2018 and 2017.

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, 2018 and 2017:

	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			

	2017			
		Fair Value Measurements		
	Total	Level 1	Level 2	Level 3
Cash equivalents	$ 40,773,921	$ -	$ 40,773,921	$ -
U.S. Government and agency issues	28,241,695	-	28,241,695	-
Corporate bonds	33,283,520	-	33,283,520	-
Foreign investments	91,518,408	-	91,518,408	-
Common and preferred stocks	216,329,735	216,329,735	-	-
Mutual funds	271,553,680	271,553,680	-	-
Real estate partnerships	55,324,668	-	-	55,324,668
Limited partnerships	25,708,057	-	-	25,708,057
Total assets in fair value hierarchy	762,733,684	$ 487,883,415	$ 193,817,544	$ 81,032,725
Investments measured at NAV	140,011,921			
	$902,745,605			

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, 2018	Fair Value	Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Co-mingled funds	$ 125,693,611	N/A	Daily	30 days

December 31, 2017	Fair Value	Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Co-mingled funds	$ 140,011,921	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, 2018 and 2017, as follows:

	Venture Capital Partnerships	Limited Partnerships	Real Estate Partnerships	Total
December 31, 2016	$ 220,624	$19,649,576	$52,710,452	$72,580,652
Realized gains (losses)	(26,146)	625,641	33,219	632,714
Unrealized gains	-	1,570,404	729,140	2,299,544
Purchases, sales, issuances, and settlements (net)	(194,478)	3,436,311	-	3,241,833
Investment income, net	-	426,125	2,341,634	2,767,759
Management fees	-	-	(489,777)	(489,777)
December 31, 2017	-	25,708,057	55,324,668	81,032,725
Realized gains	-	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

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, 2018	Fair Value	Valuation Technique(s)	Unobservable Inputs
Limited Partnerships	$ 42,695,453	Basis in LLC	Undistributed Income
Real Estate Partnerships	$ 48,471,908	Basis in LLC	Undistributed Income

December 31, 2017	Fair Value	Valuation Technique(s)	Unobservable Inputs
Limited Partnerships	$ 25,708,057	Basis in LLC	Undistributed Income
Real Estate Partnerships	$ 55,324,668	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, 2018 and 2017 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, 2018 and 2017, the System had approximately $10,061,000 and $10,581,000, 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, 2018 and 2017 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 28, 2018 and 2017, the System received $37,678,545 and $30,872,404, respectively, from the St. Louis Board of Education for the 2018 and 2017 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, 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.

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, 2018 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, 2018, 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	$ 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

As of December 31, 2017, 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	$ 4,694,128	$ 146,472	$ 9,937,511	$ 14,778,111
Aa1	91,198	-	118,798	209,996
Aa2	568,208	-	76,511	644,719
Aa3	491,667	106,524	111,206	709,397
A1	1,049,992	-	90,944	1,140,936
A2	359,558	119,239	-	478,797
A3	1,239,911	40,981	-	1,280,892
Baa1	2,149,809	-	-	2,149,809
Baa2	3,162,237	72,946	-	3,235,183
Baa3	4,302,446	538,239	-	4,840,685
Ba1	1,227,023	359,647	-	1,586,670
Ba2	659,964	71,557	-	731,521
Ba3	775,485	142,735	-	918,220
B1	418,644	85,000	-	503,644
B2	208,055	153,200	-	361,255
B3	454,304	40,200	-	494,504
Caa1	194,175	26,180	-	220,355
Caa2	59,468	-	-	59,468
Not rated	11,177,248	2,052,141	17,906,725	31,136,114
Total	$ 33,283,520	$ 3,955,061	$ 28,241,695	$ 65,480,276

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, 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

The System's exposure to foreign currency risk in U.S. dollars as of December 31, 2017 follows:

Currency	Cash Equivalents	Equities	Total
Australian Dollar	$ -	$ 1,023,508	$ 1,023,508
British Pound Sterling	1	19,751,162	19,751,163
Canadian Dollar	-	5,870,942	5,870,942
Danish Krone	-	480,209	480,209
Euro	-	17,558,114	17,558,114
Hong Kong Dollar	-	3,908,870	3,908,870
Japanese Yen	-	12,357,245	12,357,245
Korean Won	-	2,060,016	2,060,016
Singapore Dollar	-	34,867	34,867
South African Rand	-	27,952	27,952
Swedish Krona	-	494,944	494,944
Swiss Franc	-	6,924,710	6,924,710
Thai Baht	-	218,288	218,288
	$ 1	$ 70,710,827	70,710,828
Foreign investment denominated in US Dollars			20,807,580
			$ 91,518,408

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, 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

The segmented time distribution of the various investment types of the System's debt securities at December 31, 2017 follows:

Type	2017 Fair Value	Less Than 1 year	1 to 5 years	6 to 10 years	More than 10 years
Corporate bonds	$ 33,283,520	$ 390,972	$ 12,748,167	$ 8,057,221	$ 12,087,160
Foreign Government & corporate obligations	3,955,061	-	856,096	1,569,985	1,528,980
U.S. Government & agency issues	28,241,695	-	2,348,572	4,599,638	21,293,486
Total	$ 65,480,276	$ 390,972	$ 15,952,835	$ 14,226,844	$ 34,909,626

7. Property and Building

Property and building as of December 31, 2018 and 2017 consists of:

	2018	2017
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	772,366	704,928
Property and Building, net	$ 1,680,266	$ 1,747,704

Depreciation expense totaled $67,438 for each of the years ended December 31, 2018 and 2017.

8. Occupancy

The System occupies offices in a building it owns. Occupancy expenses for the years ended December 31, 2018 and 2017 were $33,392 and $28,112, 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 $160,558 to $166,208. Rental income received for the years ended December 31, 2018 and 2017 totaled $157,219 and $153,544, 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, 2018 and 2017, the System reported a liability of $1,727,361 and $876,434, respectively, as its proportionate share of the net pension liability. The net pension liability was measured as of December 31, 2017 and 2016, 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, 2017 and 2016. At December 31, 2017 and 2016, the System's portion was 0.23% and 0.21%, respectively.

Benefit changes effective as of August 28, 2017:

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:

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.

Effective January 1, 2017, the investment return assumption of 7.50 percent was revised to a blended discount rate of 4.78 percent. The blended discount rate is a combination of a municipal bond rate of 3.16 percent and the long-term investment return assumption of 7.50 percent.

As of December 31, 2017, cumulative impact of changes from the prior valuation was an increase in the Entry Age Normal Liability by approximately $72.7 million.

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

10. Retirement Plan of the System (continued)

For the year ended December 31, 2017, the System recognized pension expense of $143,838, consisting of the current year contribution, pension liability adjustment, and amortization of deferred outflows and inflows of resources. At December 31, 2017, 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	$ 10,108	$ 11,576
Changes in assumptions	111,534	-
Net difference between projected and actual earnings on pension plan investments	168,747	-
Changes in proportion and differences between employer contributions and proportionate share of contributions	17,119	17,412
System contributions subsequent to the measurement date of December 31, 2016	74,644	-
Total	$ 382,152	$ 28,988

The System's total pension liability in the December 31, 2017 and 2016 actuarial valuations were determined using the actuarial assumptions disclosed in Note 12.

Deferred outflows of resources of $100,565 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, 2019. Other amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense in the System's year ending December 31 as follows:

Amortization Schedule

Year	Amount
2019	314,856
2020	300,663
2021	176,930
2022	(19,725)
Total	$ 772,724

Discount Rate

The discount rates used to measure the total pension liability were 4.78 percent and 7.50 percent at December 31, 2018 and 2017, 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, 2018. Based on those assumptions, the System's fiduciary net position was projected to be insufficient to make all projected future benefit payments of current plan members.

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 and 7.50 percent for the years ended December 31, 2018 and 2017, 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%)
2018	$ 2,212,568	$ 1,727,361	$ 1,358,300

System's proportionate share of the net pension liability for the year ended December 31,	1% Decrease (6.50%)	Current Discount Rate (7.50%)	1% Increase (8.50%)
2017	$ 1,136,291	$ 876,434	$ 649,465

11. Annual Money Weighted Rate of Return

The annual money-weighted rate of return was (5.09) percent and 15.55 percent for the years ended December 31, 2018 and 2017, 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 1, which is the most recent actuarial date is as follows:

	2018	2017
Actuarial value of assets	$ 899,816,911	$ 901,076,683
Actuarial accrual liability (AAL)	$ 1,152,728,218	$ 1,133,555,454
Unfunded AAL (UAAL)	$ 252,911,307	$ 232,478,771
Funded ratio	78.1%	79.5%
Annual covered payroll	$ 265,773,659	$ 260,223,066
UAAL as a percentage of payroll	95.2%	89.3%

The funded ratio decreased 1.4% 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, 2018	January 1, 2017
Actuarial cost method	Frozen entry age	Frozen entry age
Rate of investment return	7.50%, net of expenses	7.50%, net of expenses
Participant account interest crediting rate	5.00%	5.00%
Turnover or withdrawal rates	Various by age and year of membership based on actual	Various by age and year of membership based on actual
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. Annual Required Contribution

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

As determined by the actuary, the annual required contribution is as follows at January 1, 2017:

	Board of Education	Retirement System	Charter Schools	Total
Normal Cost contribution	$ 19,818,916	$ 53,325	$ 6,477,946	$ 26,350,187
Actuarial accrued liability contribution	17,557,407	47,240	5,738,755	23,343,402
Annual required contribution (ARC)	$ 37,376,323	$ 100,565	$ 12,216,701	$ 49,693,589
Covered payroll	$ 195,723,057	$ 526,616	$ 63,973,393	$ 260,223,066
ARC as % of covered payroll	19.10%	19.10%	19.10%	19.10%

The ADC and ARC's are determined from the prior years' census; therefore, the contributions are recognized one year in arrears.

