Michigan Judges' Retirement System

A Pension and Other Postemployment Benefit Trust Fund of the State of Michigan

Comprehensive Annual Financial Report for the Fiscal Year Ended September 30, 2018

MJRS

Prepared by:
Financial Services
for
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INTRODUCTORY SECTION

Certificate of Achievement
Public Pension Standards Award
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Retirement Board Members
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Organization Chart

Certificate of Achievement

Government Finance Officers Association

Certificate of Achievement for Excellence in Financial Reporting

Presented to

Michigan Judges' Retirement System

For its Comprehensive Annual
Financial Report
for the Fiscal Year Ended

September 30, 2017

Christopher P. Morrill

Executive Director/CEO

Public Pension Standards Award

Public Pension Coordinating Council

Public Pension Standards Award For Funding and Administration 2018

Presented to

Michigan Office of Retirement Services

In recognition of meeting professional standards for
plan funding and administration as
set forth in the Public Pension Standards.

Presented by the Public Pension Coordinating Council, a confederation of

National Association of State Retirement Administrators (NASRA)
National Conference on Public Employee Retirement Systems (NCPERS)
National Council on Teacher Retirement (NCTR)

Alan H. Winkle
Program Administrator

INTRODUCTORY SECTION

Letter of Transmittal

Michigan Judges'
Retirement System
P.O. Box 30171
Lansing, Michigan 48909-7671
Telephone 517- 284-4400
Outside Lansing 1-800-381-5111

STATE OF MICHIGAN

GRETCHEN WHITMER, Governor

DEPARTMENT OF TECHNOLOGY, MANAGEMENT & BUDGET

January 25, 2019

The Honorable Gretchen Whitmer
Governor, State of Michigan,

Members of the Legislature
State of Michigan,

Retirement Board Members
and
Members, Retirees and Beneficiaries

Ladies and Gentlemen:

We are pleased to present the comprehensive annual financial report of the Michigan Judges' Retirement System (System) for fiscal year 2018.

INTRODUCTION TO REPORT

The System was established by legislation under Public Act 234 of 1992 which consolidated the Judges and former Probate Judges retirement systems. The System is administered by the Office of Retirement Services (ORS). The number of active and retired members and beneficiaries of the System is presented in Note 1 of the financial statements in the Financial Section of this report. The purpose of the System is to provide retirement, disability, death and healthcare benefits for all members. The services performed by ORS staff provide benefits to members, retirees, and beneficiaries.

Responsibility

Responsibility for both the accuracy of the data and the completeness and fairness of the presentation, including all disclosures, rests with the leadership team of the System. To the best of our knowledge and belief, the enclosed data is accurate in all material respects and is reported in a manner designed to present fairly the financial position and results of operations of the System.

Internal Control Structure

The leadership team of the System is responsible for maintaining adequate internal accounting controls designed to provide reasonable assurance that transactions are executed in accordance with management's general or specific authorization, and are recorded as necessary to maintain accountability for assets and to permit preparation of financial statements in accordance with accounting principles generally accepted in the United States of America. The internal control structure is designed to provide reasonable assurance regarding the safekeeping of assets and reliability of all financial records.

Letter of Transmittal (continued)

The concept of reasonable assurance recognizes that the cost of a control should not exceed the benefits likely to be derived and that the valuation of costs and benefits requires estimates and judgments by management. This internal control structure includes maintaining written policies and procedures. Discussion and analysis of fiduciary net position and related additions and deductions are presented in the Management Discussion and Analysis which can be found immediately following the Independent Auditor's Report.

Independent Auditors and Actuary

The Office of the Auditor General (OAG), independent auditors, conducted an annual audit of the System. The independent auditor's report on the System's financial statements is included in the Financial Section in this report.

An actuarial valuation is conducted annually. The purpose of the valuation is to evaluate the mortality, service, compensation, and other financial experience of the System and to recommend employer contributions for the subsequent year. The annual actuarial valuation was completed by Gabriel Roeder Smith & Company for the fiscal year ended September 30, 2017. Actuarial certification and supporting statistics are included in the Actuarial Section of this report.

Management's Discussion and Analysis (MD&A)

Generally Accepted Accounting Principles (GAAP) require that management provide a narrative introduction, overview, and analysis to accompany the Basic Financial Statements in the form of MD&A. This letter of transmittal is intended to complement MD&A and should be read in conjunction with it. The MD&A can be found immediately following the Independent Auditor's Report.

PROFILE OF THE GOVERNMENT

Public Act 234 of 1992 authorized the merger of the Probate Judges Retirement Fund into the Judges Retirement Fund by requiring the consolidation of all assets, rights, and obligations under the former Judges and Probate Judges Retirement Funds to establish the Judges Retirement System. A 9-member board and the director of the Department of Technology, Management, and Budget (DTMB), govern the system. Executive Order 2015-13 created a State of Michigan Retirement Board responsible for the functions, duties, and responsibilities of the State Employees' Retirement System, the Judges Retirement System, and the Military Retirement Provisions. Public Act 523 of 1996, effective March 31, 1997 closed the plan to new entrants. Judges or state officials newly appointed or elected on or after March 31, 1997, become members of the State's defined contribution (DC) plan. The System serves over 650 members. Financing comes from member contributions, court filing fees as provided under law, investment earnings, and legislative appropriations. A detailed plan description is included in Note 1 of the Financial Section in this report.

ECONOMIC CONDITIONS AND OUTLOOK

Despite challenging economic times, the System continues to show steady performance over the long-term.

Investments

The State Treasurer is the investment fiduciary and custodian of all investments of the System pursuant to State law. The primary investment objective is to maximize the rate of return on the total investment portfolio, consistent with a high degree of prudence and sufficient diversity to eliminate inordinate risks and to meet the actuarial assumption for the investment rate of return. The investment activity for the year produced a total rate of return on the portfolio of 11.5 percent for the pension plan and 10.3 percent for the other postemployment benefits (OPEB) plan. For the last five years, the System has experienced an annualized rate of return of 10.0 percent for the pension plan and 9.4 percent for the OPEB plan. A summary of asset allocation and rates of return can be found in the Investment Section of this report.

Accounting System

Transactions of the System are reported on the accrual basis of accounting. Revenues are recorded when earned, and expenses are recorded when incurred. Participants' benefits are recorded when payable by law.

Letter of Transmittal (continued)

We believe that the accounting and administrative internal controls established by the System provide reasonable assurance the System is carrying out its responsibilities in safeguarding its assets, in maintaining the reliability of the financial records for preparing financial statements, and in maintaining accountability for its assets.

Funding

Funds are derived from the excess of additions to plan net position over deductions from plan fiduciary net position. Funds are accumulated by the System to meet future benefit obligations to retirees and beneficiaries. The percentage computed by dividing the actuarial value of assets by the actuarial accrued liability is referred to as the "funded ratio." This ratio provides an indication of the funding status of the System and generally, the greater this percentage, the stronger the System.

Pension - A actuarial value of the assets and actuarial accrued liability for pension benefits of the System were $267.8 million and $269.7 million, respectively, resulting in a funded ratio of 99.3 percent as of September 30, 2017. A historical perspective of funding levels for the Pension Plan is presented on the Schedule of Funding Progress in the Statistical Section of this report.

Other Postemployment Benefits – Prefunding for OPEB began in fiscal year 2018. The actuarial value of the assets and actuarial accrued liability for OPEB were $1.0 million and $7.5 million, respectively, resulting in a funded ration 13.69 percent September 30, 2017. A historical perspective of funding levels is presented on the Schedule of Funding Progress in the Statistical section in this report.

MAJOR GOALS ACCOMPLISHED

Dedicated Gains Policy Successfully Reduces Assumed Rate of Return – In the summer of 2017, the DTMB director and the retirement board adopted a mechanism that gradually reduces the assumed rate of investment return (AROR). This policy was necessary to align the AROR with industry trends toward more prudent investment expectations. Whenever investment returns exceed the assumed return (e.g., we achieve 9% instead of the expected 7.50%), the Dedicated Gains Policy uses those excess returns to lower the AROR going forward. This is done without increasing unfunded actuarial accrued liabilities (UAAL) and largely off-setting contribution increases toward the UAAL from the employer. Excess investment returns in fiscal year 2017 resulted in the pension AROR being reduced from 7.50% to 6.75% beginning with the actuarial valuation as of September 30, 2017.

Actuarial Experience Studies Result in Adjustments to Assumptions – Every five years the plan actuary evaluates how well the assumptions used to determine system liabilities and set employer contributions match the real experience of the plan. These experience studies are statutorily required and are an industry best practice that allows the system to make adjustments that ensure that the system is valued and funded properly. The most recent five-year cycle concluded on September 30, 2017 and the actuary delivered its evaluation in spring 2018. The results of the evaluation are more conservative economic and demographic assumptions. The actuary and ORS collaborated to provide detailed information to department leaders and the retirement board about the proposed adjustments and the impact to the State budget. The proposed changes were approved for use with the actuarial valuations beginning September 30, 2018. These changes will protect the long-term security of both the pension and healthcare trusts.

Call Center Upgrade – ORS is modernizing its toll-free phone service from a dial-tone system to a modern voice-over-internet solution. This effort involved a sweeping overhaul of the existing software and hardware to ensure optimum performance, a redesign and rewrite of the call routing software, and improved security. Customers will reach a call agent more quickly because of streamlined menus and more automatic methods for authenticating the caller. ORS will have more flexibility in the way new menu options and associated queues are used for seasonal business topics. In total, the new system is more secure, more stable, provides a better experience for customers and gives ORS ways to adapt to changes in demand.

Letter of Transmittal (continued)

Redesign of Insurance Systems – In spring of 2018, ORS successfully deployed the redesign of insurance eligibility and enrollment systems. The redesign applied a flexible rules-based approach to systems development that allows ORS update business rules to match insurance offerings, regulations or requirements more quickly. The new system improves both the customer and staff experience with insurance enrollment management. New customer-focused features include: per-person itemized enrollment cost, a shopping cart so customers can clearly understand their costs, printable bills available in miAccount, and online account management for COBRA enrollees.

Mobile Application Launch – ORS developed a mobile application for members and retirees of the defined benefit plans. The highlight of this new application is the ability to upload documents directly to ORS. This feature allows the user to take a picture of a form, birth certificate, or other insurance proof and send the document(s) securely to ORS, eliminating the need to locate a fax machine or rely on standard postal delivery. The application also allows ORS to send custom-crafted alerts and announcements to targeted user-types, based on their retirement system and account status. Active members will be able to estimate their pensions, update beneficiaries and dependents, and update contact information. Retirees will be able to manage their direct deposit, update tax withholdings, update dependents, and view their payment history.

Imaging Enhancements – The ORS team is heavily dependent on images of customer correspondence. These images are carefully indexed and stored in a way that call agents and processors can access them quickly and easily. This year, significant upgrades of both the hardware and the software applications for document storage and retrieval were completed and will ensure that this system is stable and secure for years to come. A pivotal change was a move away from a complex, custom-built solution to more standardized tools that are easier to maintain.

HONORS

Public Pension Standards Award – ORS was awarded the 2018 Standards Award from the Public Pension Coordinating Councils Standards Program (PPCC) for both funding and administration. ORS has received these awards every year since 2004. The PPCC Standards reflect expectations for public retirement system management and administration and serve as a benchmark for all DB public plans to be measured.

Government Finance Officers Association Award – The Government Finance Officers Association (GFOA) of the United States and Canada awarded the retirement system with the Certificate of Achievement for Excellence in Financial Reporting for our fiscal year 2017 Comprehensive Annual Financial Report (CAFR). This marks the 27th consecutive year ORS has received this prestigious award.

Letter of Transmittal (continued)

ACKNOWLEDGEMENTS

The preparation of this report was accomplished with the dedication and cooperation of many people. It is intended to provide complete and reliable information as a basis for making management decisions, as a means of determining compliance with legal provisions, and as a means for determining responsible stewardship of the funds of the System. We would, therefore, like to express our appreciation for the assistance given by staff, advisors, and the many people who contributed to its preparation. We believe their combined efforts have produced a report that will enable employers and plan members to better evaluate and understand the Michigan Judges Retirement System. Their cooperation contributes significantly to the success of the System.

Sincerely,

Tricia L. Foster, Director
Department of Technology, Management & Budget

Kerrie Vanden Bosch, Director
Office of Retirement Services

Administrative Organization

Retirement Board Members*
As of January 25, 2019

Judge Mark T. Boonstra
General Public
Term Expires Dec. 31, 2019

Ann Marie Storberg
Ex-officio Member Representing
State Treasurer

Matthew Fedorchuk
Active State Employee
Term Expires Dec. 31, 2018

John Gnodke
Ex-officio Member Representing
State Personnel Director

Laurie Hill, Chair
Retired State Employee
Term Expires Dec. 31, 2019

Molly Jason
Ex-officio Member Representing
Attorney General

Craig Murray
Ex-officio Member Representing
Auditor General

Judge David H. Sawyer
Active Judge
Term Expires Dec. 31, 2017

Col. John Wojcik
Michigan National Guard
Term Expires Dec. 31, 2018

*Statute provides that board members may continue to serve after their term expires until they are replaced or reappointed.

Advisors and Consultants
As of January 25, 2019

Actuaries
Gabriel Roeder Smith & Co.
Mita D. Drazilov
Southfield, Michigan

Independent Auditors
Doug A. Ringler, C.P.A., C.I.A.
Auditor General
State of Michigan

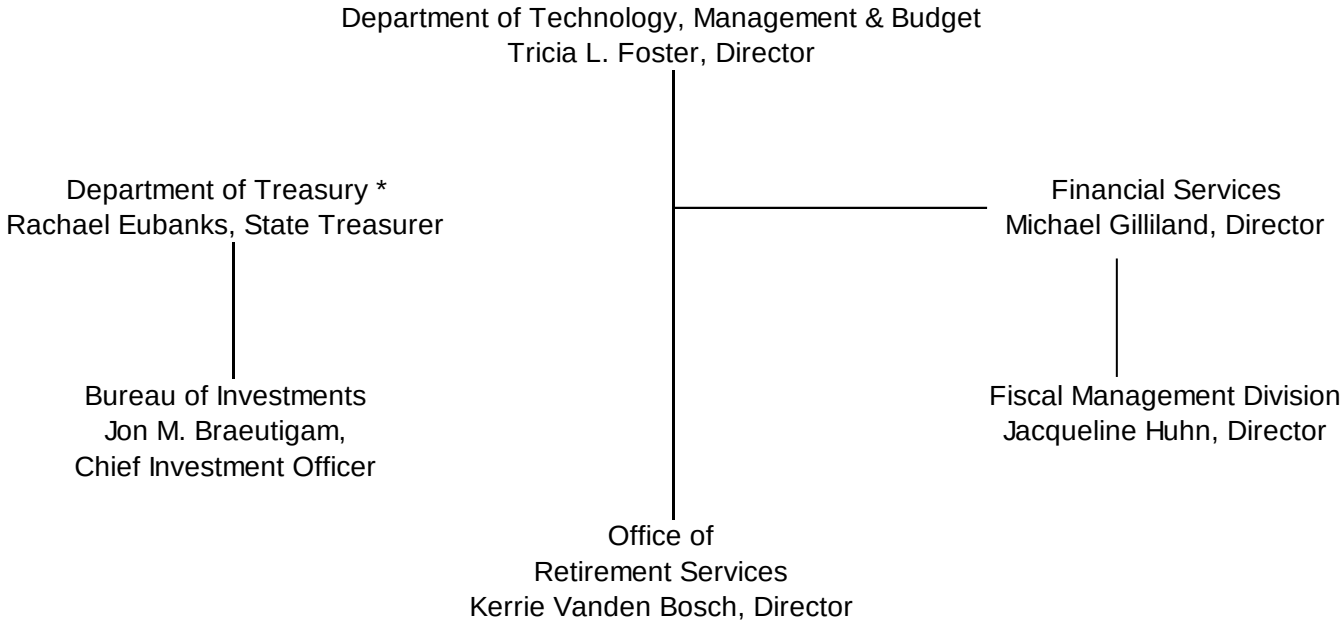
Investment Manager and Custodian
Rachael Eubanks
State Treasurer
State of Michigan

Legal Advisor
Dana Nessel
Attorney General
State of Michigan

Investment Performance Measurement
State Street Corporation
State Street Investment Analytics
Boston, MA

Administrative Organization (continued)

Organization Chart
As of January 25, 2019



*The investments of the System are managed by the Michigan Department of Treasury. Information on the investments and the fiduciary, Michigan Department of Treasury, can be found in the Investment Section, Introduction. In addition, see the Investment Section, Schedule of Investment Fees (page 76) Schedule of Investment Commissions (page 77), for information regarding the investment fees and commissions paid as well as investment professionals utilized by the System.

FINANCIAL SECTION

Independent Auditor's Report
Management's Discussion and Analysis
Basic Financial Statements
Notes to Basic Financial Statements
Required Supplementary Information
Note to Required Supplementary Information
Supporting Schedules

OAG
Office of the Auditor General
Doug A. Ringler, CPA, CIA
Auditor General
201 N. Washington Square, Sixth Floor • Lansing, Michigan 48913 • Phone: (517) 334-8050 • audgen.michigan.gov

Independent Auditor's Report on the Financial Statements
and Other Reporting Required by *Government Auditing Standards*

Ms. Laurie Hill, Chair
State of Michigan Retirement Board
and
Ms. Tricia L. Foster, Director
Department of Technology, Management, and Budget
and
Ms. Kerrie L. Vanden Bosch, Director
Office of Retirement Services

Dear Ms. Hill, Ms. Foster, and Ms. Vanden Bosch:

Report on the Financial Statements
We have audited the accompanying financial statements of the Michigan Judges' Retirement System as of and for the fiscal year ended September 30, 2018 and the related notes to the financial statements, which collectively comprise the System's basic financial statements as listed in the table of contents.

Management's Responsibility for the Financial Statements
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.

Auditor's Responsibility
Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit 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 auditor's 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 entity'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 entity'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.

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 in the first paragraph present fairly, in all material respects, the fiduciary net position of the Michigan Judges' Retirement System as of September 30, 2018 and the changes in fiduciary net position for the fiscal year then ended in accordance with accounting principles generally accepted in the United States of America.

Ms. Laurie Hill, Chair
Ms. Tricia L. Foster, Director
Ms. Kerrie L. Vanden Bosch, Director
Page 2

Other Matters

Required Supplementary Information
Accounting principles generally accepted in the United States of America require that the management's discussion and analysis, schedule of changes in net pension liability, schedule of pension contributions, schedule of pension investment returns, schedule of changes in net OPEB liability, schedule of OPEB contributions, schedule of OPEB investment returns, and related note, 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 basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Information
Our audit was conducted for the purpose of forming an opinion on the financial statements that collectively comprise the System's basic financial statements. The supporting schedules and the introductory, investment, actuarial, and statistical sections are presented for purposes of additional analysis and are not a required part of the basic financial statements.

The supporting schedules are the responsibility of management and were derived from and relate directly to the underlying accounting and other records used to prepare the basic financial statements. Such information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the supporting schedules are fairly stated, in all material respects, in relation to the basic financial statements as a whole.

The introductory, investment, actuarial, and statistical sections have not been subjected to the auditing procedures applied in the audit of the basic financial statements, and accordingly, we do not express an opinion or provide any assurance on them.

Other Reporting Required by *Government Auditing Standards*
In accordance with *Government Auditing Standards*, we will also issue a report on our consideration of the System's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the System's internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the System's internal control over financial reporting and compliance.

Sincerely,

Doug Ringler

Doug Ringler
Auditor General
January 25, 2019

FINANCIAL SECTION

Management's Discussion and Analysis

Our discussion and analysis of the Michigan Judges' Retirement System's (System) financial performance provides an overview of the System's financial activities for the fiscal year ended September 30, 2018. Please read it in conjunction with the transmittal letter in the Introductory Section on page 6 and the basic financial statements, which follow this discussion.

FINANCIAL HIGHLIGHTS

- System assets exceeded liabilities at the close of fiscal year 2018 by $272.2 million (reported as *net position restricted for pension benefits and OPEB*). Fiduciary net position is restricted to meet future benefit payments.
- Additions for the year were $31.5 million, which are comprised primarily of member contributions of $1.0 million, employer contributions of $2.3 million, and investment gains of $28.4 million.
- Deductions increased over the prior year from $24.5 million to $25.2 million or 2.9%. This increase can be mostly attributed to an increase in pension benefits paid.

THE STATEMENT OF PLAN FIDUCIARY NET POSITION AND THE STATEMENT OF CHANGES IN PLAN FIDUCIARY NET POSITION

This Comprehensive Annual Financial Report (CAFR) consists of two financial statements; *The Statement of Pension Plan and Other Postemployment Benefit Plan Fiduciary Net Position* (page 20) and *The Statement of Changes in Pension Plan and Other Postemployment Benefit Plan Fiduciary Net Position* (page 21). These financial statements report information about the System, as a whole, and about its financial condition that should help answer the question: Is the System, as a whole, better off or worse off as a result of this year's activities? These statements include all assets and liabilities using the economic resources measurement focus and the accrual basis of accounting. Under the accrual basis of accounting, all revenues and expenses are taken into account regardless of when cash is received or paid.