14. 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, 2018, 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, 2018 and 2017 was $838,901,660 and $759,039,931, respectively, based on actuarial valuations. 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. The 2017 valuation was performed as of mid-2017, with a measurement date of January 1, 2017, rolled forward and updated to December 31, 2017, using generally accepted actuarial procedures.

Schedule of Net Pension Liability

The components of the net pension liability of all participating employers at December 31, 2018 and 2017, are as follows:

	2018	2017
Total pension liability	$ 1,658,351,553	$ 1,673,122,191
Less: Plan fiduciary net position	819,449,893	914,082,260
Employers' net pension liability	$ 838,901,660	$ 759,039,931
Plan fiduciary net position as a percentage of total pension liability	49.41%	54.63%

14. Employers' Net Pension Liability (continued)

Sensitivity of Net Pension Liability to Changes in the Discount Rate

The following presents the net pension liability at December 31, 2018 and 2017, calculated using the discount rate of 4.78 percent as well as what the net pension liability would have been if it were calculated using a discount rate that is 1-percentage point lower or 1-percentage-point higher than the current rate:

	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
Net pension liability - 2017	$ 961,985,980	$ 759,039,931	$ 590,565,070

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 fiduciary net position was projected to be insufficient to make all projected future benefit payments of current plan members. A municipal bond rate of 3.64% was used in the development of the blended GASB discount rate after that point. The 3.64% rate is based on the S&P Municipal Bond 20 Year High Grade Rate Index as of December 31, 2018. Based on the long-term rate of return of 7.50% and the municipal bond rate of 3.64%, the blended GASB discount rate would be 4.78%. See page 46.

Under GASB Statement No. 68, employers participating in the plan would recognize a proportionate share of total pension expense of $192,072,941 and $193,026,507 for their fiscal years beginning after June 15, 2018 and 2017, respectively.

Required schedules of changes in the net pension liability for the years ended December 31, 2018 and 2017 are provided on page 38.

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

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.

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,

	2018	2017	2016	2015	2014
Total pension liability					
Service cost	$ 41,332,913	$ 19,950,269	$ 19,260,511	$ 19,136,245	$ 18,728,870
Interest	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	(21,350,805)	(8,215,370)	6,392,416	(10,065,347)	-
Changes of assumptions	-	397,218,720	70,532,232	-	-
Benefit payments	(114,010,652)	(112,950,471)	(113,608,409)	(113,384,329)	(113,082,656)
Net change in total pension liability	(14,770,638)	407,259,991	74,934,865	(11,070,803)	(1,048,067)
Total pension liability - beginning	1,673,122,191	1,265,862,200	1,190,927,335	1,201,998,138	1,203,046,205
Total pension liability - ending	$ 1,658,351,553	$ 1,673,122,191	$ 1,265,862,200	$ 1,190,927,335	$ 1,201,998,138
Plan fiduciary net position					
Employer contributions	$ 48,797,779	$ 41,077,344	$ 39,519,979	$ 40,708,503	$ 41,757,458
Employee contributions	14,248,567	12,591,552	12,652,029	11,664,711	11,887,933
Net investment income	(41,671,079)	124,796,919	44,492,088	(5,342,651)	35,000,792
Benefit payments including refunds of employee contributions	(114,010,652)	(112,950,471)	(113,608,409)	(113,384,329)	(113,082,656)
Administrative expense	(1,996,982)	(1,613,506)	(1,554,314)	(1,466,261)	(1,350,393)
Other	-	-	-	(431,423)	-
Net change in plan fiduciary net position	(94,632,367)	63,901,838	(18,498,627)	(68,251,450)	(25,786,866)
Plan fiduciary net position - beginning	914,082,260	850,180,422	868,679,049	936,930,499	962,717,365
Plan fiduciary net position - ending	$ 819,449,893	$ 914,082,260	$ 850,180,422	$ 868,679,049	$ 936,930,499
Net pension liability - ending	$ 838,901,660	$ 759,039,931	$ 415,681,778	$ 322,248,286	$ 265,067,639
Total pension liability	$ 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	819,449,893	914,082,260	850,180,422	868,679,049	936,930,499
Employer net pension liability	$ 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	49.41%	54.63%	67.16%	72.94%	77.95%
Covered payroll	$ 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	316%	292%	165%	131%	109%

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

There were no benefit changes, contribution changes or assumption changes for the year ended December 31, 2018.

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, 2018 and 2017

Changes affecting Employer Net Position Liability for the year ended December 31, 2017, were as follows:

Benefit Changes

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

Contribution Changes

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 Changes

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,

	2018	2017	2016	2015	2014
System's proportion of the net pension liability	0.23%	0.21%	0.20%	0.22%	0.22%
System's proportionate share of the net pension liability	$ 1,727,361	$ 876,434	$ 649,399	$ 570,232	$ 517,013
System's covered payroll	$ 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	322.81%	183.25%	143.00%	120.59 %	not available
Plan fiduciary net position as a percentage of the total pension liability	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,	2018	2017	2016	2015	2014
Annual money-weighted rate of return, net of investment expense, adjusted for the changing amounts actually invested	(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, 2018

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
2009	$19,274,150	$ 19,274,150	$ -	$ 202,754,929	9.51%
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%

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
2009	$ 51,995	$ 51,995	$ -	$ 546,968	9.51%
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%

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, 2018

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
2009	$ 2,074,020	$ 3,377,789	$ (1,303,769)	*	$ 21,817,708	15.48%
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%

*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.

Harris-Stowe College

Year Ended December 31,	Actuarially Determined Contribution	Contributions Recognized by the Plan	Contributions Deficiency (Excess)	Covered Employee Payroll	Contributions recognized by the Plan as a Percentage of Covered Payroll
2009	6,784	6,746	38	71,363	9.45%

Harris-Stowe College ceased participating in the plan in 2009.

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
2009	$ 21,406,949	133.6
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	*

* To be determined at the end of the year

See independent auditors' report

Public School Retirement System of the City of St. Louis
Schedules of Employer Contributions (continued)
December 31, 2018

The actuarial information presented in the required supplementary schedules was determined as part of the actuarial valuation prepared by Buck Global, LLC (formerly known as Conduent Human Resources Services) as of January 1, 2018. Additional information related to the actuarial valuation follows:

Public School Retirement System of the City of St. Louis
Actuarial Assumptions
December 31, 2018

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 2018 and 2017
Turnover or withdrawal rates:	Varies by age & year of membership based on actual
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 2018 and 2017 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 2018 and 2017 plan years.
Disability rates:	RP-2014 Disabled Mortality Table (rolled back to 2006) projected fully generationally using projection scale MP-2015 for the 2018 and 2017 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 2018 and 2017 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, 2018 and 2017

	2018	2017
Actuarial services	$ 139,075	$ 129,078
Accounting and auditing fees	69,533	80,335
Computer programming and consulting	107,981	99,855
Conventions, conferences, seminars		
Trustees (see below)	21,636	23,914
Depreciation expense	67,438	67,438
Dues and subscriptions	5,914	5,812
Employee benefits	3,192	2,960
Health insurance consulting	39,843	39,843
Insurance - group health	67,610	75,646
Insurance - casualty and bonding	92,974	92,654
Legal fees and expenses	128,598	85,051
Medical fees	700	800
Miscellaneous expense	20,404	8,500
Occupancy expense	33,392	28,112
Office repairs and maintenance	36,154	42,213
Office supplies and expenses	18,636	31,241
Payroll taxes	38,788	36,182
Pension expense	431,367	143,838
Postage	69,505	74,424
Printing and publishing	32,687	31,745
Salaries - administrative and clerical	524,826	472,967
Telephone	13,962	11,988
Utilities	32,766	28,910
Total Operating Expenses	$ 1,996,981	$ 1,613,506

Trustees' Expenses

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

	2018	2017
Lodging, meals, and miscellaneous	$ 9,791	$ 10,665
Transportation and registration	11,845	13,249
Total Trustees Expenses	$ 21,636	$ 23,914

See independent auditors’ report

Public School Retirement System of the City of St. Louis
Summary of Investment Expenses
Years Ended December 31, 2018 and 2017

	2018	2017
Investment management fees	$ 4,421,726	$ 4,842,566
Consultant fees	183,362	186,013
Limited partnership initial interest	274,883	-
Banking services	26,569	30,956
Total investment expenses	$ 4,906,540	$ 5,059,535

Public School Retirement System of the City of St. Louis
Schedules of Professional/Consultant Fees
Years Ended December 31, 2018 and 2017

	2018	2017
Actuarial services	$ 139,075	$ 129,078
Accounting and auditing fees	69,533	80,335
Building property management	33,392	28,112
Health insurance consulting	39,843	39,843
Legal expenses	128,598	85,051
Technology consulting	107,981	99,855
Total fees	$ $518,422	$ 462,274

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Public School Retirement System of the City of St. Louis
Schedules of Limited Partnerships
Years Ended December 31, 2018 and 2017

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

Partnership Name	Style	Investments at Fair Value as of December 31, 2017
Fort Washington Private Equity Investors IX, L.P.	Private Equity & Private Debt	$ 2,841,231
Landmark Equity Partners XIV, L.P.	Private Equity & Private Debt	1,638,796
Landmark Equity Partners XV, L.P.	Private Equity & Private Debt	3,814,561
Lighthouse Capital Partners VI, L.P.	Private Equity & Private Debt	338,287
Mesirow Financial Private Equity Partnership Fund III, L.P.	Private Equity & Private Debt	1,422,412
Monroe Capital Private Credit Fund II, L.P.	Private Equity & Private Debt	8,461,843
Pantheon Global Secondary Fund III B, L.P.	Private Equity & Private Debt	1,433,961
Siguler Guff Distressed Opportunities Fund II, L.P.	Private Equity & Private Debt	96,453
SW Pelham Fund III, L.P.	Private Equity & Private Debt	620,688
Vista Foundation Fund II, L.P.	Private Equity & Private Debt	5,039,825
		$ 25,708,057