The Statement of Pension Plan and Other Postemployment Benefit Plan Fiduciary Net Position presents all of the System's assets and liabilities, with the difference between the two reported as fiduciary net position. Over time, increases and decreases in fiduciary net position measure whether the System's financial position is improving or deteriorating. *The Statement of Changes in Pension Plan and Other Postemployment Benefit Plan Fiduciary Net Position* presents how the System's fiduciary net position changed during the most recent fiscal year. These two financial statements should be reviewed along with the Schedule of Changes in Net Pension Liability (page 51), Schedule of Changes in Net OPEB Liability (page 53), and Schedules of Contributions (pages 52 and 54) to determine whether the System is becoming financially stronger or weaker.

FINANCIAL ANALYSIS

System total assets as of September 30, 2018, were $285.0 million and were mostly comprised of cash and investments. Total assets increased $1.9 million or .7% between fiscal years 2017 and 2018 due primarily to net investment gains.

Total liabilities as of September 30, 2018, were $12.8 million and were comprised of accounts payable, amounts due to other funds, and obligations under securities lending. Total liabilities decreased $4.4 million or 25.6% between fiscal years 2017 and 2018 due primarily to decreased obligations under securities lending.

System assets exceeded its liabilities at the close of fiscal year 2018 by $272.2 million. Total net position restricted for pension and OPEB increased $6.4 million or 2.4% between fiscal years 2017 and 2018 due primarily to an increase in receivables.

Management's Discussion and Analysis (continued)

Plan Fiduciary Net Position
(in thousands)

	2018	2017	Increase (Decrease)
Assets			
Equity in common cash	$ 864	$ 1,679	(48.6) %
Receivables	443	300	47.7
Investments	271,212	264,022	2.7
Securities lending collateral	12,453	17,051	(27.0)
Total Assets	284,972	283,053	0.7
Liabilities			
Accounts payable and other accrued liabilities	55	56	(2.8)
Amounts due to other funds	290	112	159.5
Obligations under securities lending	12,456	17,042	(26.9)
Total Liabilities	12,801	17,210	(25.6)
Net Position Restricted for Pension Benefits and OPEB	$ 272,171	$ 265,843	2.4 %

ADDITIONS TO PLAN FIDUCIARY NET POSITION

The reserves needed to finance pension and other postemployment benefits are accumulated through the collection of member contributions, employer contributions, and earnings on investments. Contributions and net investment income for fiscal year 2018 totaled $31.5 million.

Total additions for fiscal year 2018 decreased $2.9 million or 8.3% from those of fiscal year 2017 due primarily to a decrease in investment income. Investment income decreased primarily due to a decrease in the fair value of investments. Employer contributions totaled $2.3 million in fiscal year 2018 as compared to $1.1 million in fiscal year 2017. The increase in employer contributions was due to an increase of the actuarially determined contribution (ADC) for the pension plan. The Investment Section of this report reviews the results of investment activity for fiscal year 2018.

DEDUCTIONS FROM PLAN FIDUCIARY NET POSITION

The primary deductions of the System include the payment of pension benefits to members and beneficiaries, payment for health, dental and vision benefits, and the cost of administering the System. Total deductions for fiscal year 2018 were $25.2 million, an increase of 2.9% from fiscal year 2017 deductions.

Payments for health care benefits for members and beneficiaries increased during the year by $418 thousand or 138.6% from $302 thousand to $720 thousand. The payment of pension benefits increased by $93 thousand or .4% between fiscal years 2017 and 2018. In fiscal year 2018, the increase in pension benefit expense resulted from new retirees earning higher pensions. Administrative and other expenses increased by $53 thousand or 11.0% from $481 thousand to $534 thousand between fiscal years 2017 and 2018.

Changes in Plan Fiduciary Net Position
(in thousands)

	2018	2017	Increase (Decrease)
Additions			
Member contributions	$ 766	$ 814	(5.9) %
Employer contributions	2,276	1,135	100.5
Other governmental contributions	114	74	54.4
Net investment income (loss)	28,384	32,337	(12.2)
Miscellaneous	1	51	(97.8)
Total additions	31,541	34,410	(8.3)
Deductions			
Pension benefits	23,817	23,724	0.4
Health care benefits	720	302	138.6
Refunds of contributions	142		
Administrative and other expenses	534	481	11.0
Total deductions	25,213	24,507	2.9
Net Increase (Decrease) in Net Position	6,328	9,903	(36.1)
Net Position Restricted for Pension Benefits and OPEB:			
Beginning of Year	265,843	255,940	3.9
End of Year	$ 272,171	$ 265,843	2.4 %

RETIREMENT SYSTEM AS A WHOLE

The System's overall Fiduciary Net Position experienced an increase in fiscal year 2018 by $6.3 million. The System's rate of return on investment decreased overall 2.4% from a 13.9% return in fiscal year 2017 to a 11.5% return for the Pension Plan and decreased an overall 2.5% from a 12.8% return in fiscal year 2017 to a 10.3% return for the OPEB Plan during fiscal year 2018. Management believes that the System remains financially sound and positioned to meet its ongoing benefit obligations due, in part, to a prudent investment program, cost controls, and strategic planning.

CONTACTING SYSTEM FINANCIAL MANAGEMENT

This financial report is designed to provide the Retirement Board, our membership, taxpayers, investors, and creditors with a general overview of the System's finances and to demonstrate the System's accountability for the money it receives. If you have any questions about this report or need additional financial information, contact the Office of Retirement Services, P.O. Box 30171, Lansing, MI 48909-7671.

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Basic Financial Statements

STATEMENT OF PENSION PLAN AND OTHER POSTEMPLOYMENT BENEFIT PLAN FIDUCIARY NET POSITION
As of September 30, 2018 (in thousands)

	Pension Plan	OPEB Plan	Total
Assets:			
Equity in common cash	$ 860	$ 4	$ 864
Receivables:			
Amounts due from members	9		9
Amounts due from employers	39	$ 4	44
Amounts due from federal agencies		50	50
Amounts due from other funds	290		290
Amounts due from other		40	40
Interest and dividends	10		10
Total receivables	348	95	443
Investments:			
Short term investment pools	5,240	132	5,372
Fixed income pools	32,800	139	32,938
Domestic equity pools	71,391	354	71,745
Real estate and infrastructure pools	28,563	115	28,678
Private equity pools	44,505	205	44,710
International equity pools	46,662	216	46,878
Absolute return pools	40,752	138	40,890
Total investments	269,913	1,299	271,212
Securities lending collateral	12,378	75	12,453
Total assets	283,499	1,473	284,972
Liabilities:			
Accounts payable and other accrued liabilities	1	53	55
Amounts due to other funds		290	290
Obligations under securities lending	12,381	75	12,456
Total liabilities	12,383	418	12,801
Net Position Restricted for Pension Benefits and OPEB:	$ 271,116	$ 1,055	$ 272,171

The accompanying notes are an integral part of these financial statements.

Basic Financial Statements (continued)

STATEMENT OF CHANGES IN PENSION PLAN AND OTHER POSTEMPLOYMENT BENEFIT PLAN

FIDUCIARY NET POSITION
For the Fiscal Year Ended September 30, 2018 (in thousands)

	Pension Plan	OPEB Plan	Total
Additions:			
Contributions:			
Member contributions	$ 653	$ 113	$ 766
Employer contributions	1,736	539	2,276
Other governmental contributions		114	114
Total contributions	2,390	766	3,156
Investment income (loss):			
Net increase (decrease) in fair value of investments	22,958	82	23,039
Interest, dividends, and other	6,255	26	6,280
Investment expenses:			
Real estate operating expenses	(15)		(15)
Other investment expenses	(1,123)	(4)	(1,127)
Securities lending activities:			
Securities lending income	470	2	472
Securities lending expenses	(264)	(1)	(266)
Net investment income (loss)	28,280	104	28,384
Miscellaneous income	1		1
Total additions	30,671	870	31,541
Deductions:			
Benefits paid to plan members and beneficiaries:			
- Retirement benefits	23,817		23,817
- Health benefits		708	708
- Dental/vision benefits		12	12
Refunds of contributions	142	1	142
Administrative and other expenses	414	121	534
Total deductions	24,372	841	25,213
Net Increase (Decrease) in Net Position	6,299	29	6,328
Net Position Restricted for Pension Benefits and OPEB:			
Beginning of Year	264,817	1,026	265,843
End of Year	$ 271,116	$ 1,055	$ 272,171

The accompanying notes are an integral part of these financial statements.

NOTES TO BASIC FINANCIAL STATEMENTS

September 30, 2018

NOTE 1 - PLAN DESCRIPTION

ORGANIZATION

The Michigan Judges' Retirement System (System) is a single-employer, state-wide, defined benefit public employee retirement plan governed by the State of Michigan (State), created under Public Act 234 of 1992, which consolidated the former Judges' and Probate Judges' Retirement Systems into one retirement system. Section 204 of this Act establishes the board's authority to promulgate or amend the provisions of the System. Executive Order 2015-13 signed by the Governor on October 27, 2015 established the State of Michigan Retirement Board. The executive order establishes the board's authority to promulgate or amend the provision of the System. The board consists of nine members:

- The Attorney General
- The State Treasurer
- The Legislative Auditor General
- The State Personnel Director
- One member or retirant of the State Employees' Retirement System appointed by the Governor
- One member of the Judges' Retirement System appointed by the Governor
- One current or former officer or enlisted person in the Michigan Military Establishment who is a member or retirant under the Military Retirement Provisions appointed by the Governor
- One retirant member of the State Employees' Retirement System appointed by the Governor
- One member of the general public appointed by the Governor

The System's pension plan was established to provide retirement, survivor and disability benefits to judges in the judicial branch of state government. In addition, the System's OPEB plan provides all retirees with the option of receiving health, dental, and vision coverage under the Michigan Judges' Retirement Act. There are 55 participating courts. The System also includes the Governor of the State of Michigan, Lieutenant Governor, Secretary of State, Attorney General, Legislative Auditor General, and the Constitutional Court Administrator if elected prior to March 31, 1997. (Officials elected on or after March 31, 1997, are part of the Defined Contribution Retirement Plan). The System is a qualified pension trust fund under section 401(a) of the Internal Revenue Code.

The System's financial statements are included as a pension and other employee benefit trust fund in the State of Michigan Comprehensive Annual Financial Report.

The System is administered by the Office of Retirement Services within the Michigan Department of Technology, Management & Budget (DTMB). The Department Director appoints the Office Director, with whom the general oversight of the System resides. The State Treasurer serves as the investment officer and custodian for the System.

NOTES TO BASIC FINANCIAL STATEMENTS (CONTINUED)

MEMBERSHIP

At September 30, 2018, the System's membership consisted of the following:

Inactive plan members or their beneficiaries currently receiving benefits:	
Regular benefits	366
Survivor benefits	172
Disability benefits	6
Total	544
Inactive plan members entitled to but not yet receiving benefits:	0
Active plan members:	
Vested	95
Non-vested	0
Total	95
Total plan members	639

Plan 1 or 2 members (Supreme Court Justice, Court of Appeals, or elected officials) may enroll in the State Health Plan when they retire, and their health premium rate is subsidized. All other members may enroll in the State Health Plan if they wish to, but they must pay the entire premium cost. At September 30, 2018, there were a total of 519 retirees who were eligible to participate in the health, dental, and vision plans. The number of participants is as follows:

Subsidized Health Plan	
Participants eligible for subsidized benefits:	
Retirees and Survivors	54
Inactive vested members	5
Active members	38
Participants receiving subsidized benefits:	
Health	39

NOTES TO BASIC FINANCIAL STATEMENTS (CONTINUED)

BENEFIT PROVISIONS – PENSION

Introduction

Benefit provisions of the defined benefit pension plan are established by State statute, which may be amended. Public Act 234 of 1992, Michigan Judges' Retirement Act, as amended, establishes eligibility and benefit provisions for the defined benefit pension plan. Retirement benefits are determined by final compensation and years of service. Members are eligible to receive a monthly benefit when they meet certain age and service requirements. The System also provides disability and survivor benefits.

A member who leaves judicial service may request a refund of his or her member contribution account. A refund cancels a former member's rights to future benefits. Returning members who previously received a refund of their contributions may reinstate their service credit through repayment of the refund upon satisfaction of certain requirements. For salary, contribution and calculation of retirement benefit, the membership of the System is categorized into seven plans. The categories are based on the position to which the member was elected or appointed. Public Act 523 of 1996, effective March 31, 1997, closed the plan to new entrants. Judges or State officials newly appointed or elected on or after March 31, 1997, become members of the defined contribution plan.

Regular Retirement

The retirement benefit or allowance is calculated in accordance with the formula of the plan, which applies to the member. The formula is based on a member's years of credited service (employment) and final compensation. The normal retirement benefit is payable monthly over the lifetime of a member.

A member may retire and receive a monthly benefit after attaining:

- age 60 with 8 or more years of credited service; or
- age 55 with 18 or more years of credited service (the last 6 years continuous); or
- 25 or more years of service, the last 6 years continuous; no age requirement; or
- age 60 with service of two full terms in the office of Governor, Lieutenant Governor, Secretary of State, or Attorney General, or one full term in the office of Legislative Auditor General.

Early Retirement

A member may retire early with a permanently reduced pension:

- after completing at least 12 but less than 18 years of service, of which the last 6 years are continuous; and
- after attaining age 55.

The early pension is computed in the same manner as a regular pension but is permanently reduced 0.5% for each full and partial month between the pension effective date and the date the member will attain age 60.

Deferred Retirement

A member with 8 or more years of credited service who terminates judicial service before meeting the age requirements to receive a retirement allowance and who does not withdraw his or her contributions, is entitled to receive a monthly allowance upon reaching age 60 or age 55 with 18 years of service, the last 6 of which were continuous.

NOTES TO BASIC FINANCIAL STATEMENTS (CONTINUED)

Disability Benefit

A member with 8 or more years of credited service who is totally disabled from physically or mentally performing his or her duties is eligible for a disability pension. The disability benefit is computed in the same manner as an age and service allowance based upon service and final salary at the time of disability.

Pension Payment Options

A pension is payable monthly for the lifetime of a System retiree and equals 3% of final salary times years of service for up to 12 years of service; or 50% of salary with 12 years, increased 2.5% for each additional year up to a maximum of 60% of salary. A former retiree of the Probate Judges' Retirement System receives 3% of salary times years of service, to a maximum of the greater of 40% of salary or $15,000 but not to exceed 66 2/3% of final salary when added to a county pension; or 3.5% of salary times years of service with a maximum of two thirds of final salary, if elected.

Straight Life – This option provides the highest monthly retirement allowance. Surviving spouse receives a 50% survivor's benefit.

Option A - Under this option, after the retiree's death, the beneficiary will receive 100% of the pension for the remainder of the beneficiary's lifetime. If this option is elected, the normal retirement benefit is reduced by a factor based upon the ages of the retiree and of the beneficiary.

Option B - Under this option, after the retiree's death, the beneficiary will receive 50% of the pension for the remainder of the beneficiary's lifetime. If this option is elected, the normal retirement benefit is reduced by a factor based upon the ages of the retiree and of the beneficiary. The reduction factor is smaller than the factor used in Option A above.

Survivor Benefit

A survivor benefit may be paid if 1) a member who has 8 or more years of credited service dies while in office, 2) a vested former member dies before retirement, or 3) a retiree dies following retirement.

Contributions

Member Contributions – Members currently participate on a contributory basis. For contribution purposes, the membership of the System is categorized in seven plans, which are based on the position to which the member was elected or appointed.

Under certain circumstances, members may contribute to the System for the purchase of creditable service, such as military service or other public service. If a member terminates covered employment before a retirement benefit is payable, the member's contribution and interest on deposit may be refunded. If the member dies before being vested, the member's contribution and interest are refunded to the designated beneficiaries.

Publicly Financed Contributions – There are two public sources which fund retirement benefits: Court fees and State appropriations. The State contributes annually the greater of 3.5% of the aggregate annual compensation of State-paid base salaries, or the difference between the total actuarial requirement of current service and unfunded accrued liabilities minus the revenues from court filing fees and member contributions. If the court fees deposited in the reserve for employer contributions equal the amount needed in addition to other publicly financed contributions to sustain the required level of publicly financed contributions, Section 304(4) of Judges' Retirement Act requires court fees be deposited in the court fee fund. A chart showing the publicly financed contribution rates is included in Note 3.

NOTES TO BASIC FINANCIAL STATEMENTS (CONTINUED)

Public Act 95 of 2002 authorizes the State Treasurer, if funds remain in the court fee fund after transfers, to transmit a portion of the money in the court fee fund and any earnings on those amounts to the reserve for health benefits. The purpose of this transfer is to pay expected health care costs for the subsequent fiscal year that are not covered as a result of employee contributions. For fiscal year 2018, this amount was $539,300.

BENEFIT PROVISIONS – OTHER POSTEMPLOYMENT

Benefit provisions of the postemployment benefit plan are established by State statute, which may be amended. Public Act 234 of 1992, as amended, establishes eligibility and benefit provisions for the OPEB plan. Members are eligible to receive health, prescription drug, dental, and vision coverage on the first day they start receiving pension benefits. There is no provision for ad hoc or automatic increases. The Judges' Retirement Act requires joint authorization by DTMB and the Civil Service Commission to make changes to retiree medical benefit plans.

Under the Michigan Judges' Retirement Act, Plan 1 or 2 members may enroll in the State Health Plan when they retire. Twenty percent of the health insurance premium is deducted from the monthly pension check until age 65, at which time Medicare provides primary health insurance coverage. All other members may enroll in the State Health Plan during an open enrollment period. The total premium is deducted from the monthly pension check. The active employee payroll contribution rate to fund health benefits for the Plan 1 or 2 members was 2.0% for fiscal year 2018. There are no required employer contributions to fund health benefits.

All retirees may enroll in the state dental and/or vision plan during an open enrollment period. The total premium is deducted from the monthly pension check.

The number of participants and other relevant financial information are as follows:

	2018
Subsidized Health Plan	
Participants eligible for subsidized benefits:	
Retirees and Survivors	54
Inactive vested members	5
Active members	38
Participants receiving subsidized benefits:	
Health	39
Expenses for the year (in thousands)	$ 841
Employer payroll contribution rates	0%

NOTES TO BASIC FINANCIAL STATEMENTS (CONTINUED)

NOTE 2 – SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of Accounting and Presentation

The System's financial statements are prepared using the accrual basis of accounting. Court filing fees are recognized as revenue in the period received since amount of court fee revenue is unknown. Contributions from the State are recognized as revenue when due and payable. Benefits and refunds are recognized when due and payable in accordance with the terms of the System.

Governmental Accounting Standards Board (GASB) Statement No. 67 and Statement No. 74, which were adopted during the year ended September 30, 2014 and 2017, addresses accounting and financial reporting requirements for pension and other postemployment benefit plans, respectively. The requirements for both GASB Statement No. 67 and 74 require changes in presentation of the financial statements, notes to the financial statements, and required supplementary information. Significant changes include an actuarial calculation of the total and net pension and other postemployment benefit liabilities. It also includes comprehensive note disclosures regarding the pension and other postemployment benefit liability, the sensitivity of the net pension and other postemployment benefit liability to the discount rate, and increased investment activity disclosures. The implementation of GASB Statement No. 67 and 74 did not significantly impact the accounting for accounts receivable and investment balances. The total pension and other postemployment benefit liability, determined in accordance with GASB Statement No. 67 and 74, is presented in Note 4, Note 5 and in the Required Supplementary Information beginning on page 51.

As of September 30, 2016, the Retirement System applies GASB Statement No. 72, *Fair Value Measurement and Application*. GASB Statement No. 72 provides guidance for determining a fair value measurement for reporting purposes and applying fair value to certain investments and disclosures related to all fair value measurements.

Reserves

Public Act 234 of 1992, as amended, created several reserves. The reserves are described below and details are provided in the supporting schedules.

Reserve for Employee Contributions – This reserve represents active member contributions, payments for the purchase of service credit, repayment of previously refunded contributions and interest less amounts transferred to the Reserve for Retirement Benefit Payments for regular and disability retirement, amounts refunded to terminated members, and transferring inactive reserves. At September 30, 2018, the balance in this reserve was $43.2 million.

Reserve for Employer Contributions – This reserve represents court fees, late fees, interest payments, employer contributions, and State appropriations. Amounts are transferred annually from this reserve to the Reserve for Retired Benefit Payments to fund that reserve. At September 30, 2018, the balance in this reserve was $(61.0) million.

Reserve for Retired Benefit Payments – This reserve represents the reserves for payment of future retirement benefits to current retirees. At retirement, a member's accumulated contributions plus interest are transferred into this reserve from the Reserve for Employee Contributions and the Reserve for Employer Contributions. Monthly benefits, which are paid to the retiree, reduce the reserve. At the end of each fiscal year, an amount is transferred from the Reserve for Employer Contributions to bring the reserve into balance with the actuarial present value of retirement allowances. At September 30, 2018, the balance in this reserve was $220.5 million.

Reserve for Undistributed Investment Income – This reserve is credited with all investment earnings, changes in fair value, gifts to the System, and forfeited contributions. All administrative expenses are paid from this reserve and interest is transferred annually to the other reserves. At September 30, 2018, the balance in this reserve was $68.4 million.

NOTES TO BASIC FINANCIAL STATEMENTS (CONTINUED)

Reserve for Health (OPEB) Related Benefits – This reserve is credited with member contributions for retirees' health, dental, and vision benefits. Starting in fiscal year 2018, the employer contributions is based on a prefunded basis and represents a level of funding that, if paid on an ongoing basis, is projected to cover normal cost each year and amortize any unfunded actuarial liability (or funding excess) over a period not to exceed thirty years. The actual annual contributions have been less than the actuarially determined contribution (ADC). In addition, in fiscal year 2018, this reserve includes revenue from the federal government for the Employee Group Waiver Plan (EGWP). Premiums for health, dental and vision benefits are paid from this reserve. At September 30, 2018, the balance in this reserve was $1.1 million.

Reporting Entity

The System is a pension and other employee benefit trust fund of the State. As such, the System is considered part of the State and is included in the State's Comprehensive Annual Financial Report as a pension and other employee benefit trust fund. The System and its Board are not financially accountable for any other entities or other organizations. Accordingly, the System is the only entity included in this financial report.

Benefit Protection

Public Act 100 of 2002 was passed by the Michigan Legislature to protect pension benefits of public employees from alienation (being transferred). Alienation is attachment, garnishment, levy, execution, bankruptcy or other legal process except for divorce orders or eligible domestic relation orders. The statutes governing the System contained an "anti-alienation" clause to provide for this protection; however, many smaller public pension systems did not have the benefit of this protection. Therefore, Public Act 100 of 2002 was passed to establish legal protection of pension assets that encompasses all public employees.

Investments

Generally, investments are reported at fair value, consistent with the provisions of GASB Statement No. 72, *Fair Value Measurement and Application*. Short-term, highly liquid debt instruments including commercial paper are reported at amortized cost. Additional disclosures describing investments are provided in Note 6.

Investment Income

Dividend and interest income is recognized on the accrual basis. Fair value changes are recorded as investment income or loss. Purchases and sales of investments are recorded as of the trade date (the date upon which the transaction is initiated), except for purchase and sale of mortgages, real estate, and private equity investments which are recorded as of the settlement date (the date upon which the transaction is ultimately completed). The effect of recording such transactions as of the settlement date does not materially affect the financial statements.

Costs of Administering the System

Each year a restricted general fund appropriation is requested to fund the ongoing business operations of the System. These administrative costs are ultimately funded by the System through the regular transfer of funds from the System to the State's general fund based on either a direct cost or allocation basis depending on the nature of the expense. Costs of administering the System are financed by undistributed investment income of the System.

Property and Equipment

Office space is leased from the State on a year-to-year basis. Office equipment is capitalized if the value exceeds $5,000. These assets are recorded at cost and are reported net of depreciation in the *Statement of Pension Plan and Other Postemployment Benefit Plan Fiduciary Net Position*. Such assets are depreciated on a straight-line basis over 10 years. The System does not have equipment that falls within these parameters.

NOTES TO BASIC FINANCIAL STATEMENTS (CONTINUED)

Related Party Transactions

Leases and Services – The System leases operating space and purchases certain administrative, data processing, legal and investment services from the State. The space and services are not otherwise available by competitive bid. The schedule below summarizes costs incurred by the System for such services.

	2018
Building Rentals	$ 2,053
Technological Support	15,202
Attorney General	12,423
Investment Services	71,149
Personnel Services	271,803

Cash – At September 30, 2018, the System had $864.2 thousand in a common cash investment pool maintained for various State operating funds. The participating funds in the common cash pool earn interest at various rates depending upon prevailing short-term interest rates. Earnings (Losses) from these activities amounted to $16,164 for the year ended September 30, 2018.

Excess Benefits

Internal Revenue Service (IRS) Code Section 415 requires that, for individuals who receive retirement benefits in excess of established limits, these benefits are recorded and reported outside of the pension plan in order to keep the qualified status of the plan. This includes coordination of benefit issues whereby a retiree participates in more than one qualified plan. In fiscal year 2018, the System provided excess benefits to one retiree.

NOTE 3 – CONTRIBUTIONS AND FUNDED STATUS

Contributions

Members' contributions range from 3.5% to 7% of their salary depending on the plan (described in statute). Contributions are tax deferred under Section 414(h)(2) of the Internal Revenue Code, except for probate judges whose contributions are tax deferred only if the local unit of government has adopted a resolution to do so. Contribution provisions are specified by State statute and may be amended only by action of the State Legislature.

The State contributes annually the greater of 3.5% of the aggregate annual compensation of State paid base salaries, or the difference between the total actuarial requirement of current service and unfunded actuarial liabilities minus the revenues from court filing fees and member contributions. Although contributions are expressed as a percentage of payroll, because the system is a closed plan, the actuarial valuation calculates a level dollar amount for funding purposes. For fiscal year 2018, an employer contribution in the amount of $2.3 million was paid from the court fee fund. If the court fees deposited in the reserve for employer contributions equal the amount needed in addition to other publicly financed contributions to sustain the required level of publicly financed contributions, Section 304(4) requires court fees to be deposited in the court fee fund in the State Treasury. The State Treasurer transmits the money in the court fee fund, not exceeding $2.2 million in any fiscal year, to the court equity fund for operational expenses of trial courts.

Employer contributions to the System are determined on an actuarial basis using the entry age normal actuarial cost method. Under this method, the actuarial present value of the projected benefits of each individual included in the actuarial valuation is allocated on a level basis over the service of the individual between entry age and assumed exit age. The portion of this cost allocated to the current valuation year is called the normal cost. The remainder is called the actuarial accrued liability. Normal cost is funded on a current basis.

Pension and OPEB contributions made in the fiscal year ending September 30, 2018, were determined as of the September 30, 2017 actuarial valuations. The unfunded (overfunded) actuarial accrued liabilities as of September 30, 2017, are amortized over a 19-year period beginning October 1, 2017 and ending September 30, 2036.

The schedule below summarizes pension and OPEB contribution rates in effect for fiscal year 2018.

Pension Contribution Rates

Benefit Structure	Member	Employer*
Supreme Court	5.0 %	0 %
Court of Appeals	5.0	0
Elected Officals	5.0	0
Circuit Court	3.5 - 7.0	0
District Court	3.5 - 7.0	0
Probate Court	3.5 - 7.0	0

* Employer Contributions are paid through court fees.

OPEB Contribution Rates

Benefit Structure	Member	Employer*
Supreme Court	2.0 %	0 %
Court of Appeals	2.0	0
Elected Officals	2.0	0
Circuit Court	0.0	0
District Court	0.0	0
Probate Court	0.0	0

* Employer Contributions are paid through court fees.

The system is required to reconcile with actuarial requirements annually. Any funding excess or deficiency for pension benefits is smoothed over 5 years. One fifth (20%) of the funding excess or deficiency is included in each of the subsequent years' contribution, and is not recognized as a payable or receivable in the accounting records.

NOTE 4 – NET PENSION LIABILITY

Measurement of the Net Pension Liability

The net pension liability is to be measured as the total pension liability, less the amount of the pension plan's fiduciary net position. In actuarial terms, this will be the accrued liability less the fair value of assets (not the smoothed actuarial value of assets that is often encountered in actuarial valuations performed to determine the employer's contribution requirement).

NOTES TO BASIC FINANCIAL STATEMENTS (CONTINUED)

Net Pension Liability

Total Pension Liability	$	271,823,571
Plan Fiduciary Net Position		271,116,374
Net Pension Liability	$	707,197
Plan Fiduciary Net Position as a Percentage of Total Pension Liability		99.74%
Net Pension Liability as a percentage of Covered Payroll		6.06%
Total Covered Payroll	$	12,046,554

Long-Term Expected Return on Plan Assets

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of arithmetic real rates of return for each major asset class included in the pension plan's target asset allocation as of September 30, 2018, are summarized in the following table:

Asset Allocation

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return*
Domestic Equity Pools	28.0 %	5.7 %
Private Equity Pools	18.0	9.2
International Equity Pools	16.0	7.2
Long-Term Fixed Income Pools	10.5	0.5
Real Estate and Infrastructure Pools	10.0	3.9
Absolute Return Pools	15.5	5.2
Short-Term Investment Pools	2.0	0.0
TOTAL	**100.0 %**	

* Long-term rates of return are net of administrative expenses and 2.3% inflation.

Rate of Return

For the fiscal year ended September 30, 2018, the annual money-weighted rate of return on pension plan investment, net of pension plan investment expense, was 11.11%. The money weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

Discount Rate

A single rate discount of 6.75% was used to measure the total pension liability for fiscal year 2018. In fiscal year 2017, this single rate discount rate used to measure the total pension liability was 8.0%. This single discount rate was based on the expected rate of return on pension plan investments of 6.75%. The projection of cash flows used to determine this single rate discount was based on assumption that in the future, plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rate. Based on these assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to projected benefit payments to determine the total pension liability.

Sensitivity of the Net Pension Liability to Changes in the Discount Rate

As required by GASB Statement No. 67, the following presents the plan's net pension liability, calculated using a single discount rate of 6.75%, as well as what the plan's net pension liability would be if it were calculated using a single discount rate that is 1-percentage-point lower or 1-percentage-point higher:

1% Decrease 5.75%	Current Discount Rate Assumption 6.75%	1% Increase 7.75%
$22,443,743	$707,197	($18,129,230)

Timing of the Valuation

An actuarial valuation to determine the total pension liability is required to be performed at least every two years. If the actuarial valuation is not calculated as of the plan's fiscal year end, the total pension liability is required to be rolled forward from the actuarial valuation date to the pension plan's fiscal year end.

The total pension liability as of September 30, 2018, is based on the results of an actuarial valuation date of September 30, 2017, and rolled-forward using generally accepted actuarial procedures.

Actuarial Valuations and Assumptions

Actuarial valuations for the pension plan involve estimates of the value of reported amounts and assumptions about the probability of occurrence of events far into the future. Examples include assumptions about future employment and mortality. Amounts determined regarding the funded status of the plan and the actuarially determined contributions (ADC) are subject to continual revision as actual results are compared with past expectations and new estimates are made about the future.

The Schedules of Contributions in Required Supplementary Information present trend information about the amounts contributed to the plan by employers in comparison to the ADC, an amount that is actuarially determined in accordance with the parameters of GASB Statement No. 67 for pension.

Projections of benefits for financial reporting purposes are based on the substantive plan (the plan as understood by the employer and plan members) and include the types of benefits provided at the time of each valuation and the historical pattern of sharing of benefit costs between the employer and plan members to that point. The actuarial methods and assumptions used include techniques that are designed to reduce the effects of short-term volatility in actuarial accrued liabilities and the actuarial value of assets, consistent with the long-term perspective of the calculations.

NOTES TO BASIC FINANCIAL STATEMENTS (CONTINUED)

The information presented in the Net Pension Liability schedules and notes was determined as part of the actuarial valuations at the dates indicated. Additional information as of the latest actuarial valuation used in determining the total pension liability follows:

Summary of Actuarial Assumptions	
Valuation Date	September 30, 2017
Actuarial Cost Method	Entry Age, Normal
Asset Valuation Method	Fair Value
Actuarial Assumptions:	
Wage Inflation Rate	2.75%
Investment Rate of Return	6.75%
Projected Salary Increases	3.25%, including wage inflation at 2.75%
Cost-of-Living Pension Adjustments	Assumed 3.25% compounded for those eligible
Mortality:	
Retirees	RP-2014 Male and Female Healthy Annuitant Mortality Tables scaled by 100% for both males and females and adjusted for mortality improvements using projection scale MP-2017 from 2006.
Active	RP-2014 Male and Female Employee Annuitant Mortality Tables scaled by 100% and adjusted for mortality improvements using projection scale MP-2017 from 2006.
Disabled Retirees	RP-2014 Male and Female Disabled Annuitant Mortality Tables scaled by 100% and adjusted for mortality improvements using projection scale MP-2017 from 2006.
Notes	Assumption changes as a result of an experience study for the period 2012 through 2017 have been adopted by the System for use in the determination of the total pension liability beginning with September 30, 2017 valuation.

NOTE 5 – NET OPEB LIABILITY

Measurement of the Net OPEB Liability

The net OPEB liability is to be measured as the total OPEB liability, less the amount of the OPEB plan's fiduciary net position. In actuarial terms, this will be the accrued liability less the fair value of assets (not the smoothed actuarial value of assets that is often encountered in actuarial valuations performed to determine the employer's contribution requirement).

Net OPEB Liability

Total OPEB Liability	$	8,561,682
Plan Fiduciary Net Position		1,054,629
Net OPEB Liability	$	7,507,053
Plan Fiduciary Net Position as a Percentage of Total OPEB Liability		12.32%

Long-Term Expected Return on Plan Assets

The long-term expected rate of return on OPEB plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of OPEB plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of arithmetic real rates of return for each major asset class included in the OPEB plan's target asset allocation as of September 30, 2018, are summarized in the following table:

Asset Allocation

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return*
Domestic Equity Pools	28.0 %	5.7 %
Private Equity Pools	18.0	9.2
International Equity Pools	16.0	7.2
Long -Term Fixed Income Pools	10.5	0.5
Real Estate and Infrastructure Pools	10.0	3.9
Absolute Return Pools	15.5	5.2
Short-Term Investment Pools	2.0	0.0
TOTAL	**100.0 %**	

* Long-term rates of return are net of administrative expenses and 2.3% inflation.

NOTES TO BASIC FINANCIAL STATEMENTS (CONTINUED)

Rate of Return

For the fiscal year ended September 30, 2018, the annual money-weighted rate of return on OPEB plan investment, net of OPEB plan investment expense, was 9.26%. The money weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

Discount Rate

A single discount rate of 7.0% was used to measure the total OPEB liability for fiscal year 2018. In fiscal year 2017, this single discount rate was used to measure the total OPEB liability was 8.0%. This single discount rate was based on the expected rate of return on pension plan investments of 7.0%. The projection of cash flows used to determine this single discount rate was based on the assumption that in the future plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rate. Based on these assumptions, the OPEB plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on OPEB plan investments was applied to all periods of projected benefit payments to determine the total OPEB liability.

Sensitivity of the Net OPEB Liability to Changes in the Discount Rate

As required by GASB Statement No. 74, the following presents the plan's net OPEB liability, calculated using a single discount rate of 7.0%, as well as what the plan's net OPEB liability would be if it were calculated using a single discount rate that is 1-percentage-point lower or 1-percentage-point higher:

1% Decrease	Current Discount Rate Assumption	1% Increase
6.0%	7.0%	8.0%
$8,381,441	$7,507,053	$6,755,322

Sensitivity of the Net OPEB Liability to Changes in the Healthcare Cost Trend Rate Assumption

As required by GASB Statement No. 74, the following presents the plan's net OPEB liability, calculated using the assumed trend rates as well as what the plan's net OPEB liability would be if it were calculated using a trend rate that is 1-percentage-point lower or 1-percentage-point higher:

1% Decrease	Current Healthcare Cost Trend Rate Assumption	1% Increase
$6,718,260	$7,507,053	$8,397,276

Timing of the Valuation

An actuarial valuation to determine the total OPEB liability is required to be performed at least every two years. If the actuarial valuation is not calculated as of the plan's fiscal year end, the total OPEB liability is required to be rolled forward from the actuarial valuation date to the OPEB plan's fiscal year end.

The total OPEB liability as of September 30, 2018, is based on the results of an actuarial valuation date of September 30, 2017, and rolled-forward using generally accepted actuarial procedures.

NOTES TO BASIC FINANCIAL STATEMENTS (CONTINUED)

Actuarial Valuations and Assumptions

Actuarial valuations for OPEB plan involve estimates of the value of reported amounts and assumptions about the probability of occurrence of events far into the future. Examples include assumptions about future employment, mortality and the healthcare cost trend. Amounts determined regarding the funded status of the plan and the actuarially determined contributions (ADC) are subject to continual revision as actual results are compared with past expectations and new estimates are made about the future.

The Schedules of Contributions in Required Supplementary Information present trend information about the amounts contributed to the plan by employers in comparison to the ADC, an amount that is actuarially determined in accordance with the parameters of GASB Statement No. 74 for OPEB contributions.

Projections of benefits for financial reporting purposes are based on the substantive plan (the plan as understood by the employer and plan members) and include the types of benefits provided at the time of each valuation and the historical pattern of sharing of benefit costs between the employer and plan members to that point. The actuarial methods and assumptions used include techniques that are designed to reduce the effects of short-term volatility in actuarial accrued liabilities and the actuarial value of assets, consistent with the long-term perspective of the calculations. The information presented in the Net OPEB Liability schedules and notes was determined as part of the actuarial valuations at the dates indicated. Additional information as of the latest actuarial valuation used in determining the total OPEB liability follows:

NOTES TO BASIC FINANCIAL STATEMENTS (CONTINUED)

Summary of Actuarial Assumptions

Valuation Date	September 30, 2017
Actuarial Cost Method	Entry Age, Normal
Asset Valuation Method	Fair value
Actuarial Assumptions:	
Wage Inflation Rate	2.75%
Investment Rate of Return	7.00%
Projected Salary Increases	3.25%, including wage inflation at 2.75%
Health Care Cost Trend Rate[1]	9.0% Year 1 graded to 3.00% Year 11
Mortality:	
Retirees	RP-2014 Male and Female Healthy Annuitant Mortality Tables scaled by 100% for both males and females and adjusted for mortality improvements using projection scales MP-2017 from 2006.
Active	RP-2014 Male and Female Employee Annuitant Mortality Tables scaled by 100% and adjusted for mortality improvements using projection scales MP-2017 from 2006.
Disabled Retirees	RP-2014 Male and Female Disabled Annuitant Mortality Tables scaled by 100% and adjusted for mortality improvements using projection scales MP-2017 from 2006.
Other Assumptions:	
Opt Out Assumption	0% of eligible participants are assumed to opt out of the retiree health plan
Survivor Coverage	100% of male retirees and 100% of female retirees are assumed to have coverage continuing after the retiree's death when 2-person coverage was assumed to be elected
Coverage Election at Retirement	75% of male and 60% of female future retirees are assumed to elect coverage for 1 or more dependents
Notes	Assumption changes as a result of an experience study for the period 2012 through 2017 have been adopted by the System for use in the determination of the total pension liability beginning with the September 30, 2017 valuation.

[1] *Applies to medical and Rx payments*

NOTE 6 – INVESTMENTS

Investment Authority

Under Public Act 380 of 1965, as amended, the authority for the purchase and the sale of investments resides with the State Treasurer. Investments are made subject to the Public Employee Retirement System Investment Act, Public Act 314 of 1965, as amended. The Public Employee Retirement System Investment Act authorizes, with certain restrictions, the investment of pension fund assets in stocks, corporate and government bonds and notes, mortgages, real estate, and certain short-term and private equity investments. Investments must be made for the exclusive purposes of providing benefits to active members, retired members and beneficiaries, and for defraying the expenses of investing the assets.

Derivatives

The State Treasurer employs the use of derivatives in the investment of the pension and other employee benefit trust funds (the trust funds).

Derivatives are used in managing the trust fund portfolios, but uses do not include speculation or leverage of investments. Less than 12% of the total trust funds' portfolio has been invested from time to time in future contracts, swap agreements, structured notes, option and forward contracts. State investment statutes limit total derivative exposure to 15% of a fund's total asset value, and restrict uses to replication of returns and hedging of assets. Swap agreements represent the largest category of derivative investments subject to this limitation. Option and Future contracts traded daily on an exchange and settling in cash daily or having a limited and fully defined risk profile at an identified, fixed cost are not subject to the derivative exposure limitation.

The derivative fair values are reported on the Statement of Pension Plan and Other Postemployment Benefit Plan Fiduciary Net Position as of September 30, 2018, in their respective investment pool's fair value. Derivative net increase and decrease are reported on the Statement of Changes in Pension Plan and Other Postemployment Benefit Plan Fiduciary Net Position for fiscal year ended September 30, 2018, under "Investment income (loss)", in "Net increase (decrease) in fair value of investments". Bond interest, swap payments, and dividends are reported under "Investment income (loss)", in "Interest, dividends, and other".