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Public School Retirement System of the City of St. Louis
Schedule of Actuarial Present Values of Projected Benefit Payments
000's omitted
December 31, 2018

		Benefit Payments			Present Value		
Fiscal Year Ending 12/31	Beginning Fiduciary Net Position	Benefit Payments	Funded Portion	Unfunded Portion	Funded Portion at 7.50%	Unfunded Portion at 3.64%	Using a Single Discount Rate of 4.78%
2019	$ 819,450	$ 110,970	$ 110,970	$ -	$ 107,029	$ -	$ 108,409
2020	$ 815,574	$ 110,426	$ 110,426	$ -	$ 99,074	$ -	$ 102,957
2021	$ 806,611	$ 109,049	$ 109,049	$ -	$ 91,013	$ -	$ 97,035
2022	$ 794,440	$ 108,790	$ 108,790	$ -	$ 84,462	$ -	$ 92,388
2023	$ 778,597	$ 108,852	$ 108,852	$ -	$ 78,614	$ -	$ 88,224
2024	$ 759,160	$ 108,369	$ 108,369	$ -	$ 72,804	$ -	$ 83,825
2025	$ 736,740	$ 108,087	$ 108,087	$ -	$ 67,549	$ -	$ 79,793
2026	$ 711,094	$ 106,980	$ 106,980	$ -	$ 62,193	$ -	$ 75,373
2027	$ 682,942	$ 106,848	$ 106,848	$ -	$ 57,782	$ -	$ 71,845
2028	$ 650,542	$ 106,246	$ 106,246	$ -	$ 53,448	$ -	$ 68,181
2029	$ 614,245	$ 105,639	$ 105,639	$ -	$ 49,435	$ -	$ 64,699
2030	$ 573,897	$ 106,199	$ 106,199	$ -	$ 46,230	$ -	$ 62,075
2031	$ 528,112	$ 104,949	$ 104,949	$ -	$ 42,498	$ -	$ 58,546
2032	$ 478,481	$ 104,273	$ 104,273	$ -	$ 39,279	$ -	$ 55,515
2033	$ 424,229	$ 104,225	$ 104,225	$ -	$ 36,521	$ -	$ 52,958
2034	$ 364,436	$ 104,175	$ 104,175	$ -	$ 33,957	$ -	$ 50,518
2035	$ 299,138	$ 104,383	$ 104,383	$ -	$ 31,651	$ -	$ 48,310
2036	$ 227,700	$ 102,656	$ 102,656	$ -	$ 28,958	$ -	$ 45,343
2037	$ 151,704	$ 102,844	$ 102,844	$ -	$ 26,985	$ -	$ 43,354
2038	$ 68,879	$ 101,707	$ -	$ 101,707	$ -	$ 50,648	$ 40,919
2039	$ (19,863)	$ 102,131	$ -	$ 102,131	$ -	$ 49,074	$ 39,215
2040	$ (116,539)	$ 101,073	$ -	$ 101,073	$ -	$ 46,859	$ 37,038
2041	$ (220,175)	$ 99,368	$ -	$ 99,368	$ -	$ 44,451	$ 34,752
2042	$ (330,582)	$ 100,163	$ -	$ 100,163	$ -	$ 43,233	$ 33,432
2043	$ (450,809)	$ 98,770	$ -	$ 98,770	$ -	$ 41,134	$ 31,463

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, 2018

Year	Projected Beginning Fiduciary Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Investment Earnings	Projected Ending Fiduciary Net Position
2019	$ 819,450	$ 49,314	$ 110,970	$ 57,780	$ 815,574
2020	$ 815,574	$ 43,960	$ 110,426	$ 57,502	$ 806,611
2021	$ 806,611	$ 39,999	$ 109,049	$ 56,880	$ 794,440
2022	$ 794,440	$ 36,970	$ 108,790	$ 55,977	$ 778,597
2023	$ 778,597	$ 34,624	$ 108,852	$ 54,791	$ 759,160
2024	$ 759,160	$ 32,594	$ 108,369	$ 53,355	$ 736,740
2025	$ 736,740	$ 30,754	$ 108,087	$ 51,686	$ 711,094
2026	$ 711,094	$ 29,024	$ 106,980	$ 49,805	$ 682,942
2027	$ 682,942	$ 26,772	$ 106,848	$ 47,675	$ 650,542
2028	$ 650,542	$ 24,704	$ 106,246	$ 45,245	$ 614,245
2029	$ 614,245	$ 22,767	$ 105,639	$ 42,524	$ 573,897
2030	$ 573,897	$ 20,956	$ 106,199	$ 39,457	$ 528,112
2031	$ 528,112	$ 19,269	$ 104,949	$ 36,050	$ 478,481
2032	$ 478,481	$ 17,686	$ 104,273	$ 32,334	$ 424,229
2033	$ 424,229	$ 16,183	$ 104,225	$ 28,249	$ 364,436
2034	$ 364,436	$ 15,129	$ 104,175	$ 23,748	$ 299,138
2035	$ 299,138	$ 14,119	$ 104,383	$ 18,825	$ 227,700
2036	$ 227,700	$ 13,146	$ 102,656	$ 13,515	$ 151,704
2037	$ 151,704	$ 12,226	$ 102,844	$ 7,793	$ 68,879
2038	$ 68,879	$ 11,355	$ 101,707	$ 1,609	$ (19,863)
2039	$ (19,863)	$ 10,532	$ 102,131	$ (5,076)	$ (116,539)
2040	$ (116,539)	$ 9,737	$ 101,073	$ (12,300)	$ (220,175)
2041	$ (220,175)	$ 8,982	$ 99,368	$ (20,021)	$ (330,582)
2042	$ (330,582)	$ 8,279	$ 100,163	$ (28,343)	$ (450,809)
2043	$ (450,809)	$ 7,612	$ 98,770	$ (37,318)	$ (579,285)

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"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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BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | SAN FRANCISCO

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, 2018.

Asset Allocation and Investment Performance

During the year ending December 31, 2018, the Fund returned -5.0% gross of fees, which ranked it in the 75th percentile of public funds with assets between $250 million and $1.0 billion within the InvestorForce Public Fund Defined Benefit Universe. Assets decreased from $905.6 million at the end of fiscal year 2017 to approximately $805.5 million as of year-end 2018. Over the trailing 5-year period ending December 31, 2018, the Fund earned an annualized rate of return of 4.1%, ranking in the 86th percentile of the comparative universe. Over the trailing 10-year period ending December 31, 2018, the Fund earned an annualized rate of return of 8.2%, ranking in the 81st percentile.

At the December 31, 2018 fiscal year end, the asset allocation of the Plan was 45.2% equities, 21.4% fixed income, 11.6% global asset allocation strategies, 7.0% hedge funds, 6.0% real estate, 3.7% private equity, 1.1% private debt strategies, and 4.0% 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

During the last quarter of the year, stocks across the board took a severe beating with the MSCI ACWI Index down 12.8%; energy, the worst performing sector, lost 20.2%. The MSCI EAFE Index was in the red at 12.5%. In the US, stocks recorded their worst quarter in more than seven years with the S&P 500 bleeding 13.5% as investors fretted over the trade dispute between the United States and China, and the pace of interest rate increases. Domestic equities also posted their worst December since the 1930's as large-cap equities outperformed small caps and value bested growth. Emerging market stocks, which underwent a correction earlier in the year, outperformed developed markets with the MSCI EM Index falling 7.47% for the quarter.

Global markets rose in the third quarter, led primarily by the US and, more specifically, growth stocks. The S&P 500 gained 7.7% in the three months ended September 30 while healthcare led sector performance. Japanese equities were also a strong performer, driven by continued reforms and the reelection of its prime minister. Meanwhile, stocks didn't fare as well in the UK as concerns mounted around Brexit; emerging markets were hurt by a currency crisis in Turkey and tensions related to US-China trade relations.

For the second quarter, Global equities eked out a modest 0.5%, according to the MSCI ACWI Index. Growth stocks outperformed value while large-cap equities bested small caps in non-US markets. Bolstered by rising oil prices, energy was the strongest performing sector with gains of 10.3%. Financials and telecom sectors lagged with losses of 5.6% and 4.1%, respectively. Excluding the US, developed market equities were in the red at 1.2%, according to the MSCI EAFE Index, as a stronger US dollar erased gains in local equity markets. The S&P 500 returned 3.4%, buoyed by a robust employment report with joblessness hitting an 18-year old low in May. Value beat growth in small-cap stocks while growth outperformed value in large caps; small-cap stocks bested large caps. Emerging markets took a hit with stocks posting their worst quarter since 2015 with losses of nearly 8% in the second quarter, according to the MSCI EM Index. Of note, MSCI said it would add 236 China A-share stocks to its emerging markets index, in addition to including Argentina and Saudi Arabia.

The first quarter of 2018 saw volatility dulled returns amid heightening concerns around trade tensions between the United States and China. Developed market stocks outside of North America declined 1.5%, according to the MSCI EAFE Index, while emerging market equities eked out gains of 1.4%. The currency-hedged MSCI EAFE Index lost 4.3% during the quarter as most currencies strengthened against the dollar. US stocks fell 3.7% in February, snapping their 15-month winning streak; they ended the quarter in the red, losing a modest 0.8%. Information technology dominated sector performance, posting strong returns globally.