NOTES TO BASIC FINANCIAL STATEMENTS (CONTINUED)

Derivative Investment Table as of September 30, 2018 (In Thousands):

Investment and Investment Type	Percentage of Fair Value	Notional Value	Investments At Fair Value	Net Increase (Decrease) in Fair Value	Investment Income	Fair Value Subject to Credit Risk
Government Bond Future Contracts Fixed Income Investments	0.0%	$ 63.5	$ 0.1	$ 1.4	$ -	$ -
Option Contracts Equity and Fixed Income Investments	0.7	137,761.4	1,899.7	1,002.6	-	-
International Swap Agreements International Equity and Fixed Income Investments	2.9	9,240.2	7,858.3	(35.8)	(5.5)	-
Domestic Swap Agreements Domestic Equity and Fixed Income Investments	0.0	(112.7)	3.6	15.7	14.0	-
		$ 146,952.4	$ 9,761.7	$ 983.9	$ 8.5	$ -

To diversify the trust funds' portfolio, the State Treasurer has entered into international swap agreements with investment grade counterparties, which are tied to stock market indices in approximately forty-six foreign countries. Generally, the notional amount of equity swaps tied to foreign stock market indices is executed via a net total return USD index. The swap agreements provide that the System will pay quarterly over the term of the swap agreements, interest indexed to the three month London Inter-Bank Offer Rate (LIBOR), adjusted for an interest rate spread, on the notional amount stated in the agreements. International equity swap agreement maturity dates range from October 2018 to June 2019. U.S. Treasury Bonds, U.S. Corporate Bonds and other public market fixed income securities, as well as, other investments are held to correspond with the notional amount of the international swap agreements. The value of the international synthetic equity structures is a combination of the value of the swap agreements and the value of the notes and other investments. The book value represents the cost of the bonds, notes and other investments. The current value represents the current value of the bonds, notes and other investments and the change in the value of the underlying indices from the inception of the swap agreements. The current value is used as a representation of the fair value based on the intention to hold all swap agreements until maturity. At the maturity of the swap agreements, the trust funds will either receive the increase in the value of the equity indices from the level at the inception of the agreements, or pay the decrease in the value of the indices. The combined swap structure generally realizes gains and losses on a rolling basis.

Domestic equity swap agreements provide that the System will pay interest monthly, quarterly or annually over the term of the swap agreements, interest indexed to the LIBOR, adjusted for an interest rate spread, on the

notional amount stated in the agreements. Domestic equity swaps value is a combination of the value of the swap agreements and the value of short-term investments. Book value represents the cost of short-term and equity investments. Current value represents the fair value of the short-term investments and the change in the value of the underlying indices from the inception of the swap agreements. Domestic equity swaps' increase (decrease) primarily reflects the net changes in the domestic indices and short-term investments. Domestic equity swap agreements matured in December 2017. At September 30,2018, there were no domestic equity swaps.

To reduce the risk in the fixed income portfolio, the State Treasurer has entered into FX swap agreements, interest rate swaps agreements and credit default swap agreements with investment grade counterparts. The FX swap agreements are tied to foreign currency forward exchange rates and are used to reduce the currency risk with the fixed income portfolio. The swap agreements are entered into on an as-needed basis and are generally tied to the maturity of the foreign government bond indenture denominated in a foreign currency. The purpose of the FX swap agreement that has a final maturity date of less than three months, is to reduce or eliminate the currency risk on foreign bond transactions. US. Domestic LIBOR-based floating rate notes, U.S. Treasury securities, and portfolio cash are held to correspond with the notional amount of FX swap agreements within the fixed income portfolio. Interest rate swaps are used to adjust interest rate and yield curve exposure and substitute for physical securities. Long swap positions that receive fixed rate, increase exposure to long-term interest rates; short swap positions that pay fixed rate, decrease exposure. Credit default swaps (CDS) are used to manage credit exposure without buying or selling securities outright. Written CDS increase credit exposure, selling protection, obligating the portfolio to buy bonds from counterparties in the event of a default. Purchased CDS decrease exposure, buying protection, providing the right to "Put" bonds to the counterparty in the event of default.

Counterparty credit risk is the maximum loss amount that would be incurred if the counterparties to the derivative instrument failed to perform according to the terms of the contract, without respect to any collateral or other security, or netting arrangement. As of October 2017, all derivative investments were collateralized. The State Treasurer traded U. S. Treasury bond future contracts to manage duration and yield curve exposure, adjust interest rate exposure and replicate government bond positions.

To enhance returns while limiting downside risk, the State Treasurer traded equity options in single securities and on indices in the Large Cap Core, Large Cap Growth, and DED Tactical Allocation Pools. Domestic equity options were used for the purpose of stock replacement, in conjunction with dividend stocks to drive excess returns over the S&P 500, and to provide added exposure to strong equity markets while limiting principal at risk. Put options are used to protect against large negative moves in market indices. Options traded by the State Treasurer in the fixed income pools are used to manage interest rate and volatility exposures. Written options generated income in expected interest rate scenarios and may generate capital losses, if expected interest rate environments are realized. Both written and purchased options will become worthless at expiration if the underlying instrument does not reach the strike price of the option.

Securities Lending

The System, pursuant to a Securities Lending Authorization Agreement, has authorized State Street Bank and Trust Company ("State Street") to act as the System's agent in lending the System's securities to approved borrowers. State Street, as agent, enters into Securities Loan Agreements with borrowers.

During the Fiscal Year, State Street lent, on behalf of the State Treasurer, certain securities of the System held by State Street as custodian and received cash or other collateral including securities issued or guaranteed by the United States government. The types of securities lent were equity, and fixed income, which includes government and corporate bonds and notes. State Street does not have the ability to pledge or sell collateral securities delivered absent a borrower default. Borrowers were required to deliver collateral for each loan equal to at least 100% of the fair value of the loaned securities.

Pursuant to the Securities Lending Authorization Agreement, State Street had an obligation to indemnify the System in the event of default by a borrower. There were no failures by any borrowers to return loaned

NOTES TO BASIC FINANCIAL STATEMENTS (CONTINUED)

securities or pay distributions thereon during the Fiscal Year that resulted in a declaration or notice of default of the Borrower.

During the Fiscal Year, the System and the borrowers maintained the right to terminate securities lending transactions upon notice. The cash collateral received on each loan was invested, together with the cash collateral of other qualified tax-exempt plan lenders, in a collective investment pool. As of September 30, 2018, such investment pool had an average duration of 9 days and an average weighted final maturity of 96 days for

USD. Because the loans were terminable at will their duration did not generally match the duration of the investments made with cash collateral. On September 30, 2018 the System had no credit risk exposure to borrowers. The fair value of collateral held and the fair value (USD) of securities on loan for the client as of September 30, 2018 was $12,453,112 and $12,226,305 respectively.

Risk

In accordance with GASB Statement No. 40, investments require certain disclosures regarding policies and practices and the risks associated with them. The credit risk, (including custodial credit risk and concentration of credit risk), the interest rate risk, and the foreign currency risk are discussed in the following paragraphs. Amounts represent the pro rata share of the underlying investments as required by GASB Statement No. 40. These investments are held in internal investment pools and reported as such in the financial statements.

Credit Risk – Credit risk is the risk that an issuer will not fulfill its obligations.

- Short-Term Fixed Income Investments – Eligible commercial paper investments must be rated within one of the two highest ratings classifications (“1” or “2”) at the time of purchase from one of the nationally recognized ratings organizations (NRSROs) specified in Public Act 314 of 1965, as amended. Borrowers must have at least $400.0 million in commercial paper outstanding, and the State Treasurer may not invest in more than 10% of the borrower’s outstanding debt.

- Long-Term Fixed Income Investments – Investment grade and noninvestment grade securities may be acquired in compliance with the parameters set forth in Public Act 314 of 1965, as amended, and the State Treasurer’s Investment Policy Statement for the System. Public Act 314 defines grade as investments in the top four major grades, rated by two national rating services. At September 30, 2018, the System was in compliance with Investment Policy Statement in all material aspects.

NOTES TO BASIC FINANCIAL STATEMENTS (CONTINUED)

Rated Debt Investments
(in thousands)

As of September 30, 2018

Investment Type	Fair Value	S&P	Fair Value	Moody's
Short Term	$ 7,571	A-1	$ 7,571	P-1
	960	A-2	174	P-2
	-	A-3	786	P-3
Government Securities				
U.S. Agencies - Sponsored	6	AAA	2,368	Aaa
	2,363	AA	-	Aa
Fixed Income				
	529	AAA	1,340	Aaa
	1,003	AA	1,224	Aa
	2,684	A	3,198	A
	5,882	BBB	5,609	Baa
	1,163	BB	1,064	Ba
	844	B	1,010	B
	321	CCC	355	Caa
	72	CC	151	Ca
	-	C	4	C
	63	D	-	D
	4,907	NR	3,513	NR
International *				
	273	AAA	228	Aaa
	257	AA	257	Aa
	1,044	A	1,824	A
	3,582	BBB	2,803	Baa
	409	NR	453	NR
Securities Lending Collateral				
Short Term				
	731	A-1	731	P-1
	941	NR	1,947	NR
Fixed Income	200	AA	693	Aa
	2,950	A	1,451	A
	-	BB	7,632	Ba
	7,632	NR	-	NR
Mutual Funds	136	AAA	136	AAA
	111	A	111	A
	265	BB	265	Ba
	81	B	81	B
Total	$ 46,979		$ 46,979	

NR - not rated

* International Investment types consist of domestic floating rate note 5 used as part of a Swap strategy.

NOTES TO BASIC FINANCIAL STATEMENTS (CONTINUED)

Custodial Credit Risk – Custodial credit risk for investments is the risk that, in the event of a failure of the counterparty, the State will not be able to recover the value of the investment or collateral securities that are in the possession of an outside party.

Investment securities are exposed to custodial credit risk if the securities are uninsured, are not registered in the name of the government and are held by either the counterparty or the counterparty's trust department or agent, but not in the government name.

The State Treasurer does not have a policy for custodial credit risk. However, the State's custodial bank had a credit rating of A at September 30, 2018. As of September 30, 2018, no securities were exposed to custodial credit risk.

Concentration of Credit Risk – Concentration of credit risk is the risk of loss attributed to the magnitude of a government's investment in a single issuer.

Other than obligations issued, assumed or guaranteed by the United States, its agencies or United States government sponsored enterprises, the System is prohibited by Public Act 314 of 1965, as amended, from investing more than 5% of the outstanding obligations of any one issuer or investing more than 5% of a System's assets in the obligations of any one issuer. When calculating the amount of outstanding obligations, the System includes publicly issued and privately held debt.

At September 30, 2018, there were no investments in any single issuer that accounted for more than 5% of the System's assets. The System held one investment that exceeded the 5% cap in obligations of any one issuer. The System is aware of the breach and in accordance with MCL 38.1133(3)(g), is developing a prudent plan for reallocating assets to comply with the prescribed limitations.

Interest Rate Risk – Fixed Income Investments – Interest rate risk is the risk that changes in interest rates of debt investments will adversely affect the fair value of an investment.

The State Treasurer's policy states that cash equivalents are invested in short-term fixed income securities with an average weighted maturity of less than one year to provide liquidity and safety of principal from capital market and default risk. At September 30, 2018, the fair value of the System's prime commercial paper was $8.5 million with the weighted average maturity of 28 days.

The State Treasurer does not have a policy regarding interest rate risk for long-term debt investments. However, the trust funds are invested with a long-term strategy. The goal is to balance higher returns while accepting minimum risk for the return. Analyzing the yield curve on individual securities as compared to U.S. Treasuries determines, in part, what is an acceptable risk for the return. Therefore, market conditions such as lower interest rates result in shorter duration and higher interest rates result in longer duration.

Debt Securities
(in thousands)
As of September 30, 2018

	Fair Value	Effective Duration in Years
Government		
U. S. Treasury	$ 8,263	7.3
U. S. Agencies - Backed	2,311	3.0
U. S. Agencies - Sponsored	2,366	4.0
Corporate	18,060	4.0
International*		
U.S. Treasury	2,305	2.7
Corporate	5,566	0.4
Total	$ 38,871	

Debt securities are exclusive of securities lending collateral.

*International contains Corporate Debt Securities as a part of their derivative strategies. The interest rates reset on a quarterly basis for these securities.

Foreign Currency Risk – Foreign currency risk is the risk that changes in exchange rates will adversely affect the fair value of an investment or deposit.

The System invests in various securities denominated in foreign currencies. Authorized global securities include equities, fixed income, mutual funds, real estate, and limited partnerships. These investments are limited to 30% of the total assets of the System with additional limits of not more than 5% of the outstanding global securities of any one issuer and no more than 5% of the System's assets in the global securities of any one issuer. In addition to these limits, the State Treasurer cannot acquire securities with companies that have active business operations in the state sponsors of terror as identified by the United States Secretary of State. At September 30, 2018, the total amount of foreign investment subject to foreign currency risk was $50.8 million, which amounted to 18.7% of total investments (exclusive of securities lending collateral) of the System.

NOTES TO BASIC FINANCIAL STATEMENTS (CONTINUED)

Foreign Currency Risk
(in thousands)
As of September 30, 2018

Region	Country	Currency	Equity Fair Value in U.S. $	Fixed Income Fair Value in U.S. $	International* & Absolute Return Fair Value in U.S. $	Private Equity, Real Estate, & Infrastructure Fair Value in U.S. $
AMERICA						
	Brazil	Real		$ 2		$ 111
	Canada	Dollar		28	$ 449	136
	Mexico	Peso		78		380
	Peru	Sol		6		
	Uruguay	Peso		3		
	Columbian	Peso		8		
	Chilean	Peso		11		
PACIFIC						
	Australia	Dollar	$ 6		224	
	Hong Kong	Dollar	3		236	
	India	Rupee				557
	Indonesia	Rupiah		8		
	Japan	Yen		49	2,070	
	Malaysia	Ringgit		12		
	New Taiwan	Dollar	17		45	
	New Zealand	Dollar			2	
	China	Renminbi	464			137
	Singapore	Dollar	2	9	42	
	Thai	Baht		14		
	Sri Lankan	Rupee		4		
EUROPE						
	Denmark	Krone			73	
	European Union	Euro	279	248	931	2,756
	Hungarian	Forint				
	Norway	Krone	3		71	
	Poland	Ztoty		9		
	U.K.	Sterling	265	48	650	242
	Romania	Leu		23		
	Sweden	Krona	1	13	111	
	Switzerland	Franc	100		412	
AFRICA						
	South Africa	Rand	3	25		
	Egypt	Pound		8		
	Zambia	Kwacha				
	Liberia	Dollar	216			
MIDDLE EAST						
	Israel	New Shekel		21	83	
OTHER						
	Various				32,050	7,089
	Total		$ 1,358	$ 627	$ 37,450	$ 11,409

*International includes derivatives whose markey value exposure to foreign currency risk is the net amount of unrealized gains and unrealized losses. Maturity dates on these investments range from October 2018 throught September 2019, with an average maturity of 0.3 years.

NOTES TO BASIC FINANCIAL STATEMENTS (CONTINUED)

FAIR VALUE MEASUREMENTS

The Retirement System categorizes its fair value measurements within the fair value hierarchy established by generally accepted accounting principles. The hierarchy is based on the valuation inputs used to measure the fair value of the asset. Not all investments held by the Retirement System are recorded at fair value. GASB 72 allows for certain investments to be recorded at cost (or amortized cost or any other valuation method), and therefore, they are not presented in the fair value hierarchy table. Equity and Fixed Income Securities classified in Level 1 of the fair value hierarchy are valued using prices quoted in active markets for those securities. Equity Swaps and Fixed Income Securities classified in Level 2 of the fair value hierarchy are valued using a matrix pricing technique and other significant observable inputs. Equity and Fixed Income Securities classified as Level 3 of the fair value hierarchy are valued using a third-party data and reports that are unobservable. Securities reported at Net Asset Value (NAV) are valued using the most recent third-party statement adjusted for cash flows as of September 30, 2018. Investments that are measured at fair value using the Net Asset Value per share (or its equivalent) as a practical expedient are not classified in the fair value hierarchy on the following page.

In instances where inputs used to measure fair value fall into different levels in the above fair value hierarchy, fair value measurements in their entirety are categorized based on the lowest level input that is significant to the valuation. The Retirement System's assessment of the significance of particular inputs to these fair value measurements requires judgment and considers factors specific to each asset or liability.

NOTES TO BASIC FINANCIAL STATEMENTS (CONTINUED)

		Fair Value Measurement Using		
	Balance at September 30, 2018	Quoted Prices In Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Investments by fair value level:				
Total cash and cash equivalents	$ 4,708	$ 4,708	-	-
Equity				
Depository Receipts	643,355	643,355	-	-
Warrants	223	-	-	$ 223
Common Stocks	62,330,119	62,321,735	-	8,384
Preferred Stocks	8,725	8,725	-	-
Options on Equity	1,858,359	1,858,359	-	-
Real Estate Investment Trusts	5,549,034	5,549,034	-	-
Options on Index	41,402	41,402	-	-
Swaps	(268,725)	-	$ (268,725)	-
Commingled Funds, ETF's, and PTP's	36,742,339	36,742,339	-	-
Convertible Bonds	2,384	-	2,384	-
Total Equity	106,907,215	107,164,949	(266,341)	8,607
Fixed Income				
Asset Backed	3,665,488	-	3,665,488	-
Corporate Bonds	15,529,691	-	15,421,858	107,834
Commercial mortgage-backed	5,802,457	-	5,802,457	-
Government Issues	11,309,996	10,567,725	730,149	12,122
Swaps	5,527	-	5,527	-
US Agency Issues	1,917,450	-	1,917,450	-
Futures on Fixed Income	15,515	15,515	-	-
Commingled Funds, ETF's, and PTP's	457,247	457,247	-	-
Options on Fixed Income	(109)	-	(109)	-
Total Fixed Income	38,703,262	11,040,487	27,542,819	119,956
Total investments by fair value level	**$ 145,615,185**	**$ 118,210,144**	**$ 27,276,477**	**$ 128,563**
Investments measured at the net asset value (NAV)				
Private Equity	43,025,083			
Real Estate & Infrastructure	27,888,030			
Absolute Return	15,089,303			
Real Return & Opportunistic	24,307,135			
Other Limited Partnerships	5,959,158			
Total investments measured at the NAV	**116,268,709**			
Total investments measured at fair value	**$ 261,883,894**			

NOTES TO BASIC FINANCIAL STATEMENTS (CONTINUED)

Additional disclosures for fair value measurements of investments in certain entities that calculate the Net Asset Value per Share (or its equivalent).

Private Equity funds

Total investments measured at the NAV	$ 43,025,083
Unfunded commitments	27,315,215

Private Equity funds includes investments in approximately 243 partnerships that invest in leveraged buyouts, venture capital, mezzanine debt, distressed debt, secondary funds and other investments. These type of investments can never be redeemed with the funds, but distributions are received through the liquidation of the underlying assets of the fund. It's expected that the underlying assets of the fund are liquidated over a period of five to eight years. However, as of September 30, 2018, it is probable that all of the investments in this group will be sold at an amount different from the NAV per share (or its equivalent). Therefore, the fair values of the investments in this type have been determined using recent observable transaction information for similar investments and nonbinding bids received from potential buyers of the investments. As of September 30, 2018, a buyer for these investments has not been identified.

Real Estate and Infrastructure

Total investments measured at the NAV	$ 27,888,030
Unfunded commitments	4,667,140

Real Estate and Infrastructure funds include approximately 106 accounts (limited partnerships, limited liability companies, etc.) that invest in real estate or infrastructure related assets. The fair value of the Real Estate and Infrastructure funds have been determined in accordance with generally accepted accounting principles using the NAV per share (or its equivalent) of the Plan's ownership interest in partners' capital. These types of investments cannot be redeemed with the funds. Distributions from these funds will be received as the underlying investments are sold and liquidated over time. It is expected that the underlying assets will be sold over the next 5 – 15 years. However, buyers have not been determined so the fair value has been determined using the NAV per share (or its equivalent) of the Plan's ownership interest in partners' capital.

Absolute Return Portfolio

Total investments measured at the NAV	$ 15,089,303
Unfunded commitments	602,322

This type invests in hedge funds and hedge fund of funds that pursue multiple strategies to diversify risks and reduce volatility. The fair values of the investments in this portfolio have been determined using the NAV per share (or its equivalent) of the investments. For 86.7% of the investments, investors may redeem at various

NOTES TO BASIC FINANCIAL STATEMENTS (CONTINUED)

dates between October 1, 2018 and April 1, 2021; 7.7% of the investments are redeemable between April 1, 2021 through August 1, 2027; and the remaining 5.6% is not redeemable on demand.

Real Return and Opportunistic Portfolio

Total investments measured at the NAV	$ 24,307,135
Unfunded commitments	13,886,216

This type includes 82 funds that invest in private credit, tangible and intangible real assets, or other real return and opportunistic strategies. The fair values of the investments in this portfolio have been determined using the NAV per share (or its equivalent) of the Plan's ownership interest in partners' capital. These investments can never be redeemed with the funds. Distributions from each fund will be received as the underlying investments of the funds are liquidated. It is expected that the underlying assets of the funds will be liquidated over the next 5 to 10 years. This type also includes one fund that offers quarterly redemptions with 65 day notice.

All Other Investments

Total investments measured at the NAV	$ 5,959,158
Unfunded commitments	346,773

The balance of plan assets reported at fair value includes:

- A limited partnership (LP) that invests in the equity of Japanese companies. This LP permits partners to withdraw funds quarterly with 180 days of advanced notice.
- LPs that invest in senior secured debt financing of a third party investment fund. This investment cannot be redeemed by limited partners. The debt has a 10 year maturity, with partnership distributions to include principal as the loan collateral matures four years after the initial investment.
- A limited partnership permitting partners to redeem its debt securities quarterly with 30 or 60 days of advanced notice.
- A LP permitting partners to redeem its debt securities with 30 days of advanced notice.
- LPs that can never be redeemed, but distributions are received through the liquidation of the underlying assets of the fund.

NOTE 7 – COMMITMENTS AND CONTINGENCIES

Under the Administrative Procedures Act, members may appeal a decision made by the Board. Once the administrative procedure has been exhausted, the decision may be appealed in Michigan's court system. Various cases that have exhausted the administrative procedures have been appealed in the court system. These cases are in the normal course of business and the System does not anticipate any material loss as a result of the contingent liabilities.

NOTE 8 – SUBSEQUENT EVENTS

On December 28, 2018, the Governor signed Public Act 618 of 2018 which appropriated $7.3 million in supplemental funding for the Michigan Judges Retirement System OPEB plan in the 2019 fiscal year. The supplemental funding was appropriated for the purpose of paying off the OPEB plan's Unfunded Actuarial Accrued Liability. The full results of this supplemental funding will be reported in the September 30, 2019 JRS CAFR and OPEB actuarial valuation.

Required Supplementary Information

Schedule of Changes in Net Pension Liability

	Fiscal Year 2018	2017	2016	2015	2014
Total Pension Liability					
Service Cost	$ 1,587,121	$ 1,861,855	$ 2,036,413	$ 2,438,599	$ 2,746,531
Interest	19,100,329	19,688,411	19,743,433	19,770,594	19,569,102
Changes of benefit terms					
Differences between expected and actual experience	(1,498,046)	(4,922,695)	(1,290,275)	923,898	
Changes of assumptions	26,652,806		2,422,763		3,245,892
Benefit payments, including refunds of member contributions	(23,958,390)	(23,724,056)	(23,301,601)	(23,241,431)	(22,536,376)
Net Change in Total Pension Liability	21,883,820	(7,096,485)	(389,267)	(108,340)	3,025,149
Total Pension Liability - Beginning	249,939,751	257,036,236	257,425,503	257,533,843	254,508,694
Total Pension Liability - Ending (a)	$ 271,823,571	$ 249,939,751	$ 257,036,236	$ 257,425,503	$ 257,533,843
Plan Fiduciary Net Position					
Contributions - Employer	$ 1,736,417	$ 1,019,814	$ 2,179,641	$ 2,633,795	$ 3,163,800
Contributions - Member	653,414	697,444	805,452	902,078	1,025,074
Net Investment Income	28,280,145	32,258,137	18,425,274	5,840,415	37,165,561
Benefit payments, including refunds of member contributions	(23,958,390)	(23,724,056)	(23,301,601)	(23,241,431)	(22,536,376)
Administrative and Other Expenses	(412,645)	(343,883)	(320,152)	(309,377)	(288,390)
Net Change in Plan Fiduciary Net Position	6,298,941	9,907,456	(2,211,386)	(14,174,520)	18,529,669
Plan Fiduciary Net Position - Beginning	264,817,433	254,909,977	257,121,363	271,295,883	252,766,214
Plan Fiduciary Net Position - Ending (b)	271,116,374	$ 264,817,433	$ 254,909,977	$ 257,121,363	$ 271,295,883
Net Pension Liability - Ending (a) - (b)	$ 707,197	$ (14,877,682)	$ 2,126,259	$ 304,140	$ (13,762,040)
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	99.74%	105.95%	99.17%	99.88%	105.34%
Covered Payroll	$ 12,046,554	$ 12,684,596	$ 14,757,461	$ 17,517,763	$ 18,802,548
Net Pension Liability as a Percentage of Covered Payroll	5.87 %	(117.29) %	14.41 %	1.74 %	(73.19) %

Required Supplementary Information (continued)

Schedule of Pension Contributions

Fiscal Year Ended Sept. 30	Actuarially Determined Contribution (ADC)	Actual Employer Contribution	Contribution Deficiency (Excess)	Covered Payroll	Actual Contribution as a % of Covered Payroll
2009		$ 43,108	$ (43,108)	$ 27,027,185	0.2 %
2010		43,181	(43,181)	25,504,058	0.2
2011		43,185	(43,185)	23,565,252	0.2
2012	$ 1,068,484	1,111,026	(42,542)	22,922,327	4.8
2013	2,751,359	2,793,257	(41,898)	18,939,497	14.7
2014	3,122,545	3,163,800	(41,255)	18,802,548	16.8
2015	2,592,536	2,633,795	(41,259)	17,517,763	15.0
2016	2,138,379	2,179,641	(41,262)	14,757,461	14.8
2017	1,019,814	1,019,814	-	12,684,596	8.0
2018	1,736,417	1,736,417	-	12,046,554	14.4

Schedule of Pension Investment Returns

Fiscal Year	Annual Return[1]
2014	9.14 %
2015	-1.85
2016	3.48
2017	13.15
2018	11.11

[1] Annual money-weighted rate of return, net of investment expenses

Required Supplementary Information (continued)

Schedule of Changes in Net OPEB Liability

	Fiscal Year 2018	Fiscal Year 2017
Total OPEB Liability		
Service Cost	$ 171,383	$ 176,818
Interest	541,940	527,213
Changes of benefit terms		
Differences between expected and actual experience	399,029	(31,515)
Changes of assumptions	1,079,614	
Benefit payments, including refunds of member contributions	(637,677)	(333,748)
Net Change in Total OPEB Liability	1,554,289	338,768
Total OPEB Liability - Beginning	7,007,393	6,668,625
Total OPEB Liability - Ending (a)	$ 8,561,682	$ 7,007,393
Plan Fiduciary Net Position		
Contributions - Employer	$ 539,300	$ 188,819
Contributions - Member	112,892	116,511
Net Investment Income	103,961	119,138
Benefit payments, including refunds of member contributions	(637,677)	(333,748)
Administrative and Other Expenses	(89,384)	(94,852)
Net Change in Plan Fiduciary Net Position	29,092	(4,132)
Plan Fiduciary Net Position - Beginning	1,025,537	1,029,669
Plan Fiduciary Net Position - Ending (b)	$ 1,054,629	$ 1,025,537
Net OPEB Liability - Ending (a) - (b)	$ 7,507,053	$ 5,981,856
Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	12.32%	14.64%

Schedule of OPEB Contributions

Fiscal Year Ended Sept. 30	Actuarially Determined Contribution (ADC)	Actual Employer Contributions	Contribution Deficiency (Excess)
2009	$ 514,850	$ 335,000	$ 179,850
2010	490,129	712,000	(221,871)
2011	605,112	311,617	293,495
2012	596,965	100,000	496,965
2013	699,075	54,834	644,241
2014	659,488	68,819	590,669
2015	663,321	274,986	388,335
2016	712,016	247,339	464,677
2017	486,906	188,819	298,087
2018	559,300	539,300	20,000

Pay-go contributions shown before fiscal year 2018.

From 2011 to 2017 other governmental contributions were included in Actual Employer Contributions.

Schedule of OPEB Investment Returns

Fiscal Year	Annual Return[1]
2014	9.14 %
2015	-1.85
2016	3.48
2017	11.48
2018	9.26

[1] Annual money-weighted rate of return, net of investment expenses

Required Supplementary Information (continued)

NOTE TO REQUIRED SUPPLEMENTARY INFORMATION

NOTE A – DESCRIPTION

Ten year historical trend information designed to provide information about the System's progress made in accumulating sufficient assets to pay benefits when due is presented in the preceding schedules. Other ten year historical trend information related to the System is presented in the Statistical and Actuarial Sections of the report. This information is presented to enable the reader to assess the progress made by the System in accumulating sufficient assets to pay pension and other postemployment benefits as they become due.

The comparability of trend information is affected by changes in actuarial assumptions, benefit provisions, actuarial funding methods, accounting policies, and other changes. Those changes usually affect trends in contribution requirements and in ratios that use the pension and other postemployment benefit obligations as a factor.

The Schedules of Contributions are reported as historical trend information and to show the responsibility of the Employer in meeting the actuarial requirements to maintain the System on a sound financial basis.

The Schedule of Changes in Net Pension and OPEB Liability, Schedule of Contributions, and Schedule of Investment Returns are schedules that are required in implementing GASB Statement No. 67 for pension and No. 74 for OPEB. These schedules are required to show information for ten years; additional years will be displayed as it becomes available. The schedule of Changes in Net Pension and OPEB Liability represents in actuarial terms, the accrued liability less the fair value of assets. The Schedule of Contributions is a comparison of the employer's contributions to the actuarially determined contributions. The Schedule of Investment Returns represents a money-weighted rate of return that expresses investment performance, net of pension and OPEB plan investment expense, adjusted for the changing amounts actually invested.

Required Supplementary Information (continued)

NOTE TO REQUIRED SUPPLEMENTARY INFORMATION

The information presented in the Required Supplementary Schedules was used in the actuarial valuation. Additional information as of the latest actuarial valuation for pension plan follows.

Valuation:

Actuarially determined contribution amounts are calculated as of September 30, 2017.

Methods and Assumptions Used to Determine Contributions for Fiscal Year 2018:

Actuarial Cost Method	Entry Age, Normal
Amortization Method - Pension	Level Dollar, Closed
Amortization Method - OPEB	Level Percent of Payroll, Closed
Remaining Amortization Period	19 years, as of October 1, 2017, closed ending September 30, 2036
Asset Valuation Method - OPEB	Fair Value
Price Inflation Rate	2.5%
Investment Rate of Return - Pension	6.75%
Investment Rate of Return - OPEB	7.5%
Projected Salary Increases	4.0%, including wage inflation at 3.5%
Healthcare Cost Trend Rate	9.0% trend, gradually decreasing to 3.5% in year 10
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition.
Mortality	RP-2000 Combined Healthy Life Mortality Table, adjusted for mortality improvements to 2020 using projection scale BB. For retirees, 100% of the table rates were used for males and females. For active members, 50% of the table rates were used for males and females.
Aging factors	Based on the 2013 SOA study "Health Care Costs - From Birth to Death"
Notes	Some of the assumptions used to develop the 2018 Total Pension Liability (TPL) and Total OPEB Liability (TOL) are different than the assumptions above.

Supporting Schedules

Summary Schedule of Pension Plan Administrative and Other Expenses
For Fiscal Year Ended September 30, 2018

Personnel Services:	
Staff Salaries	$ 103,781
Retirement and Social Security	58,546
Other Fringe Benefits	20,040
Total	182,367
Professional Services:	
Accounting	3,048
Actuarial	108,462
Attorney General	12,423
Audit	69,000
Consulting	11,792
Total	204,725
Building and Equipment:	
Building Rentals	2,053
Equipment Purchase, Maintenance, and Rentals	65
Total	2,118
Miscellaneous:	
Travel and Board Meetings	37
Office Supplies	20
Postage, Telephone, and Other	8,758
Printing	474
Technological Support	15,202
Total	24,491
Total Administrative and Other Expenses	$ 413,701

Summary Schedule of
OPEB Plan Administrative and Other Expenses
For Fiscal Year Ended September 30, 2018

Staff Salaries	$ 50,896
Retirement and Social security	28,712
Other Fringe Benefits	9,828
Health Fees	27,184
Dental Fees	3,595
Vision Fees	546
Total Administrative and Other Expenses	$ 120,761

Supporting Schedules (continued)

Schedule of Investment Expenses
For Fiscal Year Ended September 30, 2018

Real Estate Operating Expenses	$ 15,177
Securities Lending Expenses	265,634
Other Investment Expenses[1]	
ORS-Investment Expenses[2]	71,149
Custody Fees	6,257
Management Fees	1,029,622
Research Fees	19,614
Total Investment Expenses	$ 1,407,453

[1] Refer to the Investment Section for fees paid to investment professionals.

[2] Does not exclude Treasury Civil Service fees recorded as a pass through in the Schedule of Investment Fees - State Treasurer. As of September 30, 2018, fees totaled $1,059.

Schedule of Payments for Professional Services
For Fiscal Year Ended September 30, 2018

Accounting	$ 3,048
Actuary	108,462
Attorney General	12,423
Independent Auditors	69,000
Consulting	11,792
Total Payments	$ 204,725

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Supporting Schedules (continued)

Detail of Changes in Plan Fiduciary Net Position (Pension and Other Postemployment Benefits)
For Fiscal Year Ended September 30, 2018 (in thousands)

	Employee Contributions	Employer Contributions
Additions:		
Contributions:		
Member contributions	$ 653	
Employer contributions:		$ 1,736
Other governmental contributions		
Total contributions	653	1,736
Investment income (loss):		
Net increase (decrease) in fair value of investments		
Interest, dividends, and other		
Investment expenses:		
Real estate operating expenses		
Other investment expenses		
Securities lending activities:		
Securities lending income		
Securities lending expenses		
Net investment income (loss)		
Miscellaneous income		
Total additions	653	1,736
Deductions:		
Benefits paid to plan members and beneficiaries:		
Retirement benefits		
Health benefits		
Dental/vision benefits		
Refunds of contributions	142	
Administrative and other expenses		
Total deductions	142	
Net Increase (Decrease) before other changes	512	1,736
Other Changes in Net Position:		
Interest allocation	3,115	
Transfers upon retirement	(1,841)	
Transfers of employer shares		(22,603)
Total other changes in net position	1,274	(22,603)
Net Increase (Decrease) in Net Position	1,786	(20,866)
Net Position Restricted for Pension Benefits and OPEB:		
Beginning of Year	41,425	(40,101)
End of Year	$ 43,211	$ (60,967)

Supporting Schedules (continued)

Retired Benefit Payments	Undistributed Investment Income	OPEB	Total
		$ 113	$ 766
		539	2,276
		114	114
		766	3,156
	$ 22,958	82	23,039
	6,255	26	6,280
	(15)		(15)
	(1,123)	(4)	(1,127)
	470	2	472
	(264)	(1)	(266)
	28,280	104	28,384
$ 1			1
1	28,280	870	31,541
23,817			23,817
		708	708
		12	12
		1	142
	414	121	534
23,817	414	841	25,213
(23,816)	27,866	29	6,328
26,657	(29,772)		
1,841			
22,603			
51,100	(29,772)		
27,285	(1,906)	29	6,328
193,168	70,325	1,026	265,843
$ 220,453	$ 68,420	$ 1,055	$ 272,171

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INVESTMENT SECTION

Prepared by Michigan Department of Treasury, Bureau of Investments
Jon M. Braeutigam, Chief Investment Officer

Report on Investment Activity
Asset Allocation
Investment Results
Largest Assets Held
Schedule of Investment Fees
Schedule of Investment Commissions
Investment Summary

INVESTMENT SECTION

Report on Investment Activity

INTRODUCTION

The State Treasurer reports investment activity quarterly to the Investment Advisory Committee (Committee), which reviews the investments, goals, and objectives of the retirement funds and may submit recommendations regarding them to the State Treasurer. The Investment Advisory Committee may also, by a majority vote, direct the State Treasurer to dispose of any holdings that, in the Committee's judgment, are not suitable for the funds involved, and may, by unanimous vote, direct the State Treasurer to make specific investments.

The Investment Advisory Committee was created by Act 380 of the Public Acts of 1965. The three public members of the five-member committee are appointed by the Governor with the advice and consent of the Senate for three-year terms. The Director of the Department of Licensing and Regulatory Affairs and the Director of the Department of Technology, Management and Budget are ex-officio members. As of September 30, 2018, members of the Committee were as follows: James B. Nicholson (public member), Reginald G. Sanders, CFA, CAIA (public member), Dina L Richard, CPA (public member), Shelly Edgerton (ex-officio member), and David L. DeVries (ex-officio member). The public members serve without pay, but may be paid actual and necessary travel and other expenses.

INVESTMENT POLICY & GOALS

Investment policy states that the fiduciary will operate within standard investment practices of the prudent person and in accordance with Public Employee Retirement System Investment Act 314 of 1965. The fiduciary is authorized to invest in government obligations, corporate obligations, various short-term obligations, corporate (domestic and international) stocks, private equity interests, mutual funds, real estate interests, and other investments subject to specific parameters. Above all, trust fund assets are to be invested for the exclusive benefit of the members of the System, in a fiduciary capacity.

The System's Proxy Voting Policy sets forth directives on various issues including: Boards of Directors, corporate governance, social issues, corporate restructurings and defenses. All proxies are reviewed and voted in accordance with the System's policy.

The primary function of the System is to provide retirement, survivor and disability benefits along with health and other postemployment benefits to its members. The State Treasurer is the sole investment fiduciary and custodian of the System's investments pursuant to State law. The goals of the System are:

- Maintain sufficient liquidity to pay benefits.
- Meet or exceed the actuarial assumption over the long term.
- Perform in the top half of the public plan universe over the long term.
- Diversify assets to preserve capital and avoid large losses.
- Exceed individual asset class benchmarks over the long term.

The strategy for achieving these goals is carried out by investing the assets of the System according to a five year asset allocation model. The System currently invests in seven different asset classes, which provides for a well-diversified portfolio.

Report on Investment Activity (continued)

Asset Allocation

(Excludes Collateral on Loaned Securities)

Investment Category	As of 9/30/18 Actual %	Five-Year Target %
Domestic Equity Pools	26.4 %	28.0 %
International Equity Pools	17.2	16.0
Private Equity Pools	16.4	18.0
Real Estate and Infrastructure Pools	10.6	10.0
Fixed Income Pools	12.1	10.5
Absolute Return Pools	15.0	15.5
Short-Term Investment Pools	2.3	2.0
TOTAL	**100.0 %**	**100.0 %**

INVESTMENT AUTHORITY

Pursuant to State Law (Section 91 of Act No. 380 of the Public Acts of 1965, as amended, and Section 12c of Act No. 314 of 1965, as amended), the State Treasurer, State of Michigan, is the investment fiduciary for the State sponsored retirement systems: Michigan Public School Employees' Retirement System, Michigan State Employees' Retirement System, Michigan State Police Retirement System, Michigan Judges' Retirement System and Michigan Military Retirement Provisions. Additionally, the State Treasurer, State of Michigan, is custodian and ex officio treasurer of the retirement system for the Legislators, State of Michigan (Section 47 of No, 261 of the Public Acts of 1957, as amended).

Act No. 314 of the Public Acts of 1965, as amended, authorizes the investment of assets of public employee retirement systems or plans created and established by the State or any political subdivision.

INVESTMENT RESULTS

Total Portfolio Results

For the fiscal year ended September 30, 2018, the total System's rate of return was 11.5% for the Pension Plan and 10.3% for the OPEB Plan as compiled by State Street Investment Analytics. Annualized rates of return for the Pension Plan for the three, five, and ten-year periods ending September 30, 2018 were: 11.0%, 10.0%, and 8.1% respectively.

Investment return calculations are prepared using a Time-Weighted rate of return.

Domestic Equity Pools

The objective for investments made in domestic equities is to meet or exceed the total return of the S&P 1500 Super Composite for one, three, and five-year periods and a market cycle.

For active management strategies, the objective is to earn returns that exceed the most relevant S&P Index (or the most relevant Russell Index), adjusting for market capitalization and style, for one, three, and five-year periods and a market cycle. Rank above median in a universe of managers possessing a similar market cap and style characteristics.

Report on Investment Activity (continued)

For index, or passive return strategies, the objective is to return within 20 basis points of the S&P 500 Index, 50 basis points for the S&P 400 mid-cap, and 60 basis points for the S&P 600 small-cap over one, three, and five-year periods and a market cycle.

The pools are invested primarily in equities or equity-related securities of U.S. companies through internal and externally managed strategies. The goal is to build a portfolio of strategies that will provide excess returns relative to the S&P 1500 while providing minimal tracking error to the index. At times a portion of the pools may be invested in exchange traded funds (ETFs) and fixed-income short-term securities with maturities of less than one year.

The pools invest in equities and equity related securities that are listed on U.S. national securities exchanges, including American Depository Receipts (ADRs). It may also invest in stocks that are traded over-the-counter. The pools diversify their investments by allocating their equity strategies with consideration of the capitalization weightings of the S&P 1500 Index.