Global Fixed Income Markets

For the last quarter of the year, the Bloomberg Barclays Aggregate rose 1.6% and the Bloomberg Barclays US Long Treasury was up 4.2%. The Bloomberg Barclays High Yield fell 4.5% and the S&P LSTA Leveraged Loan Index lost 3.5% during the same period. In the US, high-yield spreads - particularly in the lower-rated CCC segment - widened significantly in the fourth quarter. The burgeoning BBB-rated segment is a concern for investment-grade and high-yield debt investors. Double the size of the high-yield market, the growth in the BBB-segment has been driven largely by issuance, an increase in mergers and acquisitions, and credit downgrades from A to BBB. Widespread downgrades among BBBs could lead to an oversupply in high-yield securities and pressure prices.

The third quarter ended with the Bloomberg Barclays Aggregate Index down 0.2% as corporate spreads remained relatively flat in the second quarter. The US Long Credit Index fell 2.7% and the US Long Treasury gained 0.3% with the 10-year yielding 2.86%. Outside the US, emerging markets debt had a rough quarter in dollar-denominated and local currencies, losing 3.5% and 10.4%, respectively, amid drawdowns of local currencies stoked by concerns around US tariffs and election results in Turkey and Mexico.

The second quarter of the year saw US credit affected by higher interest rates and the ongoing trade war. The rate hike in September pushed the Fed Funds rate to its highest peak since October 2008. The Bloomberg Barclays High Yield Index finished the quarter up 2.4% and the S&P LSTA Leveraged Loan Index gained 1.3%; loans remained in the lead for the year with gains of 4% compared to 2.6% for high yield.

Credit was mostly subdued in the first quarter with the Bloomberg Barclays Aggregate down 1.5% and the Bloomberg Barclays High Yield Index losing 0.9%; breaking from the pack, the S&P LSTA Leveraged Loan Index was up 1.4%. US long credit was down 3.8%, while long Treasuries fell 3.3% with yields on the 10-year note at 2.74%. Outside the US, emerging markets continued to rally with local debt leading the way. The JPM GBI-EM Index returned 4.4% in the first quarter, bolstered by emerging market currencies which were up 2.5%. Hard-currency sovereign debt didn't fare as well, falling 2.0% as spreads widened. Within hedge funds, long/short credit strategies suffered losses in March with the HFRI Credit Index ending the quarter at 1.9%. Relative-value arbitrage, convertible, global-credit and yield-alternative approaches also pared gains for the quarter in March. Mortgage-backed securities outperformed other asset-backed investments for the quarter due to their lower sensitivity to traditional credit risk.

Sincerely,

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, 2018

Investment Category	% of MV	Market Value (MV)	Cost	MV Over (Under) Cost
Cash Equivalents	4.54%	$36,721,304	$36,721,304	$0
U.S. Government and Agency Issues	3.59%	28,998,131	29,592,471	(594,340)
Corporate Bonds	4.06%	32,811,378	34,097,511	(1,286,133)
Foreign Investments (bonds & stocks)	9.09%	73,501,212	78,763,546	(5,262,334)
Common and Preferred Stocks	22.93%	185,412,081	168,088,999	17,323,082
Mutual and Co-Mingled Funds	44.52%	360,023,724	288,610,690	71,413,034
Real Estate Partnerships	5.99%	48,471,908	32,418,615	16,053,293
Limited Partnerships	5.28%	42,695,453	41,044,416	1,651,037
Total	**100.0%**	**$808,635,191**	**$709,337,552**	**$99,297,639**

Market Value of All Assets
Years Ended December 31, 2016 – 2018

Investment Category	December 31, 2016		December 31, 2017		December 31, 2018	
	Market Value	% of Total	Market Value	% of Total	Market Value	% of Total
Cash, Receivables, Cash Equivalents	$58,672,565	6.89%	$51,686,795	5.64%	$47,418,782	5.77%
Property and Building	1,815,142	0.21%	1,747,704	0.19%	1,680,266	0.20%
U.S. Government & Agency Issued Bonds	38,004,981	4.46%	28,241,695	3.08%	28,998,131	3.53%
Corporate Bonds	57,455,994	6.75%	33,283,520	3.63%	32,811,378	3.99%
Foreign Investments (bonds and stocks)	106,066,223	12.45%	91,518,408	9.99%	73,501,212	8.94%
Common and Preferred Stocks	210,678,307	24.74%	216,329,735	23.62%	185,412,081	22.56%
Mutual and Co-Mingled Funds	306,141,170	35.95%	411,565,601	44.94%	360,023,724	43.80%
Real Estate Partnerships	52,710,452	6.19%	55,324,668	6.04%	48,471,908	5.90%
Limited Partnerships	19,870,200	2.33%	25,708,057	2.81%	42,695,453	5.19%
Other Assets	251,094	0.03%	382,152	0.04%	1,019,600	0.12%
Total	**$851,666,128**	**100.0%**	**$915,788,335**	**100.0%**	**$822,032,535**	**100.0%**

Public School Retirement System of the City of St. Louis

For the fiscal year ended December 31, 2018, the PSRSSTL portfolio posted a loss of -5.0%, ranking 75th within the Investor Force Universe (IFU) of Public Funds. For the three-year and five-year periods ending December 31, 2018, the PSRSSTL portfolio ranked 85th and 86th, returning 5.5% and 4.1%, 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, 2018 are set forth below.

	Annualized Returns for Periods Ended[1] December 31, 2018, gross of fees		
Investment Category	**One Year**	**Three Years**	**Five Years**
PSRS Total Portfolio	-5.0%	5.5%	4.1%
Allocation Index[2]	-4.7%	6.0%	4.4%
PSRS Domestic Equity	-6.8%	8.1%	7.2%
Russell 3000	-5.2%	9.0%	7.9%
PSRS International Equity	-16.5%	1.8%	-0.1%
MSCI EAFE	-13.8%	2.9%	0.5%
PSRS Emerging Market Equity	-11.3%	10.6%	2.0%
MSCI Emerging Markets	-14.6%	9.2%	1.6%
PSRS Global Equity	-9.5%	5.0%	-
MSCI All Country World	-9.4%	6.6%	4.3%
PSRS Global Asset Allocation	-5.5%	4.7%	2.9%
60% MSCI World 40% FTSE WGBI	-5.4%	5.0%	3.2%
PIMCO All Asset Index	-1.1%	3.5%	3.1%
65% MSCI World 35% Barc Agg	-5.5%	5.0%	4.0%
PSRS Fixed Income	-1.3%	4.2%	3.0%
Barclays US Aggregate	0.0%	2.1%	2.5%
Barclays GL Aggregate Hedged	1.8%	2.9%	3.4%
3-Month LIBOR + 3%	5.4%	4.5%	4.0%
50% JPM GBI-EM/50% JPM EMBI	-4.5%	6.0%	1.6%
PSRS Hedge Funds	-1.3%	1.5%	0.8%
HFRI FOFs Composite	-4.1%	1.3%	1.4%
HFRI RV Multi-Strategy	-0.3%	3.4%	2.8%
PSRS Real Estate	6.7%	6.8%	8.8%
NCREIF	7.2%	7.8%	9.6%

[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, 2018 (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		52,419	6.4%	45,062	5.5%	7,357	0.9%		
Intech	Large Cap Growth							22,312	42.6%
TCW Asset Management	Large Cap Growth							30,107	57.4%
LARGE CAP CORE DOMESTIC EQUITIES		3,472	0.4%	16,386	2.0%	(12,914)	-1.6%		
Mellon Stock Index Fund	Large Cap Core							3,472	100.0%
LARGE CAP VALUE DOMESTIC EQUITIES		72,750	8.9%	45,062	5.5%	27,688	3.4%		
Chicago Equity Partners	Large Cap Value							40,960	56.3%
The Edgar Lomax Company	Large Cap Value							31,790	43.7%
MID/SMALL/MICRO CAP DOMESTIC EQUITIES		69,966	8.5%	73,738	9.0%	(3,772)	-0.5%		
Westfield Capital Management	Small Cap Growth							23,269	33.3%
Systematic Financial Management	Small Cap Value							26,315	37.6%
Dimensional Fund Advisors (DFA)	Micro Cap							20,382	29.1%
GLOBAL TACTICAL ASSET ALLOCATION		93,525	11.4%	81,931	10.0%	11,594	1.4%		
GMO	Balanced Fund							31,442	33.6%
Mellon Global Alpha	Balanced Fund							30,148	32.2%
PIMCO	Balanced Fund							31,935	34.1%
GLOBAL EQUITIES*		43,863	5.4%	40,966	5.0%	2,898	0.4%		
ARGA	Global Equities							12,293	28.0%
Ativo Capital Management	Global Equities							11,751	26.8%
Brown Capital Management	Global Equities							2,579	5.9%
Channing	Global Equities							2,243	5.1%
Strategic Global Advisors	Global Equities							14,997	34.2%
INTERNATIONAL EQUITIES		121,395	14.8%	155,669	19.0%	(34,274)	-4.2%		
Dimensional Fund Advisors (DFA)	Emerging Markets							15,941	13.1%
OFI Global Asset Management	Emerging Markets							24,531	20.2%
Fidelity Institutional Asset Mangement (Pyramis)	International Equities							40,102	33.0%
Causeway	International Equities							40,821	33.6%
CORE DOMESTIC BONDS		66,999	8.2%	65,545	8.0%	1,454	0.2%		
EARNEST Partners	Core Domestic Bonds							12,416	18.5%
Manulife Asset Management	Core Domestic Bonds							43,090	64.3%
Piedmont Investment Advisors (formerly NCM)	Core Domestic Bonds							11,493	17.2%
ABSOLUTE RETURN DOMESTIC BONDS		44,812	5.5%	40,966	5.0%	3,847	0.5%		
Loomis Sayles	Unconstrained Fixed Income							44,812	100.0%
EMERGING MARKETS DEBT		25,278	3.1%	24,579	3.0%	699	0.1%		
Lazard Asset Management	Emerging Markets							25,278	100.0%
GLOBAL MULTI-SECTOR BONDS		35,630	4.3%	40,966	5.0%	(5,336)	-0.7%		
Neuberger Berman Trust Co.	Global Opportunistic Bonds							35,630	100.0%
HEDGED STRATEGIES		56,360	6.9%	57,352	7.0%	(992)	-0.1%		
EnTrustPermal	Fund of Funds							10,933	19.4%
Grosvenor Capital Management	Fund of Funds							26,667	47.3%
Whitebox Advisors	Multi-Strategy Direct							18,760	33.3%
REAL ESTATE		48,472	5.9%	57,352	7.0%	(8,880)	-1.1%		
UBS Trumbull Property & Income Funds	Commercial Real Estate							48,472	100.0%
PRIVATE MARKETS		42,695	5.2%	73,738	9.0%	(31,043)	-3.8%		
Private Equity, Private Debt, Private Real Estate	Limited Partnerships							42,695	100.0%
CASH *(Does Not Include Managers' Residual Cash)*		41,674	5.1%	0	0.0%	41,674	5.1%		
U.S. Bank (checking & operating accounts)	Cash Accounts							41,674	
TOTAL (000's Omitted)		**$819,310**	**100.0%**	**$819,310**	**100.0%**			**$819,310**	

*Managed by Progress Investments Management Co.

The target values above represent the Asset Allocation Policy adopted by the Board of Trustees on February 27, 2017. In 2018, the Board of Trustees terminated hedge fund money manager Entrust Permal for poor performance and the investment was in liquidation at the end of the year. The hedge fund portfolio managed by Passport Capital and the core domestic bond portfolio managed by Mellon Capital were liquidated in 2018. During 2018, the System closed on five new private market investments. Basis Investment Group and Elm Tree Funds were each hired to manage $8 million commitments to their respective private real estate funds; Brightwood Capital and Monroe Capital were each hired to manage $11 million commitments to their respective private debt funds; and Landmark Partners was hired to manage a $15 million commitment to their 16th private equity fund. All five money managers began to draw on these commitments in 2018. The System funds the commitments as called by the money managers from cash and by rebalancing other assets.

Domestic Equity Investments

Domestic Equity Performance & Characteristics	
2018 Return	-6.8%
Weighted Avg. Market Capitalization	$84.8 Billion
P/E Ratio	22.25
Price/Book Ratio	5.06
Five-Year Annualized Return	7.2%

PSRSSTL Ten Largest Domestic Equity Holdings

Company	% of Holdings	Company	% of Holdings
First American	1.6%	Verizon	1.2%
Amazon	1.5%	Alphabet “C”	1.1%
Pfizer	1.5%	Adobe	1.1%
Cisco Systems	1.3%	Mastercard	1.0%
Visa “A”	1.3%	JP Morgan Chase & Co	1.0%

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

Company	Contribution %	Return	Company	Contribution %	Return
Apple	0.9%	-29.9%	Facebook	0.1%	-20.3%
Microsoft	0.3%	-10.8%	IBM	0.1%	-23.9%
Amazon	0.3%	-25.0%	Exxon Mobil	0.1%	-19.0%
Alphabet “A”	0.2%	-13.4%	Activision Blizzard	0.1%	-44.0%
Netflix	0.1%	-28.5%	Citigroup	0.1%	-26.9%

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

Company	Contribution %	Return	Company	Contribution %	Return
Target	-0.2%	-24.4%	WPX Energy	-0.2%	-43.6%
Align Technology	-0.2%	-46.5%	Control 4	-0.2%	-48.7%
Trinesco	-0.1%	-41.2%	Centennial	-0.1%	-49.6%
Adobe	-0.1%	-16.2%	Domtar	-0.1%	-31.3%
Allstate	-0.1%	-15.8%	Transunion	-0.1%	-22.7%

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, 2018, excluding pooled or mutual funds.

PSRSSTL Domestic Bond Portfolio Performance & Characteristics	
2018 Return	0.4%
Average Yield to Maturity	4.2%
Average Duration	4.8 Years
Average Quality Rating	A
Five-Year Annualized Return	3.7%

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 4.8 years at the end of fiscal year 2018, the System's domestic bond money managers met this requirement in 2018.

PSRSSTL Domestic Bond Portfolio Quality Ratings	Percentage of PSRSSTL Domestic Bond Portfolio
AAA	14.1%
AA	45.1%
A	12.0%
BBB	17.5%
BB and Below	10.9%
Not Rated	0.4%

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 around 99.6% of the PSRSSTL domestic bond portfolio was rated "BB" or better at the end of fiscal year 2018, 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, 2018, excluding pooled or mutual funds.

Public School Retirement System
of the City of St. Louis

Brokerage Commissions Paid
Year Ended December 31, 2018

Company	Commissions	Company	Commissions	Company	Commissions
Autonomous	$ 199.34	Instinet	$ 12,219.35	Oppenheimer & Co.	$ 194.20
B. Riley & Co.	89.20	ITG	10,151.47	Penserra Securities	993.44
Baird & Company	490.41	J P Morgan	6,725.98	Pershing Securities	427.23
Barclays Capital	3,148.22	Jeffries & Co.	1,200.98	Piper Jaffray	307.92
Berenberg Gossler	590.07	JMP Securities	255.13	Raymond James	400.65
BNP Paribas Security Services	1,682.52	Johnson Rice & Co.	24.55	RBC Capital Markets	4,501.66
Broadcort Cap Corp	575.00	Jones Trading	328.29	Redburn Partners	414.42
Cabrera Capital Markets	8,489.63	Keefe Bruyette & Woods	716.13	Rosenblatt Securities	1,873.38
Cantor Clearing House	733.59	Keybanc Capital Markets	436.08	Sandler O'Neill & Partners	42.00
Cantor Fitzgerald	63.60	King CL & Associates	1,357.65	Sanford C. Bernstein & Co	4,087.19
Cap Institutional Services	5,834.00	Leerink Partners LLC	127.60	Seaport Group Securities	79.77
Citigroup	4,875.73	Liquidnet Inc.	8,914.73	SG Securities	2,461.65
CLSA Limited	799.26	Longbow Securities LLC	30.00	SMBC Securities	36.22
Cornerstone Macro LLC	70.74	Loop Capital Markets	5,758.97	State Street	6,589.08
Cowen & Co.	8,858.88	Luminex Trading & Analytics	242.01	Stephens Inc.	25.60
Cowen Execution Services	10,215.99	LXM Finance	1.37	Stifel Nicolaus & Co.	509.24
Credit Suisse Securities	9,319.17	Macquarie Securites	2,799.26	Strategas Securities LLC	8.67
CV Brokerage	3,608.31	Merrill Lynch	6,966.18	Sturdivant & Co., Inc.	3,024.80
Daiwa	1,105.12	Mischler Financial Group	14,730.28	Suntrust Capital	771.20
Davidson & Co.	49.94	Mizuho Securities USA	607.05	UBS	7,070.40
Deutsche Bank Securities	2,054.06	MKM Partners	804.85	Virtu Americas LLC	143.25
Evercore	488.60	Morgan Stanley	4,981.54	Wedbush Morgan Securities	634.06
Exane SA	497.34	National Financial Services	125.60	Weeden & Co.	1,561.13
FBR Capital Markets	156.00	Needham & Company	404.30	Wells Fargo Securities LLC	307.11
Goldman Sachs	3,996.73	North South Capital	277.86	William Blair & Co. LLC	416.48
Guzman & Company	682.85	Numis Securities Inc.	2.08	Williams Capital Group	169.79
H. Kong & Shang Bank Corp	162.04	O'Neil Securities Inc.	109.20	Wolfe Research Securities	112.40
HSBC	2,575.69				
				2018 Total Commissions	**$ 188,873.46**

Public School Retirement System
of the City of St. Louis

Investment Management Fees and Expenses
Years Ended December 31, 2018 and 2017

Investment management fees	2018	2017
Ativo Capital Management	$ 86,353	$ 79,039
Arga Investment Management	92,986	87,520
Brown Capital Management Global	-	17,709
Brown Capital Management	22,434	2
Causeway Capital Management	312,167	321,400
Channing Capital Management	17,495	15,450
Chicago Equity Partners	163,020	163,247
Earnest Partners	30,586	30,408
Edgar Lomax Company	171,119	170,650
Entrust Capital Diversified Fund LTD	256,211	268,334
Fidelity Institutional Asset Management	284,865	284,479
Holland Capital Management	-	129,207
Intech Investment Management	129,963	123,709
Lazard Asset Management	226,965	229,675
Loomis Sayles & Company, LP	224,510	164,360
Manulife Asset Management	128,204	127,460
Mellon Capital Management	261,362	272,770
Mondrian Investment Partners	-	81,505
NCM Capital	34,450	33,926
OFI Global Asset Management	237,374	198,579
Passport II LP	-	335,200
Strategic Global	113,537	109,210
Systematic Financial Management	293,730	277,103
TCW Asset Management Company	213,531	194,741
UBS Realty Investors LLC	456,234	489,776
US Bank Trust	114,805	124,326
Westfield Capital Management	267,684	245,144
Whitebox Multi-Strategy Fund, L.P.	282,141	267,637
Total Investment Management Fees	4,421,726	4,842,566
NEPC, LLC	183,362	186,013
Limited partnership initial interest	274,883	-
Banking services	26,569	30,956
Total Investment Expenses	$ 4,906,540	$ 5,059,535

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

Actuarial Section

CONDUENT

231 S. Bemiston, Suite 400
St. Louis, MO 63105

June 2018

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, 2018 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, 2018 by Conduent. 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, 2018.

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 Conduent 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.

Conduent 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.

Conduent 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 Actuarial Standards of Practice (ASOPs).