The following summarizes the weightings of the pools as of September 30, 2018:

Active	55.7 %
Passive	44.3
Total	**100.0 %**

Large-Cap	64.8 %
Multi-Cap	27.0
Mid-Cap	6.8
Small-Cap	1.4
Total	**100.0 %**

The System's Domestic Equity pools total rate of return was 20.8% for the Pension Plan and OPEB Plan for fiscal year 2018. This compared with 17.7% for the S&P 1500 Index.

At the close of fiscal year 2018, the Domestic Equity pools represented 26.4% of total investments. The following summarizes the System's 0.4% ownership share of the Domestic Equity pools at September 30, 2018:

Domestic Equity Pools
(in thousands)

Short-Term Pooled Investments	$ 1,120
Equities	70,652
Settlement Principal Payable	(127)
Settlement Proceeds Receivable	8
Accrued Dividends	92
Total	**$ 71,745**

International Equity Pools

The objective for investments made in International Equity pools is to meet or exceed the total return of the MSCI ACWI Ex-US Net for one, three, and five-year periods and a market cycle.

Report on Investment Activity (continued)

For active management strategies, the objective is to earn returns that exceed the most relevant S&P Index (or the most relevant Russell Index), adjusting for market capitalization, style and geography for one, three, and five-year periods and a market cycle. Rank above median in a universe of managers possessing a similar market capitalization, style and geography characteristics.

For index, or passive return strategies, the objective is to return within 250 basis points of the S&P/Citigroup BMI-EPAC Index with 25% of the currency hedged for one, three, and five-year periods and a market cycle. Return within 400 basis points of the MSCI Emerging Markets Index, for one, three, and five-year periods and a market cycle.

Active exposure is invested primarily in equities or equity-related securities of non-U.S. companies through externally managed strategies.

Passive exposure to international equity returns is achieved primarily by investing in a combination of fixed income LIBOR notes, short-term fixed income investments, and equity swap agreements on foreign stock indices in developed markets. Interest on the dedicated notes and short-term fixed income investments is exchanged for international stock returns, and the total notional amount of the swap agreements is invested in the approximate proportions of the S&P Broad Market Index (BMI) Europe and Pacific Composite (EPAC) country weightings in related indices. Use of swap agreements for a core position began in 1993, an American Depository Receipts (ADR) and index-related security portfolio was added in June of 1999 to increase portfolio management flexibility, and a multiple country fund portfolio with smaller capitalization stocks was added in September of 2002 to improve exposure to the smallest companies in the BMI index. Use of futures as an investment to hedge cash flows and balances began in December of 2008, and this use is expected to continue in the future. The combined Swap agreements, notes and short-term investments together continue to perform like a stock index fund that realizes all gains and losses on a rolling three year basis.

The pools diversify their investments by allocating their equity strategies with consideration of the economic development status weightings of the S&P/Citigroup BMI -World ex-US Index.

The following summarizes the weightings of the pool as of September 30, 2018:

Active	79.5 %
Passive	20.5
Total	**100.0 %**

Developed	92.9 %
Emerging	7.1
Total	**100.0 %**

The System's International Equity pools total rate of return was 2.0% for the Pension Plan and OPEB Plan for fiscal year 2018. This compared with 1.8% for the MSCI ACWI Ex US Net.

Report on Investment Activity (continued)

At the close of fiscal year 2018, the International Equity pools represented 17.2% of total investments. The following summarizes the System's 0.4% ownership share of the International Equity Pools at September 30, 2018:

International Equity Pools
(in thousands)

Short-Term Pooled Investments	$	173
Equities		39,099
Fixed Income Securities		7,871
Fair Value of Equity Contracts		(302)
Accrued Dividends and Interest		37
Total	**$**	**46,878**

Private Equity Pools

The Private Equity pools objective is to meet or exceed the benchmark for all private equity investments over long time periods. The benchmark is a blend of the S&P 500 Index plus 300 basis points and the 10 Year Yield plus 300 basis points using ending weights of equity and fixed income holdings within the portfolio.

Private Equity Investments are investments in the private equity market, primarily through limited partnerships. The following summarizes the weightings of the pools as of September 30, 2018:

Buyout Funds	45.9 %
Special Situation Funds	15.7
Fund of Funds	14.4
Venture Capital Funds	11.9
Liquidation Portfolio	10.3
Mezzanine Funds	1.8
Total	**100.0 %**

The Private Equity pools had a return of 19.5% for the Pension and OPEB Plans for the fiscal year ended September 30, 2018, versus the benchmark of 17.7%.

At the close of fiscal year 2018, the Private Equity pools represented 16.4% of total investments. The following summarizes the System's 0.5% ownership share of the Private Equity pools at September 30, 2018:

Private Equity Pools
(in thousands)

Short-Term Pooled Investments	$	1,637
Equities		43,020
Long Term Obligations		50
Accrued Interest		3
Total	**$**	**44,710**

Report on Investment Activity (continued)

Real Estate and Infrastructure Pools

The objective of the Real Estate and Infrastructure pools is to provide diversification and favorable risk adjusted returns primarily through income and appreciation of investments. Investments are typically held through investment entities, such as limited partnerships or limited liability companies, established for the specific purpose of owning, leasing, managing, financing, or developing real estate and infrastructure related investments.

The Real Estate and Infrastructure pools diversify its holdings by:

- **Geography** – The pools are invested globally and are diversified geographically so that it is not concentrated in a limited number of markets or geographic areas.
- **Size and Value** – The pools diversify its holdings by size so that it is not concentrated in a limited number of large investments.
- **Investment Type** – The pools are diversified by investment type as summarized below.

Multi-family apartments	42.8 %
Hotel	12.4
Commercial office buildings	11.2
Infrastructure	10.6
Industrial warehouse buildings	7.9
Retail shopping centers	4.4
For Rent Homes	4.1
For Sale Homes	3.7
Land	1.4
Short Term Investments	1.5
Total	**100.0 %**

The Real Estate and Infrastructure pools generated a return of 12.3% for the Pension Plan and OPEB Plan for fiscal year 2018. The two benchmark returns from the National Council of Real Estate Investment Fiduciaries: the National Property Blended Index (less 130 basis points) was 5.8% and the Open-End Diversified Core Equity Index was 7.7%.

At the close of fiscal year 2018, the Real Estate and Infrastructure pools represented 10.6% of total investments. The following summarizes the System's 0.4% ownership share of the Real Estate and Infrastructure pools at September 30, 2018:

Real Estate and Infrastructure Pools
(in thousands)

Short-Term Pooled Investments	$	422
Real Estate Equities		25,190
Infrastructure Equities		3,058
Dividend Receivable		8
Total	**$**	**28,678**

Fixed Income Pools

The objective for investments made in the Fixed Income pools is to meet or exceed the Barclays Aggregate Bond Index over one, three, and five-year periods and market cycles. Rank above median in a nationally recognized universe of managers possessing a similar style.

Report on Investment Activity (continued)

For fixed income sub-strategies, the objective return is to meet or exceed the most relevant Barclays benchmark index.

The pools are invested primarily in fixed income securities of U.S. companies through internal and externally managed strategies. The goal is to build a portfolio of strategies that will provide excess returns relative to the blended benchmark while providing minimal tracking error to the index. At times a portion of the pools may be invested in exchange traded funds (ETFs) and fixed-income short-term securities with maturities of less than one year.

The pools invest in fixed income and related securities in a diversified portfolio of investment grade corporate issues, treasuries, agencies, government sponsored enterprises and government guaranteed mortgages. The pools diversify its investments by allocating its strategies with consideration of credit risk.

The System's Fixed Income pools total rate of return was 1.1% for the Pension and OPEB Plans for fiscal year 2018. This compared with (1.2%) for the Barclays Aggregate Bond Index.

At the close of fiscal year 2018, the Fixed Income pools represented 12.1% of total investments. The following summarizes the System's 0.3% ownership share of the Fixed Income pools at September 30, 2018:

Fixed Income Pools
(in thousands)

Short-Term Pooled Investments	$	143
Fixed Income Securities		32,688
Market Value of Equity Contracts		2
Settlement Proceeds Receivable		4
Accrued interest		101
Total	**$**	**32,938**

Absolute Return Pools

The Absolute Return pools consist of Absolute Return Strategies pool and the Real Return and Opportunistic Investment pools.

The primary investment objective of the Absolute Return Strategies Pool is to generate a rate of return that meets or exceeds T-bills by 400 basis points net of fees over the one, three, and five-year periods and a market cycle. Also, exceed the appropriate HFN Fund of Funds median net of fees over one, three, and five-year periods and a market cycle.

The Absolute Return Strategies pool rate of return for the fiscal year was 6.0% for the Pension and OPEB Plans versus the benchmark's 3.7%.

The primary investment objective of the Real Return and Opportunistic Pools is to generate a rate of return that meets or exceeds the increase in the CPI by at least five percent (5%) annually net of fees over one, three, and five-year periods and a market cycle. If a peer universe is available, rank above median in a nationally recognized universe of managers possessing a similar style.

For sub-strategies targeting a commodities index, the objective is to generate a rate of return that meets or exceeds the Dow Jones-AIG Total Return Commodities Index over one, three, and five year periods and a market cycle. Rank above median in a nationally recognized universe of managers possessing a similar style.

The Real Return and Opportunistic Investments pools rate of return for the fiscal year was 14.4% for the Pension and OPEB Plans versus the benchmark's 7.6%.

Report on Investment Activity (continued)

At the close of fiscal year 2018, the Absolute Return pools represented 15.0% of total investments. The following summarizes the System's 0.4% ownership share of the Absolute Return pools at September 30, 2018:

Absolute Return Pools
(in thousands)

Short-Term Pooled Investments	$	1,494
Equities		39,396
Total	**$**	**40,890**

Short-Term Investment Pools

The objective of the Short-Term Investment pools is to closely match the return performance of its benchmark, the 30 day Treasury bill. The Short-Term Investment pools return for the fiscal year was 1.9% for the Pension Plan and 2.2% for the OPEB Plan versus the benchmark's 1.5%.

Potential areas of investment are:

- Obligations of the United States or its agencies.
- Banker's acceptances, commercial accounts, certificates of deposit or depository receipts.
- Repurchase agreements for the purchase of securities issued by the US government or its agencies.
- Commercial paper rated at the time of purchase within the two highest classifications established by not less than two national rating services as determined by the State Treasurer.
- Short duration investment grade corporate issues.

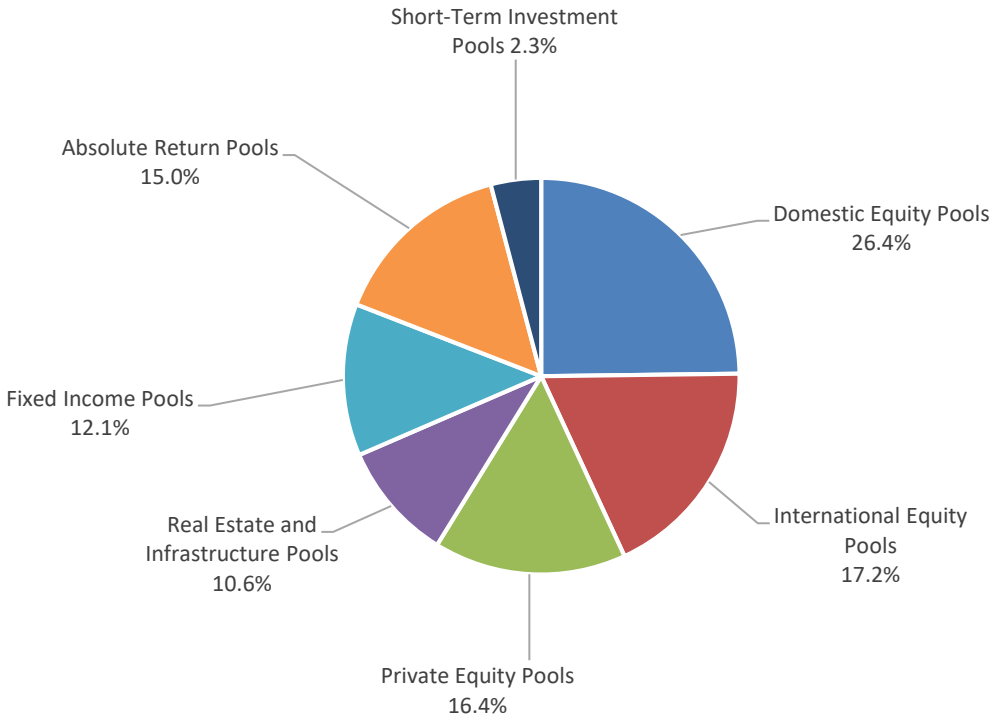
At the close of fiscal year 2018, the Short-Term Investment pools represented 2.3% of total investments. The following summarizes the System's 0.9% ownership share of the Short-Term Investment pools at September 30, 2018:

Short-Term Investment Pools
(in thousands)

Short-Term Pooled Investments	$	3,542
Fixed Income Securities		2,692
Accrued interest		2
Total	**$**	**6,236**

Report on Investment Activity (continued)

ASSET ALLOCATION – SECURITY TYPE ONLY



Report on Investment Activity (continued)

Pension Plan Investment Results for the Period Ending September 30, 2018

Investment Category	Current Year	Annualized Rate of Return[1] 3 Years	5 Years	10 Years
Total Portfolio	11.5 %	11.0 %	10.0 %	8.1 %
Domestic Equity Pools	20.8	17.6	14.2	12.3
S&P 1500 Index	17.7	17.3	13.8	12.1
International Equity Pools	2.0	10.7	5.5	6.2
International Blended Benchmark [2]	1.8	10.0	4.2	4.8
Private Equity Pools	19.5	12.9	15.0	11.3
Private Equity Blended Benchmark [3]	17.7	15.2	16.7	15.5
Real Estate and Infrastructure Pools	12.3	10.2	12.4	4.7
NCREIF Property Blended Index [4]	5.8	6.4	8.2	5.1
Fixed Income Pools	1.1	3.7	3.7	5.2
Barclays Aggregate Bond	(1.2)	1.3	2.2	3.8
Absolute Return Pools				
Total Absolute Return	6.0	4.0	4.7	3.2
HFRI Fund of Funds Cons 1 month lag	3.7	2.3	3.0	1.5
Total Real Return and Opportunistic	14.4	10.6	12.6	
Real Return and Opportunistic Benchmark [5]	7.6	7.5	7.3	
Short-Term Investment Pools	1.9	1.2	0.9	0.8
30-Day Treasury Bill	1.5	0.8	0.5	0.3

[1] Calculations used a time-weighted rate of return based on the market rate of return in accordance with industry standards. Excludes income and investment gains and losses from securities lending.

[2] As of 7/1/14, index is MSCI ACWI Ex-US Net. History 10/1/10 to 6/30/14 is MSCI ACWI Ex-US Gross. History 1/1/10 to 9/30/10 is S&P Developed BMI-EPAC Net 75/25. History prior to 1/1/10 is S&P Developed BMI-EPAC Net 50/50.

[3] As of 1/1/07, index is blend of S&P 500 plus 300 bps and 10 year yield plus 300 bps based on ending weights. History prior to 1/1/07 is S&P500 plus 300 bps.

[4] As of 10/1/05, index is NCREIF less 130 bp. History prior to 10/1/05 reflects NCREIF less 75 bp.

[5] As of 8/1/18 Benchmark's is 50% (CPI+5%) and 50% (actuarial rate 7.05%) History prior to 8/1/18 reflects 50%(CPI+5%) and 50% (acuarial rate 8%)

Report on Investment Activity (continued)

OPEB Investment Results for the Period Ending September 30, 2018

Investment Category	Current Year	Annualized Rate of Return[1] 3 Years	5 Years
Total Portfolio	10.3 %	10.2 %	9.4 %
Domestic Equity Pools	20.8	17.5	14.0
S&P 1500 Index	17.7	17.3	13.8
International Equity Pools	2.0	10.7	5.5
International Blended Benchmark [2]	1.8	10.0	4.2
Private Equity Pools	19.5	12.9	15.0
Private Equity Blended Benchmark [3]	17.7	15.2	16.7
Real Estate and Infrastructure Pools	12.3	10.2	12.4
NCREIF Property Blended Index [4]	5.8	6.4	8.2
Fixed Income Pools	1.1	3.7	3.7
Barclays Aggregate Bond	(1.2)	1.3	2.2
Absolute Return Pools			
Total Absolute Return	6.0	4.0	4.7
HFRI Fund of Funds Cons 1 month lag	3.7	2.3	3.0
Total Real Return and Opportunistic	14.4	10.6	12.6
Real Return and Opportunistic Benchmark [5]	7.6	7.5	7.3
Short-Term Investment Pools	2.2	1.3	0.8
30-Day Treasury Bill	1.5	0.8	0.5

[1] Calculations used a time-weighted rate of return based on the market rate of return in accordance with industry standards. Excludes income and investment gains and losses from securities lending.

[2] As of 7/1/14, index is MSCI ACWI Ex-US Net. History 10/1/10 to 6/30/14 is MSCI ACWI Ex-US Gross.
History 1/1/10 to 9/30/10 is S&P Developed BMI-EPAC Net 75/25.
History prior to 1/1/10 is S&P Developed BMI-EPAC Net 50/50.

[3] As of 1/1/07, index is blend of S&P 500 plus 300 bps and 10 year yield plus 300 bps based on ending weights.
History prior to 1/1/07 is S&P500 plus 300 bps.

[4] As of 10/1/05, index is NCREIF less 130 bp. History prior to 10/1/05 reflects NCREIF less 75 bp.

[5] As of 8/18/18 Benchmark's is 50% (CPI + 5%) and 50% (actuarial rate 7.05%)
History prior to 8/1/18 reflects 50% (CPI + 5%) and 50% (actuarial rate 8%)

Largest Assets Held[1]

Largest Stock Holdings (By Fair Value)
September 30, 2018

Rank	Shares	Stocks	Fair Value
1	10,754	Apple Inc.	$ 2,427,587
2	14,352	Microsoft Corp.	1,641,401
3	766	Amazon.com. Inc	1,534,785
4	79,886	AGNC Investment Corp.	1,488,285
5	941	Alphabet Inc. CL A	1,136,149
6	5,048	Berkshire Hathaway Inc, CL B	1,080,846
7	6,714	Visa Inc. CL A	1,007,630
8	97,932	Annaly Capital Management Inc.	1,001,842
9	4,300	Home Depot Inc.	890,744
10	5,091	Facebook Inc.	837,250

Largest Bond Holdings (By Fair Value)[2]
September 30, 2018

Rank	Par Amount	Bonds & Notes	Fair Value
1	953,420	US Treasury N/B 2.75% Due 02/15/2028	$ 929,547
2	767,750	US Treasury N/B 3% Due 02/15/2048	738,870
3	724,897	US Treasury N/B 2.25% Due 02/15/2027	682,337
4	631,060	US Treasury N/B 1.5% Due 05/15/2020	618,266
5	545,430	US Treasury N/B 1.875% Due 07/31/2022	524,784
6	510,614	US Treasury N/B 2.25% Due 11/15/2027	477,943
7	484,895	US Treasury N/B 2.125% Due 05/15/2025	459,116
8	505,099	US Treasury N/B 1.625% Due 02/15/2026	458,358
9	404,079	US Treasury N/B 2.875% Due 07/31/2025	400,638
10	424,821	TSY INFL IX N/B 0.125% Due 07/15/2026	400,465

[1] A complete list of holdings is available from the Michigan Department of Treasury.

[2] Largest Bond Holdings are exclusive of securities lending collateral.

The System's assets are commingled in various pooled accounts. Amounts, par value and number of shares represent the System's pro-rata share based on its ownership of the investment pools.

Schedule of Investment Fees

The State Treasurer is the investment fiduciary and custodian of the System's funds pursuant to State law. Outside advisors are utilized to augment the State Treasurer's internal staff. 68.77% of the total investment portfolio is managed by fully discretionary outside advisors. The Michigan Department of Treasury's cost of operations applicable to the System for the fiscal year amounted to $85 thousand or eight and four tenths basis points (.084%) of the fair value of the Assets under Management of the State Treasurer.

Public Act 380 of 1965 created an Investment Advisory Committee (Committee) comprised of the directors of the Department of Licensing and Regulatory Affairs and the Department of Technology, Management & Budget, or their duly authorized representatives, and three public members appointed by the Governor with the advice and consent of the Senate. The public members serve without pay, but may be paid actual and necessary travel and other expenses. The Committee meets quarterly to review investments, goals and objectives and may submit recommendations to the State Treasurer. The Committee may also, by a majority vote, direct the State Treasurer to dispose of any holding which, in the Committee's judgment, is not suitable for the fund involved, and may by unanimous vote direct the State Treasurer to make specific investments.