Sincerely,

Troy Jaros, FSA, EA, MAAA, FCA
Senior Consultant, Retirement Actuary

Conduent HR Services

Report Highlights

This report has been prepared by Conduent to:

- Present the results of a valuation of the Public School Retirement System of the City of St. Louis ("System") as of January 1, 2018; and
- Determine the required contribution rate for 2019.

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 2017 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 2017 plan year, total (net) actuarial losses due to plan experience were $25.9 million. Approximately $4.1 million is a loss attributable to the System's actuarial rate of return on assets which was 6.9% or 0.6% lower than the assumed rate of return of 7.5% for plan year 2017. By comparison, the rate of return on the market value of assets during plan year 2017 was 15.2%. The difference in these returns is due to asset smoothing. Market value returns were higher than expected but these returns are smoothed over 5 years in the actuarial value, rather than realized immediately. As of January 1, 2018, the actuarial value of assets of $899.8 million was above the market value of assets (excluding the expense and contingency reserve) by approximately $16.5 million.

An actuarial loss of approximately $21.8 million attributable to demographic experience is included in the above total (net) actuarial loss of $25.9 million.

Assumption Changes

For the 2018 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 2018 valuation, the normal pension eligibility requirement was changed from Rule of 85 to Rule of 80 due to legislation that was passed and became effective on August 28, 2017. This Plan change increased the January 1, 2018 actuarial accrued liability by approximately $16.8 million. There were other Plan changes, as described on page 94 of the Statistical Section, but they had no impact on the January 1, 2018 actuarial accrued liability since they are prospective in nature.

Normal cost rate

The normal cost is determined annually and equals the product of the normal cost rate times covered payroll. For plan year 2018, the annual normal cost contribution was $21,038,975, as compared to $26,350,187 for plan year 2017. This decrease is primarily due to the legislative changes in future employee contributions. The annual normal cost rate decreased from 9.76% to 7.63% due to the legislative changes. Covered payroll increased from $260.2 million to $265.8 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 2017 were $1.4 million more than the annual required contribution, which reduced the UFAAL more than expected. However, the legislative changes increased the UFAAL by $16.8 million. As a result, the net amortization payment increased from $23,343,402 to $26,057,188. The amortization payment component of the contribution rate increased from 9.0% to 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 2018, due to the Plan no later than December 31, 2019. Due to legislation passed, effective August 28, 2017, the contribution rate was 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, 2019, decreased to $31,344,663 for plan year 2018 from $37,376,323 for plan year 2017.

As a percentage of covered payroll in plan year 2018, the contribution rate for plan year 2018 decreased to 16.00% from 19.10% for plan year 2017. Charter Schools pay both employer and employee contributions as they occur shortly after each payroll period; therefore, this actuarial valuation was used to determine the contribution rate of 16.00% that Charter Schools should have paid beginning with payroll periods ending on or after January 1, 2018.

According to the 2018 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 pay an annual contribution rate of 17.72% versus the 16.00% contribution rate for plan year 2018 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
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
2017				
Normal cost contribution	$ 19,818,916	$ 53,325	$ 6,477,946	$ 26,350,187
Actuarial accrued liability contribution	17,557,407	47,240	5,738,755	$ 23,343,402
Annual required contribution	$ 37,376,323	$ 100,565	$ 12,216,701	$ 49,693,589
Covered payroll	$ 195,723,057	$ 526,616	$ 63,973,393	$ 260,223,066
ARC as % of covered payroll	19.10%	19.10%	19.10%	19.10%

	January 1, 2018	January 1, 2017
System Assets		
Expense and contingency reserve	$ 30,751,247	$ 30,921,897
Market value, excluding expense & contingency reserve	883,331,012	819,258,525
Actuarial value	899,816,911	901,076,683
System liabilities		
Unfunded actuarial accrued liability	$ 252,911,307	$ 232,478,771
Projected Unit Credit (PUC) Actuarial Accrued Liability	$1,235,909,034	$1,223,329,683
Entry Age Normal (EAN) Actuarial Accrued Liability	$1,266,012,715	$1,258,219,995
PUC Funding Ratio		
Actuarial value funding ratio	72.8%	73.7%
Market value funding ratio	71.5%	67.0%
EAN Funding Ratio		
Actuarial value funding ratio	71.1%	71.6%
Market value funding ratio	69.8%	65.1%

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 2017 was 15.22%. The approximate actuarial value rate of return was 6.85%.

(2) Demographic Experience

The number of active members increased from 5,101 to 5,138 for the period. The average age and service of active members decreased slightly, and the average annual salary increased by $713 (1.4%). 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 1.4% between January 1, 2017 and January 1, 2018. Total annual covered payroll increased by 2.1% between January 1, 2017 and January 1, 2018.

(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

On August 28, 2017, legislation became effective that changed the normal pension eligibility requirement from the Rule of 85 to the Rule of 80. The impact of this change was to increase the January 1, 2018 Entry Age Normal Actuarial Accrued Liability by $16.8 million.

There were other changes in this legislation that impact employee and employer contribution rates, along with the benefit multiplier for new hires. These changes do not have an impact on the January 1, 2018 actuarial accrued liability since they are prospective in nature.

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 benefit provisions, resulted in a decrease in the PUC funding ratio utilizing the actuarial value of assets from 73.7% to 72.8%. The total actuarially determined contribution rate decreased from 19.10% to 17.72% of covered payroll.

Actuarial Balance Sheet as of January 1, 2018

Actuarial assets		
Actuarial value of current assets		$ 899,816,911
Actuarial present value of future participant contributions		127,776,813
Actuarial present value of future employer contributions for:		
Normal costs		130,692,040
Unfunded actuarial accrued liability		252,911,307
Total current and future assets		$ 1,411,197,071
Actuarial liabilities		
Actuarial present value of benefits now payable		$ 901,926,852
Actuarial present value of benefits payable in the future:		
Active participants	$ 476,191,660	
Terminated vested participants	25,299,400	
Terminated non-vested participants	7,779,159	
Total payable in the future		509,270,219
Total liabilities for benefits		$ 1,411,197,071
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)
2009	$ 963,851,408	$ 1,099,891,716	$ 136,040,308	87.6%	$ 234,582,326	58.0%
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%

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, 2018, the Projected Unit Credit Actuarial Accrued Liability (AAL) was:	
1. Retired members and beneficiaries currently receiving pensions and terminated members not yet receiving pensions	$ 935,005,411
a. Current active participants	
i. Accumulated member contributions, including interest	122,241,799
ii. Employer-financed pensions	178,661,824
Total Projected Unit Credit Actuarial Accrued Liability	$ 1,235,909,034
As of January 1, 2018, the Projected Unit Credit AAL was funded as follows:	
2. Net assets available for pensions at actuarial value	$ 899,816,911
3. Unfunded Projected Unit Credit AAL at actuarial value	336,092,123
4. Actuarial value funding ratio, (2) / (1)	72.8%
5. Net assets available for pensions at market value	$ 883,331,012
6. Unfunded Projected Unit Credit AAL at market value	352,578,022
7. Market value funding ratio, (5) / (1)	71.5%

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 – 2018)

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%

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, 2017	$ 901,076,683
2.	Participant contributions	12,591,552
3.	Employer contributions	41,077,344
4.	Pension payments and expenses	114,563,978
5.	Investment increment at 7.50%, 7.50% x {(1) + .5 x [(2) – (4)]}	63,756,785
6.	Expected actuarial value on January 1, 2018, (1) + (2) + (3) – (4) + (5)	903,938,386
7.	Market value of assets on January 1, 2018	914,082,259
8.	Expense and contingency reserve on January 1, 2018, prior to adjustment	30,751,247
9.	Adjustment to the investment contingency reserve	0
10.	Excess of market value over expected actuarial value, (7) – (6) – (8) – (9)	(20,607,374)
11.	Market value adjustment, 20% x (10)	(4,121,475)
12.	Actuarial value of assets as of January 1, 2018, (6) + (11)	899,816,911

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
(1997 – 2018)

January 1	Expense reserve	Investment contingency reserve	Total expense and contingency reserve
1997	$25,403,190	$ 5,220,821	$30,624,011
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

Investment Performance

The fund had a rate of return of 6.85% on an actuarial value basis, which is 0.65% below the assumed rate of return of 7.50% for plan year 2017. According to Rule X, the actuarial return on assets was within 1.00% of 7.50% during plan year 2017; as such, 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. An indicator of actual performance during the year is the rate of return on a market value basis, which was 15.22% for plan year 2017.

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, 2017	$ 850,180,422
ii.	B = Market value of assets as of January 1, 2018	914,082,259
iii.	C = Contributions during the period	53,668,896
iv.	D = Disbursements during the period	114,563,978
v.	Rate of return: $\frac{B - A + D - C}{A + ½ (C - D)}$	15.22%
vi.	Actuarial assumed rate of return for 2017	7.50%
vii.	Difference between actual and assumed rates of return, (v) – (vi)	7.72%

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, 2017	$ 901,076,683
ii.	B = Actuarial value of assets as of January 1, 2018	899,816,911
iii.	C = Contributions during the period	53,668,896
iv.	D = Disbursements during the period	114,563,978
v.	Rate of return: $\frac{B - A + D - C}{A + ½ (C - D)}$	6.85%
vi.	Actuarial assumed rate of return for 2017	7.50%
vii.	Difference between actual and assumed rates of return, (v) – (vi)	-0.65%

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

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.

Withdrawal benefit

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

Summary of Plan Provisions (continued)

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	2017	2018
Active Members		
Number	5,101	5,138
Average Age	43.68	43.53
Average Service	7.82	7.64
Average Annual Base Pay	$ 51,014	$ 51,727
Vested Terminated Members		
Number	522	549
Average Account Balance	$ 29,781	$ 30,722
Non-vested Terminated Members		
Number	2,032	2,242
Average Account Balance	3,585	$ 3,470
Benefit Recipients		
Number	4,561	4,526
Average Age	74.03	74.29
Average Monthly Benefit	$ 1,926	$ 1,951

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
2013	4,786	225,894,414	47,199	-3.79%
2014	4,880	243,277,760	49,852	5.62%
2015	5,011	245,699,352	49,032	-1.64%
2016	5,034	252,127,288	50,085	2.15%
2017	5,101	260,223,066	51,014	1.85%
2018	5,138	265,773,659	51,727	1.40%

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
2013	164	3,544,756	188	2,699,920	4,516	99,629,314	0.87%	22,061
2014	313	7,711,256	140	2,288,004	4,689	105,061,832	5.45%	22,406
2015	163	3,774,578	228	3,783,237	4,624	105,066,268	0.00%	22,722
2016	151	3,279,162	188	3,058,449	4,587	105,295,884	0.22%	22,955
2017	145	3,114,108	171	2,978,925	4,561	105,434,220	0.13%	23,116
2018	158	4,044,180	193	3,526,969	4,526	105,976,561	0.51%	23,415

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			Death Rates		
Male	Age	Female	Male	Age	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			Death Rates		
Male	Age	Female	Male	Age	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			Death Rates		
Male	Age	Female	Male	Age	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 2018.

There are several charts and graphs on page 93 that contain histories 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	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Additions by source		(as restated)				(as restated)				
Employer contributions	$ 28,598,502	$ 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
Employee contributions	12,131,979	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
Investment income (loss)	146,071,959	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)
Other income	71,391	127,426	131,119	134,813	138,506	143,754	146,007	150,427	153,544	157,219
Total additions(depreciation)	186,873,831	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
Deductions by type*										
Retirement benefits	97,129,242	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
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
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
Health care subsidies	2,794,544	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
Operating expenses	1,415,026	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
Contribution refunds	3,765,085	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
Total deductions by type	105,103,897	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
Change in fiduciary net position	$ 81,769,934	$ 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)

*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, 2018

Option	Service Benefit	Disability Benefit	Survivor Benefit	Total
0	3,371	201	299	3,871
1	131	13	-	144
2	81	5	-	86
3	180	17	-	197
4	178	6	-	184
5	22	2	-	24
6	12	5	-	17
7	3	-	-	3
Total	3,978	249	299	4,526

Amount of Annual Benefits By Payment Option & Type
On January 1, 2018

Option	Service Benefit	Disability Benefit	Survivor Benefit	Total
0	$ 85,240,366	$ 2,946,838	$ 3,501,028	$ 91,688,232
1	2,442,222	174,128	-	2,616,350
2	1,862,023	117,333	-	1,979,356
3	3,740,787	238,317	-	3,979,104
4	4,659,108	131,227	-	4,790,335
5	550,115	14,873	-	564,988
6	237,524	48,317	-	285,841
7	72,357	-	-	72,357
Total	$ 98,804,502	$ 3,671,033	$ 3,501,028	$ 105,976,563

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

Average Annual Benefit Payments By Payment Option & Type
On January 1, 2018

Option	Service Benefit	Disability Benefit	Survivor Benefit	All
0	$ 25,286	$ 14,661	$ 11,709	$ 23,686
1	18,643	13,394	-	18,169
2	22,988	23,467	-	23,016
3	20,782	14,019	-	20,198
4	26,175	21,871	-	26,034
5	25,005	7,437	-	23,541
6	19,794	9,663	-	16,814
7	24,119	-	-	24,119
All	$ 24,838	$ 14,743	$ 11,709	$ 23,415

Average Monthly Benefit Payments By Payment Option & Type
On January 1, 2018

Option	Service Benefit	Disability Benefit	Survivor Benefit	All
0	$ 2,107	$ 1,222	$ 976	$ 1,974
1	1,554	1,116	-	1,514
2	1,916	1,956	-	1,918
3	1,732	1,168	-	1,683
4	2,181	1,823	-	2,170
5	2,084	620	-	1,962
6	1,650	805	-	1,401
7	2,010	-	-	2,010
All	$ 2,070	$ 1,229	$ 976	$ 1,951

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

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Option 6 Options 1 and 5 combined.

Option 7 Options 2 and 5 combined.

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+
	Years of Service						
2014							
Average Monthly Benefit	$538	$674	$1,077	$1,908	$2,311	$3,382	$3,035
Average Monthly Salary	$6,007	$4,553	$4,639	$5,438	$5,143	$5,882	$5,123
Number of Retirees	8	24	15	18	18	26	22
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
2014 - 2018							
Average Monthly Benefit	**$412**	**$679**	**$1,074**	**$1,733**	**$2,404**	**$3,072**	**$3,486**
Average Monthly Salary	**$4,330**	**$4,268**	**$4,431**	**$4,890**	**$5,285**	**$5,432**	**$5,900**
Number of Retirees	**43**	**106**	**88**	**118**	**91**	**124**	**105**

Note: The calculations for the 2014 – 2018 monthly averages are weighted using the sum of an average for each year x number of retirees each year ÷ by the 2014 – 2018 number of retirees.

Public School Retirement System
of the City of St. Louis

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

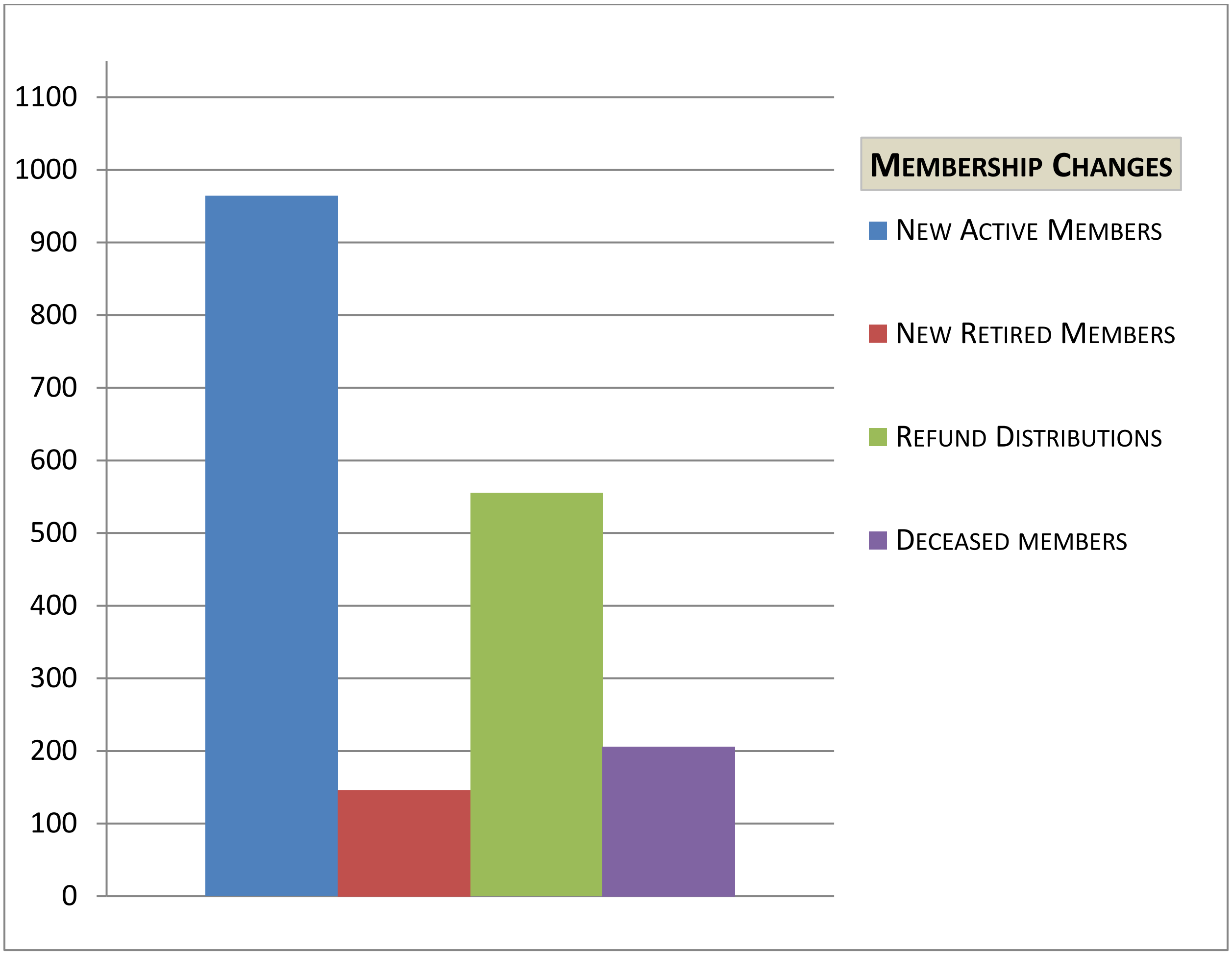
	2018		2017		2016		2015		2014	
Member Type	**Covered Members**	**Percentage of Total**	**Covered Members**	**Percentage of Total**	**Covered Members**	**Percentage of Total**	**Covered Members**	**Percentage of Total**	**Covered Members**	**Percentage of Total**
Active	5,138	41.3%	5,101	41.8%	5,034	42.3%	5,011	43.0%	4,880	42.9%
Inactive	2,791	22.4%	2,554	20.9%	2,271	19.1%	2,012	17.3%	1,798	15.8%
Retired (includes Beneficiaries)	4,526	36.3%	4,561	37.3%	4,587	38.6%	4,624	39.7%	4,689	41.3%
Total	12,455	100%	12,216	100%	11,892	100%	11,647	100%	11,367	100%