Schedule of Investment Fees

Investment Managers' Fees:

	Assets under Management (in thousands)	Fees (in thousands)	Basis Points*
State Treasurer	$ 84,975	$ 71	8.4
Outside Advisors for			
Fixed Income	15,632	47	30.1
Absolute Return	40,634	193	47.5
International Equity	38,977	73	18.7
Domestic Equity	18,468	40	21.7
Private Equity	44,710	390	87.2
Real Estate and Infrastructure	28,678	287	100.1
Total	**$ 272,074**	**$ 1,101**	

Other Investment Services Fees:		
Assets in Custody	$ 271,212	$ 26
Securities on Loan	12,453	16

* Private Equity partnership agreements that define the management fees, the asset management fees range from 75 basis points on remaining assets under management to 250 basis points of the committed capital. For Real Estate/Infrastructure, the asset management fees range from 40 to 200 basis points. For Absolute Return, the asset management fees range from 0 to 200 basis points. These fees, in most cases, are netted against income.

Schedule of Investment Commissions

	Fiscal Year Ended September 30, 2018						
	Actual Commissions Paid [1]	Actual Number of Shares Traded [1]	Average Commission Per Share	Estimated Trade Costs Per Share	Estimated Research Costs Per Share	Estimated Trade Costs	Estimated Research Costs
Investment Brokerage Firms:							
Banc Of America Securities LLC	$ 518	15,784	$ 0.03	$ 0.01	$ 0.02	$ 158	$ 316
BTIG LLC	2,792	516,695	0.01	0.01	-	5,166	-
Capital Institutional Services Inc.	834	154,135	0.01	0.01	-	1,542	-
Citigroup Global Markets Inc.	104	10,392	0.01	0.01	-	104	-
Cowen & Company LLC	546	27,320	0.02	0.01	0.01	273	273
Credit Suisse Securities LLC	194	10,210	0.02	0.01	0.01	102	102
Drexel Hamilton LLC	166	33,185	0.01	0.01	-	332	-
J. P. Morgan Securities Inc.	243	12,548	0.02	0.01	0.01	125	125
Mischler Financial Group Inc.	62	3,118	0.02	0.01	0.01	31	31
Morgan Stanley & Co. Inc.	668	28,991	0.02	0.01	0.01	290	290
RBC Capital Markets	-	3	0.01	0.01	-	-	-
Stifel, Nicolaus & Co. Inc.	101	2,577	0.04	0.01	0.03	26	77
Wayne & Company	2,128	712,985	-	0.01	-	7,131	-
Total	**$ 8,356**	**1,527,943**	**$ 0.02** [2]	**$ 0.01**	**$ 0.01**	**$ 15,280**	**$ 1,214**

[1] Commissions are included in purchase and sale prices of investments. The commissions and shares represent the System's pro-rata share based on ownership of commission and share transactions in the investment pools.

[2] The average commission per share for all brokerage firms.

Investment Summary

Fiscal Year Ended September 30, 2018

	Fair Value [1]	Percent of Market Value	Investment & Interest Income[2]	Percent of Total Investment & Interest Income
Fixed Income Pools	$ 32,938,372	12.1 %	$ 260,968	0.9 %
Domestic Equity Pools	71,745,135	26.4	12,843,586	43.8
Real Estate and Infrastructure Pools	28,678,080	10.6	3,440,417	11.7
Private Equity Pools	44,710,402	16.4	7,499,801	25.6
International Equity Pools	46,877,659	17.2	971,480	3.3
Absolute Return Pools	40,890,346	15.0	4,139,172	14.1
Short Term Investment Pools [3]	6,235,730	2.3	176,464	0.6
Total	$ 272,075,724	100.0 %	$ 29,331,888	100.0 %

[1] Fair value excludes $12,453,112 in securities lending collateral for fiscal year 2018.
[2] Total Investment & Interest Income excludes net security lending income of $206,315 and unrealized loss of $12,963 for securities lending collateral.
[3] Short term investment pools fair value includes $864,207 of equity in common cash.

ACTUARIAL SECTION

Actuary's Certification
Summary of Actuarial Assumptions and Methods
Actuarial Valuation Data
Prioritized Solvency Test
Analysis of System Experience
Summary of Plan Provisions

ACTUARIAL SECTION

Actuary's Certification

GRS Retirement Consulting

800.521.0498 | P: 248.799.9000 | F: 248.799.9020 | www.grsconsulting.com

October 25, 2018

Mr. David Devries, Director
Department of Technology, Management and Budget
and
The Retirement Board
Michigan Judges' Retirement System
P.O. Box 30171
Lansing, Michigan 48909

Ladies and Gentlemen:

The basic financial objective of the Michigan Judges' Retirement System (JRS) is to establish and receive contributions which when combined with present assets and future investment returns will be sufficient to meet the financial obligations of the System to present and future benefit recipients. The progress towards meeting those financial objectives is illustrated in the Schedules of Funding Progress and the Schedules of Employer Contributions.

We performed actuarial funding valuations and issued actuarial funding reports for the JRS pension and retiree health (i.e., OPEB) plans as of September 30, 2017. The purpose of the September 30, 2017 annual actuarial valuations was to determine the contribution requirements for the fiscal year ending September 30, 2018, to measure the System's funding progress and to provide information in connection with applicable Governmental Accounting Standards Board Statements. The valuations should not be relied upon for any other purpose. The valuation process develops employer contributions that are sufficient to fund the System's normal cost (i.e., the costs assigned by the valuation method to the year of service about to be rendered), as well as to fund any unfunded accrued liabilities over a reasonable period. The valuation was completed based upon population data, asset data and plan provisions in effect on September 30, 2017.

In addition to the funding valuation reports, separate reports are issued to provide financial reporting information for JRS in accordance with Governmental Accounting Standards Board (GASB) Statement Nos. 67 and 68 (pension benefits) and Nos. 74 and 75 (retiree health benefits, or OPEB). Reports containing the actuarial results of the financial reporting valuations are produced annually after the publication of this letter. Financial reporting information is based upon a measurement date of September 30, 2018 for GASB Statement Nos. 67 and 68 and for GASB Statement Nos. 74 and 75.

The valuations were based upon information provided by the System's administrative staff concerning System benefit provisions, financial transactions, and individual members, terminated members, retirees and beneficiaries. We checked the data for internal and year to year consistency, but did not audit the data. As a result, we do not assume responsibility for the accuracy or completeness of the data provided by the System's administrative staff. The actuary summarizes and tabulates population data in order to analyze long term trends. The System's auditor audits the actuarial data annually.

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Actuary's Certification (continued)

Mr. David Devries
October 25, 2018
Page 2

Annual actuarial valuations are based upon assumptions regarding future activity in specific risk areas including the rate of investment return and payroll growth, eligibility for the various classes of benefits and longevity among retired lives. These assumptions are adopted by the Board and the Department after considering the advice of the actuary and other professionals. Each actuarial valuation takes into account all prior differences between actual and assumed experience in each risk area and adjusts the contribution requirements as needed.

The following schedules in the Financial Section, the Actuarial Section, and the Statistical Section of the CAFR were prepared by the Department of Financial Services based upon certain information presented in the previously mentioned funding and financial reporting valuation reports:

Financial Section

- Note 1 - Table of System's Membership
- Summary of Actuarial Assumptions
- Schedules of Employer Contributions – Pension and OPEB Benefits
- Schedules of Changes in the Net Pension Liability (NPL) and the Net OPEB Liability and Related Ratios
- Schedules of Contributions Multiyear
- Sensitivity of the NPL to Changes in the Discount Rate
- Sensitivity of the Net OPEB Liability to Changes in the Discount Rate
- Sensitivity of the Net OPEB Liability to Changes in the Healthcare Cost Trend Rate Assumption

Actuarial Section

- Summary of Actuarial Assumptions and Methods
- Percent of Eligible Active Members Retiring Within Next Year
- Separation from Active Employment Before Age and Service Retirement and Individual Pay Increase Assumptions
- Schedule of Active Member Pension Valuation Data
- Schedule of Changes in the Retirement Rolls
- Prioritized Solvency Tests
- Analyses of System Experience
- Schedule of Active Member OPEB Valuation Data
- Schedule of Changes in the OPEB Rolls

Statistical Section

- Schedule of Retired Members by Type of Pension Benefit
- Schedule of Retired Members by Type of Health Benefit
- Schedules of Average Benefit Payments – Pension, Medical, Dental, and Vision
- Schedules of Funding Progress

Actuary's Certification (continued)

Mr. David Devries
October 25, 2018
Page 3

The September 30, 2017 funding valuations for the pension and OPEB plans were based upon assumptions that were recommended in connection with a study of System experience covering the period from October 1, 2007 through September 30, 2012. The September 30, 2018 financial reporting valuations are based upon assumptions that were recommended in connection with a study of System experience covering the period from October 1, 2012 through September 30, 2017. Future actuarial measurements may differ significantly from those presented in the annual valuations due to such factors as experience differing from that anticipated by actuarial assumptions, or changes in plan provisions, actuarial assumption/methods or applicable law. Due to the limited scope of the assignment, we did not perform an analysis of the potential range of future measurements.

The signing actuaries are independent of the plan sponsor.

The actuarial valuations of JRS were performed by qualified actuaries in accordance with standards of practice prescribed by the Actuarial Standards Board and in compliance with applicable State statutes. The assumptions and methods used for funding and financial reporting purposes are in conformity with the Actuarial Standards of Practice issued by the Actuarial Standards Board. Mita D. Drazilov and Louise M. Gates are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. It is our opinion that the calculated employer contribution meets the financial objective of the Retirement System.

Respectfully submitted,

Mita D. Drazilov, ASA, FCA, MAAA

Louise M. Gates, ASA, FCA, MAAA

Summary of Actuarial Assumptions and Methods

1. The investment return rate used in the valuations was 6.75% per year net of expenses, compounded annually. This rate of return is not the assumed real rate of return. The real rate of return is the rate of investment return in excess of the inflation rate. Considering other financial assumptions, this investment return rate translates to an assumed long-term real rate of return 4.00%. Adopted 2017.

2. The healthy life mortality table used in evaluating allowances to be paid was 100% of the RP-2000 Male Combined Healthy Mortality Table, adjusted for mortality improvements to 2020 using projection scale BB, and 100% of the RP-2000 Female Combined Healthy Mortality Table, adjusted for mortality improvements to 2020 using projection scale BB. Adopted 2014.

3. Sample probabilities of retirement with an age and service allowance are shown in Schedule 1 on the next page. Adopted 2014.

4. Sample probabilities of withdrawal from service and disability, together with individual pay increase assumptions, are shown in Schedule 2 on the next page. Adopted 2010.

5. The active member population is closed to new hires. This will result in a gradual reduction in the total active member payroll over time.

6. An individual entry age actuarial cost method of valuation was used in determining age and service and deferred retirement actuarial liabilities and normal cost. Unfunded actuarial accrued liabilities, including actuarial gains and losses, are financed over a declining 40-year period beginning October 1, 1996. Adopted 1996.

7. The Department of Technology, Management & Budget approved the use of market value of assets as of September 30, 1997, for actuarial valuation purposes. For investment gains or losses that occur after that date, a 5-year smoothing technique will be used. Specifically, the excess (shortfall) of actual investment income (including interest, dividends, realized and unrealized gains or losses) over the imputed income at the valuation interest rate is considered the gain (loss), which is spread over five years. Adopted 1997.

8. The data about persons now covered and about present assets was furnished by the System's administrative staff. Although examined for general reasonableness, the data was not audited by the actuary.

9. The actuarial valuation computations were made by or under the supervision of a Member of the American Academy of Actuaries (MAAA). The assumptions used in the actuarial valuations were adopted by the System's Board and the Department of Technology, Management & Budget after consulting with the actuary.

10. A 5-year experience investigation, covering the period from October 1, 2007, through September 30, 2012, was completed in 2014. The purpose of the study was to analyze the actual experience of the System versus that anticipated by actuarial assumptions then in use.

11. Gabriel Roeder Smith and Co. was awarded the actuarial and consulting services contract beginning October 4, 2006.

Summary of Actuarial Assumptions and Methods (continued)

SCHEDULE 1

Percent of Eligible Active Members Retiring Within Next Year

Retirement Ages	Percent of Eligible Active Members Retiring Within Next Year
55-59	5%
60	8
61	6
62	8
63	6
64	6
65	15
66-68	6
69	10
70	20
71	25
72	30
73	30
74	30
75	100

SCHEDULE 2

Separation From Active Employment Before Age & Service Retirement & Individual Pay Increase Assumptions

Sample Ages	Percent of Active Members Withdrawing Within Next Year	Percent of Active Members Becoming Disabled Within Next Year	Percent Increase in Pay During Next Year
20		0.00 %	4.0%
25		0.00	4.0
30	2.25%	0.00	4.0
35	2.25	0.02	4.0
40	2.25	0.06	4.0
45	2.25	0.12	4.0
50	2.25	0.18	4.0
55	2.25	0.24	4.0
60	2.25	0.36	4.0

Actuarial Valuation Data

Schedule of Active Member Pension Valuation Data

Valuation Date	Number Inactive	Number Active	Reported Annual Payroll	Average Annual Pay	Increase (Decrease)	Average Age	Average Service
2008	13	257	$ 29,475,726	$ 114,692	0.3 %	59.4	17.5
2009	9	234	27,027,185	115,501	0.7	59.9	18.3
2010	11	221	25,504,058	115,403	(0.1)	60.7	19.1
2011	11	205	23,565,252	114,952	(0.4)	61.5	20.1
2012	6	199	22,922,327	115,188	0.2	62.5	21.1
2013	9	164	18,939,467	115,485	0.3	62.9	22.0
2014	7	154	17,813,758	115,674	0.2	63.8	23.0
2015	6	128	14,948,393	116,784	1.0	63.9	23.9
2016	4	119	13,903,660	116,837		64.8	25.1
2017	1	100	11,955,042	119,550	2.3	65.4	25.7

Schedule of Active Member OPEB Valuation Data

Valuation Date Sept. 30	Number Active	Reported Annual Payroll	Average Annual Pay	Increase (Decrease)	Average Age	Average Service
2012	41	$ 6,189,628	$ 150,967		59.0	16.2
2013	41	6,202,758	151,287	0.2 %	59.7	16.7
2014	40	6,079,984	152,000	0.5	60.3	17.3
2015	39	5,926,177	151,953		59.8	16.8
2016	39	5,888,807	150,995	(0.6)	60.3	17.6
2017	39	5,918,042	151,745	0.5	60.1	17.7

Actuarial Valuation Data (continued)

Schedule of Changes in the Retirement Rolls

Year Ended Sept. 30	Added to Rolls		Removed from Rolls		Rolls – End of Year		Average Annual Allowances	Increase in Annual Allowances
	No.	Annual Allowances	No.	Annual Allowances	No.	Annual Allowances		
2008	25	$ 879,299	27	$ 927,730	540	$ 19,043,042	$ 35,265	(0.3) %
2009*	44	1,987,777	42	1,316,828	542	19,713,991	36,373	3.5
2010	23	1,104,282	24	722,169	541	20,096,104	37,146	1.9
2011	24	1,305,312	26	815,215	539	20,586,201	38,193	2.4
2012	27	1,043,822	25	970,308	541	20,659,715	38,188	0.4
2013	45	2,594,201	32	949,775	554	22,304,141	40,260	8.0
2014	29	1,236,656	29	1,113,996	554	22,426,801	40,482	0.5
2015	40	1,996,792	34	1,075,366	560	23,348,227	41,693	4.1
2016	22	951,076	35	1,263,957	547	23,035,359	42,112	(1.3)
2017	34	1,595,337	30	996,300	551	23,634,396	42,894	2.6

*Restated based on more complete information.

Schedule of Changes in the OPEB Rolls

Year Ended Sept. 30	Added to Rolls		Removed from Rolls		Rolls – End of Year		Average Annual Allowances	Increase in Annual Allowances
	No.	Annual Allowances	No.	Annual Allowances	No.	Annual Allowances		
2011					31	$ 218,743		
2012				$ 2,429	31	216,314	$ 6,978	(1.1) %
2013	2	$ 18,054	3	22,675	30	211,693	7,056	(2.1)
2014	3	25,453	2	18,483	31	218,663	7,054	3.3
2015[1]	5	50,874	1	9,241	35	260,296	7,437	19.0
2016[1]	2	48,243	2	17,130	35	291,409	8,326	
2017[1]	1	26,382	4	20,331	32	297,460	9,296	2.1

[1] excludes individuals reported without premium information

Notes:
No. refers to number of retiree health contracts
Annual allowances added to rolls includes increases due to medical inflation and contract changes.
Annual allowances removed from rolls includes decreases due to contract changes.

Prioritized Solvency Test

The System's funding objective is to meet long-term benefit promises through contributions that remain approximately level from year to year as a percent of member payroll. If the contributions to the System are level in concept and soundly executed, the System will pay all promised benefits when due, the ultimate test of financial soundness. Testing for level contribution rates is the long-term solvency test.

A prioritized solvency test is another means of checking a system's progress under its funding program. In a short condition test, the plan's present assets (cash and investments) are compared with: (1) active member contributions on deposit; (2) the liabilities for future benefits to present retired lives; and (3) the liabilities for service already rendered by active and inactive members. In a system that has been following the discipline of level percent of payroll financing, the liabilities for active member contributions on deposit (liability 1) and the liabilities for future benefits to present retired lives (liability 2) will be fully covered by present assets (except in rare circumstances). In addition, the liabilities for service already rendered by active members (liability 3) are normally partially covered by the remainder of present assets. Generally, if the System has been using level-cost financing, the funded portion of liability 3 will increase over time. Liability 3 being fully funded is not necessarily a by-product of level percent of payroll funding methods.

The schedules that follow illustrate the history of the liabilities of the System and are indicative of the System's policy of following the discipline of level percent of payroll financing.

Pension Benefits
($ in thousands)

Valuation Date Sept. 30	Actuarial Accrued Liability (AAL) (1) Active Member Contributions	(2) Retirants and Beneficiaries	(3) Active and Inactive Members (Employer Financed Portion)	Valuation Assets	Portion of AAL Covered by Assets (1)	(2)	(3)	(4)[1]
2008	$ 48,109	$ 149,608	$ 49,293	$ 303,746	100.0%	100.0%	215.1%	123.0%
2009	46,561	154,758	43,879	295,625	100.0	100.0	214.9	120.6
2010	48,853	159,481	43,361	284,437	100.0	100.0	175.5	113.0
2011 [2]	50,099	163,522	38,071	266,804	100.0	100.0	139.7	106.0
2012 [2]	53,660	162,840	33,056	245,787	100.0	100.0	88.6	98.5
2013	47,579	177,873	26,950	240,146	100.0	100.0	54.5	95.1
2014	49,317	186,279	21,709	246,421	100.0	100.0	49.9	95.8
2015	44,691	196,275	16,281	249,333	100.0	100.0	51.4	96.9
2016	45,617	193,368	12,364	254,067	100.0	100.0	122.0	101.1
2017	40,701	197,767	9,117	267,850	100.0	100.0	322.3	108.2
2017 [2]	40,701	215,771	13,271	267,850	100.0	100.0	85.7	99.3

[1] Percents funded on a total valuation asset and total actuarial accrued liability basis.

[2] Restated based on more complete information.

Prioritized Solvency Test (continued)

Other Postemployment Benefits
($ in thousands)

Valuation Date Sept. 30	Actuarial Accrued Liability (AAL) (1) Active Member Contributions[3]	(2) Retirants and Beneficiaries	(3) Active and Inactive Members (Employer Financed Portion)	Valuation Assets	Portion of AAL Covered by Assets (1)	(2)	(3)	(4)[1]
2008		$ 3,082	$ 3,633		0 %	0 %	0 %	0 %
2009		2,974	3,619		0	0	0	0
2010		3,207	4,186		0	0	0	0
2011		2,799	5,068		0	0	0	0
2012		2,945	5,565		0	0	0	0
2013		2,801	4,855		0	0	0	0
2014		3,053	5,612		0	0	0	0
2015		4,384	4,742		0	0	0	0
2016		4,836	5,093	$ 1,030	0	21.1	0	10.4
2017		3,465	3,432	1,026	0	29.6	0	14.9
2017		3,721	3,772	1,026	0	27.6	0	13.7

[1]Percents funded on a total valuation asset and total actuarial accrued liability basis.
[2]Revised actuarial assumptions
[3]Information not available

Analysis of System Experience - Pension

Gains/(Losses) in Accrued Liabilities During Year Ended September 30, 2017 Resulting from Differences Between Assumed Experience & Actual Experience

	Type of Activity	Gain/(Loss)
1.	**Retirements (including Disability Retirement).** If members retire at older ages or with lower final average pay than assumed, there is a gain. If younger ages or higher average pays, a loss.	$ (577,006)
2.	**Withdrawal From Employment** (including death-in-service). If more liabilities are released by withdrawals and deaths than assumed, there is a gain. If smaller releases, a loss.	49,662
3.	**Pay Increases.** If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss.	1,037,001
4.	**Investment Income.** If there is greater investment income than assumed, there is a gain. If less income, a loss.	16,344,220
5.	**Death After Retirement**. If retirants live longer than assumed, there is a loss. If not as long, a gain.	275,931
6.	**Rehires.**	-
7.	**Other.** Miscellaneous gains and losses resulting from data adjustments, timing of financial transactions, etc.	550,291
8.	**Composite Gain (or Loss) During Year**	$ 17,680,099

Analysis of System Experience - OPEB

Gains/(Losses) in Accrued Liabilities During Year Ended September 30, 2017 Resulting from Differences Between Assumed Experience & Actual Experience

	Type of Activity	Gain/(Loss)
1.	**Premiums.** Gains and losses resulting from actual premiums in valuation year versus that assumed from prior valuation.	$ 582,025
2.	**Investment Income.** If there is greater investment income than assumed, there is a gain. If less income, a loss.	(56,951)
3.	**Demographic and Other**. Gains and losses resulting from demographic experience, data adjustments, timing of financial transactions, etc.	(433,562)
4.	**Composite Gain (or Loss) During Year**	$ 91,512

Summary of Plan Provisions

Our actuarial valuation of the System as of September 30, 2017, is based on the present provisions of the Judges' Retirement Act (Public Act No. 234 of 1992, as amended).