	2013		2012		2011		2010		2009	
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	4,786	43.7%	4,784	42.4%	4,336	40.0%	4,825	43.5%	5,085	45.4%
Inactive	1,643	15.0%	1,958	17.4%	1,935	17.8%	1,896	17.1%	1,543	13.8%
Retired (includes Beneficiaries)	4,516	41.3%	4,540	40.2%	4,587	42.2%	4,370	39.4%	4,570	40.8%
Total	10,945	100%	11,282	100%	10,858	100%	11,091	100%	11,198	100%

The Year in Review

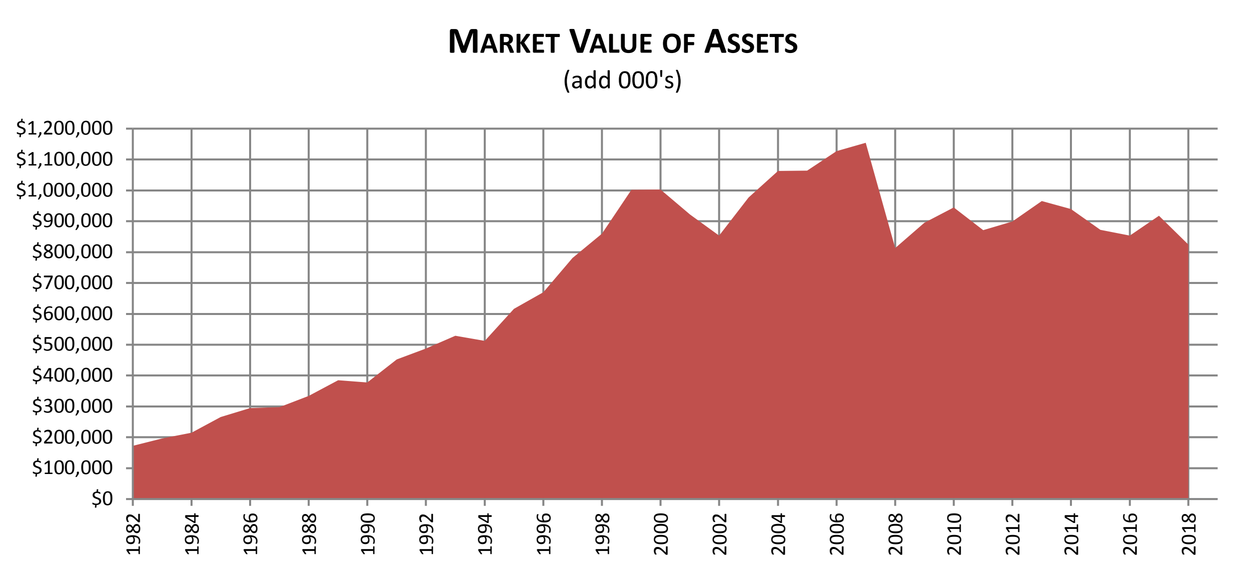
During the fiscal year ended December 31, 2018, PSRSSTL added 964 new active members and 146 new retired members to payroll. The retirement system processed 555 refund distributions for members who left the System and bid farewell to 206 members due to death.

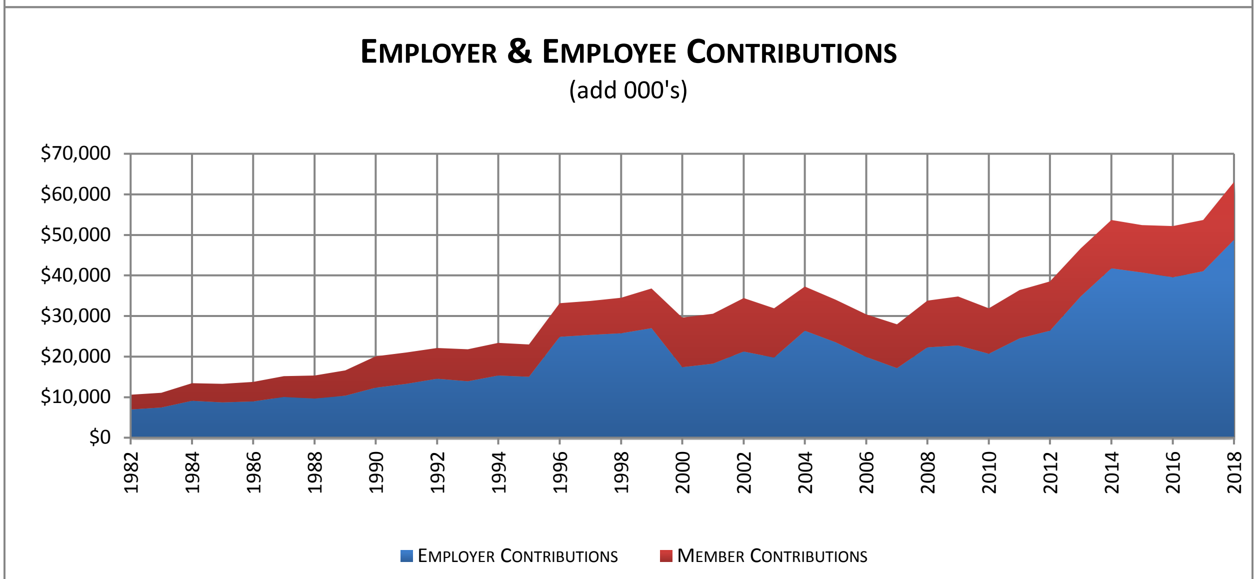
Fiscal Year 2018

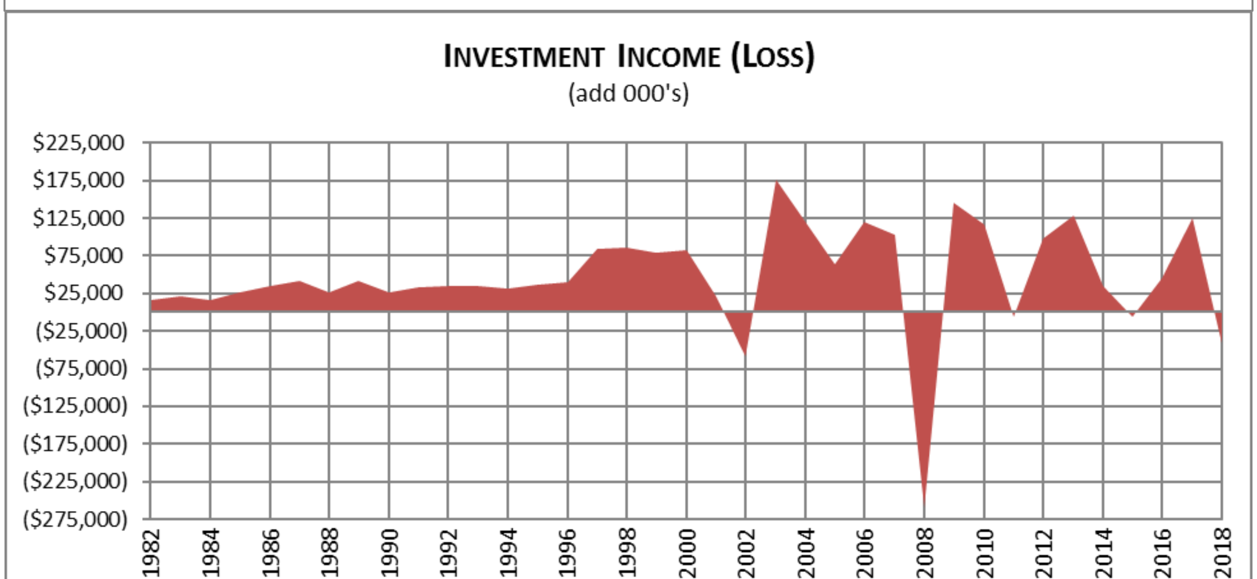


Charts and Graphs

These charts and graphs show changes in market value of assets, contributions, and investment earnings for fiscal years ended December 31, 1982 thru December 31, 2018.







Public School Retirement System of the City of St. Louis

1944 - Creation of the retirement system by the Missouri General Assembly

1961 - Plan provisions revised, active members able to choose the “old plan” or “new plan”

1969 - Credited Service allowed for time lost from 1944 - 1947

1972 - Credited Service options added, survivor, disability and minimum benefits added, another chance for “old plan” members to upgrade to the “new plan”

1975 - First increase in benefits granted to certain retired teacher

1978 - Service limits removed, survivor benefits revised, employee contributions set at 3%, Trustees granted rule-making authority, 1st back-to-work provision for some retirees

1979 - Plan provisions revised to allow sick leave balances to be added to credited service and age requirements for retirement, early retirement and survivor benefits revised

1981 - Plan provisions upgraded, insurance benefits improved, actuarial cost method changed, broadening of investment authority for the Board of Trustees

1984 - Survivor and disability benefits upgraded, 2nd back-to-work provision for some retirees

1985 - First supplemental early retirement benefit added for certain retirees

1987 - Another chance for “old plan” members to join “new plan,” increase in minimum pension benefit, administrative changes made

1988 - Survivor and supplemental benefits enhanced

1989 - Certain plan provision improvements

1990 - Supplemental benefits extended for some retirees

1993 - Supplemental benefits enhanced for some retirees

1996 - Service purchases allowed for some lay-off periods, investment trustee replaced with school administrator trustee, COLA provisions added

1997 - COLA provision added for certain retirees

1998 - Employee contribution rate set at 4.5%, pension factor set at 2%, catch-up COLA for some retirees, employer contribution rate set at 8.3% for three years

1999 - Employee contribution rate set at 5%

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

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

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

2009 - State reporting requirements revised for all Missouri retirement plans

2014 - General provisions revised for all Missouri retirement plans

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

Public School Retirement System
of the City of St. Louis
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www.psrsstl.org

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