Regular Retirement

Eligibility - Age 60 with 8 years credited service; or age 55 with 18 years credited service, or 25 years with no age requirement.

Annual Amount - If less than 12 years of credited service, 3% of final annual compensation times years of credited service; for 12 or more years of credited service, 50% of final annual compensation plus 2.5% of such compensation for each year of credited service in excess of 12 years to a maximum of 60%. Former System members receive 3% of final annual compensation times years of credited service to a maximum of the greater of 40% of final annual compensation or $15,000, but not to exceed 66.67% of final annual compensation when added to a local retirement system benefit; or 3.5% of final annual compensation times years of credited service to a maximum of 66.67% of final annual compensation if elected.

Final Annual Compensation - Annual state salary at time of retirement plus state salary standardization, if any. For former Probate System members, final annual compensation is member's certified salary at time of retirement. For 36th District Court judges, final annual compensation is total state and district control unit salary at time of retirement. For Probate Court judges serving in a single county of less than 15,000 population, final annual compensation is total judicial salary at the time of retirement.

Early Retirement (age reduction factor used)

Eligibility - Age 55 with 12 but less than 18 years credited service.

Annual Amount - Regular retirement benefit, reduced by 0.5% for each month by which the commencement age is less than 60.

Deferred Retirement (vested benefit)

Eligibility - 8 years of credited service.

Annual Amount - Regular retirement benefit. If less than 12 years of credited service, payable at age 60; if 18 or more years of credited service payable at age 55; if more than 12 but less than 18 years of credited service reduced amount payable at age 55.

Disability Retirement

Eligibility - 8 years of credited service.

Annual Amount - Regular retirement benefit, based upon member's credited service and final salary at time of disability.

Death Before or After Retirement (Spouse or Dependent Children)

Eligibility - 8 years of credited service.

Annual Amount - 50% of the member's accrued pension.

Post Retirement Cost-of-Living Adjustments

None, except that judges who were active judges prior to September 8, 1961, (and their survivors) have their benefits adjusted as active judges' salaries change.

Member Contributions

Non-Trial Judges - 5% of salary (2% for health benefits).

Summary of Plan Provisions (continued)

Trial Judges with Full Standardization - 7% of salary.

Trial Judges without Full Standardization - 3.5% of salary.

Probate Judges under 3% Formula - 7% of salary to maximum of $980.

Probate Judges under 3.5% Formula - 7% of salary (no maximum).

District Court Judges of the Thirty-sixth District - 3.5% of salary.

Defined Contribution Legislation - (Public Act 523 of 1996)

New employees hired on or after March 31, 1997, become participants in Tier 2 (i.e. a defined contribution plan) rather than Tier 1 (i.e., the above described defined benefit plan).

Active members on March 30, 1997, had an opportunity to irrevocably elect to terminate membership in Tier 1 and become participants in Tier 2. Elections were in writing and submitted between January 2, 1998, and April 30, 1998. Such members became Tier 2 participants on June 1, 1998, and had the actuarial present value of their Tier 1 accrued benefit transferred into Tier 2 by September 30, 1998.

STATISTICAL SECTION

Schedules of Additions by Source
Schedules of Deductions by Type
Schedules of Changes in Fiduciary Net Position
Schedules of Benefits and Refunds by Type
Schedules of Retired Members by Type of Benefit
Schedules of Funding Progress
Schedule of Other Postemployment Benefits
Schedules of Average Benefit Payments
Schedule of Principal Participating Courts
Ten Year History of Membership
Schedule of Participating Courts

STATISTICAL SECTION

This part of the System's comprehensive annual financial report presents detailed information as a context for understanding what the information in the financial statements, note disclosures, and required supplementary information says about the System's overall financial health.

Contents

Financial Trends

These schedules contain trend information to help the reader understand how the System's financial performance and fiscal health has changed over time. The schedules are presented for the last ten fiscal years. Schedules included are:

- Schedule of Pension Plan Additions by Source
- Schedule of OPEB Plan Additions by Source
- Schedule of Pension Plan Deductions by Type
- Schedule of OPEB Plan Deductions by Type
- Schedule of Changes in Fiduciary Net Position – Pension Plan
- Schedule of Changes in Fiduciary Net Position – OPEB Plan
- Schedule of Pension Benefits and Refunds by Type
- Schedule of OPEB Benefits and Refunds by Type

Operating Information

These schedules contain contextual information to assist the reader's understanding of how the System's financial information relates to the combination of participating members and the benefits it provides. Schedules are presented for the last ten fiscal years, except where noted. Schedules included are:

- Schedule of Retired Members by Type of Pension Benefit
- Schedule of Retired Members by Type of Other Postemployment Benefit
- Schedule of Funding Progress – Pension Plan
- Schedule of Funding Progress – OPEB
- Schedule of Other Postemployment Benefits
- Schedule of Average Benefit Payments - Pension
- Schedule of Average Benefit Payments - OPEB
- Schedule of Principal Participating Courts
- Ten Year History of Membership
- Schedule of Participating Courts

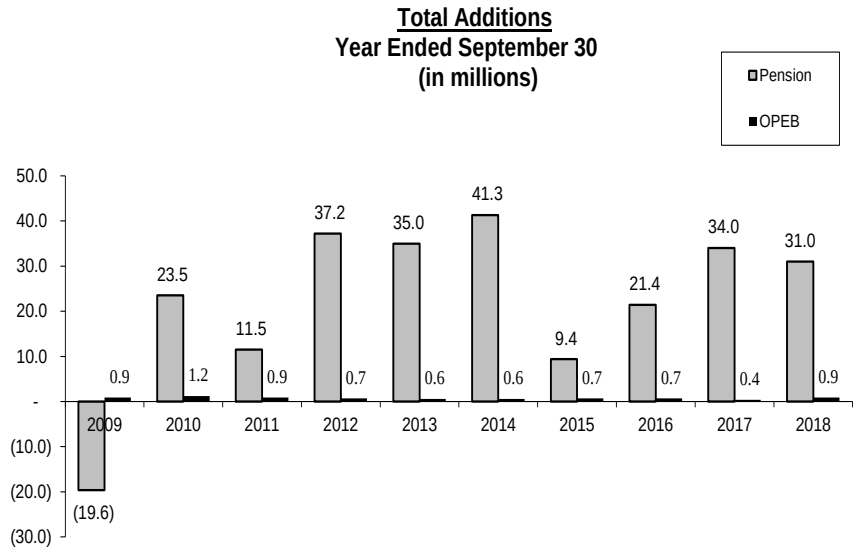
Schedules of Additions by Source

Schedule of Pension Plan Additions by Source
Last Ten Years

Fiscal Year Ended Sept. 30	Member Contributions	Employer Contributions	Net Investment & Other Income	Total
2009	$ 1,644,585		$ (21,294,298)	$ (19,649,713)
2010	1,539,822		21,966,046	23,505,868
2011	1,468,068		10,024,331	11,492,399
2012	1,353,949		35,823,251	37,177,201
2013	1,142,496		33,807,819	34,950,315
2014	1,025,074		40,329,360	41,354,434
2015	902,078	$ 2,592,536	5,884,697	9,379,312
2016	805,452	2,138,379	18,481,767	21,425,599
2017	697,444	1,019,814	32,268,247	33,985,506
2018	653,414	1,736,417	28,281,200	30,671,032

Schedule of OPEB Plan Additions by Source
Last Ten Years

Fiscal Year Ended Sept. 30	Member Contributions	Employer Contributions	Net Investment & Other Income	Total
2009	$ 528,402		$ 336,280	$ 864,682
2010	520,707		726,109	1,246,816
2011	551,783		348,517	900,300
2012	522,042		194,045	716,087
2013	499,254		144,529	643,783
2014	447,033		186,724	633,757
2015	434,377	$ 210,000	82,806	727,182
2016	432,494	154,000	149,635	736,128
2017	116,511	115,000	193,392	424,903
2018	112,892	539,300	218,026	870,217



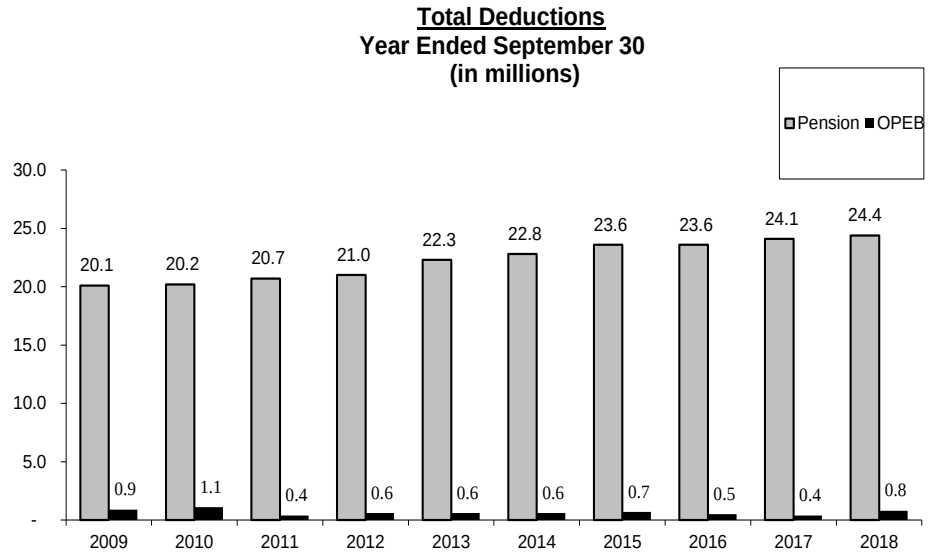
Schedules of Deductions by Type

Schedule of Pension Plan Deductions by Type
Last Ten Years

Fiscal Year Ended Sept. 30	Benefit Payments	Refunds and Transfers	Administrative and Other Expenses	Total
2009	$ 19,897,368		$ 158,909	$ 20,056,277
2010	20,079,292		143,470	20,222,762
2011	20,580,971		141,155	20,722,126
2012	20,792,225		207,439	20,999,664
2013	21,969,650		359,028	22,328,678
2014	22,536,376		288,390	22,824,766
2015	23,241,431		312,400	23,553,832
2016	23,301,601		335,384	23,636,985
2017	23,724,056		353,994	24,078,050
2018	23,816,805	$ 141,585	413,701	24,372,091

Schedule of OPEB Plan Deductions by Type
Last Ten Years

Fiscal Year Ended Sept. 30	Benefit Payments	Refunds and Transfers	Administrative and Other Expenses	Total
2009	$ 820,694		$ 45,133	$ 865,827
2010	1,078,915		35,212	1,114,127
2011	401,027		35,539	436,566
2012	544,349	$ 90	34,959	579,399
2013	523,943	10	75,180	599,133
2014	530,183	175	59,085	589,443
2015	600,781	348	112,910	714,039
2016	459,119	50	84,032	543,200
2017	301,555		127,479	429,034
2018	719,565	800	120,761	841,126



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Schedules of Changes in Fiduciary Net Position

SCHEDULE OF CHANGES IN FIDUCIARY NET POSITION – PENSION PLAN

Last Ten Years (in thousands)

	Fiscal Year			
	2009	**2010**	**2011**	**2012**
Member contributions	$ 1,645	$ 1,540	$ 1,468	$ 1,354
Employer contributions				
Net investment income	(21,344)	21,918	9,972	34,711
Court Fees	43	43	43	1,111
Miscellaneous income	7	5	9	1
Total Additions	(19,649)	23,506	11,491	37,176
Pension benefits	19,897	20,079	20,581	20,792
Refunds of contributions				
Administrative and Other Expenses	159	143	141	207
Total Deductions	20,056	20,222	20,722	20,999
Changes in net position	$ (39,706)	$ 3,285	$ (9,230)	$ 16,178

SCHEDULE OF CHANGES IN FIDUCIARY NET POSITION – OPEB PLAN

Last Ten Years (in thousands)

	Fiscal Year			
	2009	**2010**	**2011**	**2012**
Member contributions	$ 528	$ 521	$ 552	$ 522
Employer contributions				
Other governmental contributions			1	
Net investment income	1	13	37	94
Court fees	335	712	310	100
Miscellaneous income	1	1		
Total Additions	865	1,247	900	716
Health care benefits	821	1,079	401	544
Refunds of contributions				
Administrative and Other Expenses	45	35	36	35
Total Deductions	866	1,114	437	579
Changes in net position	$ (1)	$ 133	$ 464	$ 137

Schedules of Changes in Fiduciary Net Position (continued)

Fiscal Year (continued)					
2013	2014	2015	2016	2017	2018
$ 1,143	$ 1,025	$ 902	$ 805	$ 697	$ 653
		2,593	2,138	1,020	1,736
31,003	37,148	5,840	18,425	32,218	28,280
2,793	3,164	41	41	41	
11	18	3	15	10	1
34,950	41,355	9,379	21,426	33,986	30,671
21,970	22,536	23,241	23,302	23,724	23,817
					142
359	288	312	335	354	414
22,329	22,824	23,552	23,637	24,078	24,372
$ 12,621	$ 18,530	$ (14,175)	$ (2,211)	$ 9,907	$ 6,299

Fiscal Year (continued)					
2013	2014	2015	2016	2017	2018
$ 499	$ 447	$ 434	$ 432	$ 117	$ 113
		210	154	115	539
55	69	65	93	74	114
90	116	18	56	119	104
	1		1		
644	633	727	736	425	870
524	530	601	459	302	720
					1
75	59	113	84	127	121
599	589	714	543	429	841
$ 45	$ 44	$ 13	$ 193	$ (4)	$ 29

STATISTICAL SECTION

Schedules of Benefits and Refunds by Type

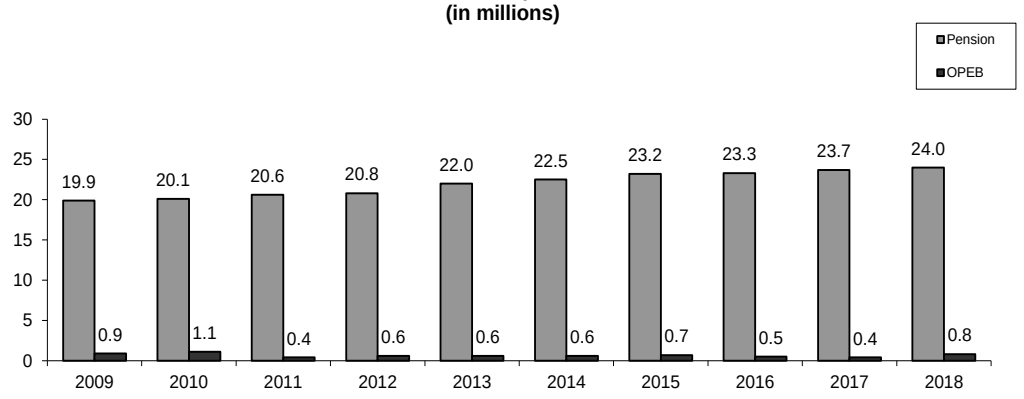
Schedule of Pension Benefits and Refunds by Type
Last Ten Years

Fiscal Year Ended Sept. 30	Regular Benefits	Disability Benefits	Survivor Benefits	Refunds: Employee Contribution	Refunds: Retired Benefits	Total
2009	$ 15,741,513	$ 211,077	$ 3,944,778			$ 19,897,368
2010	15,694,797	211,078	4,173,417			20,079,292
2011	16,134,758	211,078	4,235,135			20,580,971
2012	16,209,640	210,948	4,371,637			20,792,225
2013	17,426,985	211,078	4,331,588			21,969,650
2014	17,815,602	210,676	4,510,098			22,536,376
2015	18,517,601	211,479	4,512,352			23,241,432
2016	18,731,864	211,078	4,358,660			23,301,601
2017	19,290,587	212,964	4,220,505			23,724,056
2018	19,340,453	211,078	4,265,275	$ 141,585		23,958,390

Schedule of OPEB Benefits and Refunds by Type
Last Ten Years

Fiscal Year Ended Sept. 30	Health Benefits	Dental Benefits	Vision Benefits	Health Refunds	Administrative Expenses	Total
2009	$ 747,808	$ 65,013	$ 7,873		$ 45,133	$ 865,827
2010	859,602	167,845	51,468		35,212	1,114,127
2011	265,202	136,341	(516)		35,539	436,566
2012	425,647	118,185	517	$ 90	34,959	579,398
2013	379,741	113,137	31,065	10	75,180	599,132
2014	410,344	117,771	2,068	175	59,085	589,443
2015	480,792	114,263	5,726	348	112,910	714,039
2016	346,436	108,303	4,380	50	84,032	543,200
2017	294,635	6,921			127,479	429,034
2018	707,588	11,977		800	120,761	841,126

Total Benefit Deductions
Year Ended September 30
(in millions)



Schedules of Retired Members by Type of Benefit

Schedule of Retired Members by Type of Pension Benefits

September 30, 2017

Amount of Monthly Pension	Number of Retirees	Type of Retirement *					Selected Option**		
		1	2	3	4	5	Opt. 1	Opt. 2	Opt. 3
$ 1 - 400	1	-	1	-	-	-	1	-	-
401 - 800	27	8	17	2	-	-	23	4	-
801 - 1,200	32	15	13	2	2	-	26	5	1
1,201 - 1,600	32	11	16	5	-	-	25	6	1
1,601 - 2,000	63	17	42	3	1	-	55	8	-
2,001 - 2,400	39	16	19	3	1	-	30	9	-
2,401 - 2,800	31	16	14	-	-	1	23	7	1
2,801 - 3,200	23	14	7	-	-	2	15	8	-
3,201 - 3,600	24	16	7	1	-	-	12	12	-
3,601 - 4,000	41	33	4	3	-	1	27	13	1
Over 4,000	238	229	3	3	2	1	210	28	-
Totals	551	375	143	22	6	5	447	100	4

* Type of Retirement
1 - Normal retirement for age and service
2 - Survivor payment – normal retirement
3 - Survivor payment - death in service
4 - Nonduty disability retirement (including survivors)
5 - Survivor payment – disability retirement

**Selected Option
Opt. 1 – Straight life allowance
Opt. 2 – 100% survivor option
Opt. 3 – 50% survivor option

Schedule of Retired Members by Type of Other Postemployment Benefits

September 30, 2017

Amount of Monthly Pension	Number of Retirees	Type of Other Postemployment Benefits		
		Health	Dental	Vision
$ 1 – 400	1	-	-	-
401 – 800	27	1	3	3
801 – 1,200	32	4	9	7
1,201 – 1,600	32	-	3	3
1,601 – 2,000	63	6	9	6
2,001 - 2,400	39	5	8	7
2,401 - 2,800	31	4	10	6
2,801 - 3,200	23	2	2	1
3,201 - 3,600	24	1	3	2
3,601 - 4,000	41	7	12	10
Over 4,000	238	27	46	50
Totals	551	57	105	95

Source: Gabriel Roeder Smith & Co.

Schedules of Funding Progress
Last Ten Years

Pension Benefits ($ in millions)

Valuation Date Sept 30	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) Entry Age (b)	Unfunded (Overfunded) Accrued Liability (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a % of Covered Payroll ((b-a)/c)
2008	$ 303.7	$ 247.0	$ (56.7)	123.0 %	$ 29.5	(192.2) %
2009	295.6	245.2	(50.4)	120.6	27.0	(186.6)
2010	284.4	251.7	(32.7)	113.0	25.5	(128.4)
2011	266.8	251.7	(15.1)	106.0	23.6	(64.1)
2012[1]	245.8	249.6	3.8	98.5	22.9	16.4
2013	240.1	252.4	12.3	95.1	18.9	64.7
2014	246.4	257.3	10.9	95.8	17.8	61.1
2015	249.3	257.2	7.9	96.9	14.9	52.9
2016	254.1	251.3	(2.7)	101.1	13.9	(19.5)
2017	267.8	247.6	(20.3)	108.2	12.0	(169.5)
2017[1]	267.8	269.7	1.9	99.3	12.0	15.8

[1] Revised actuarial assumptions

Source: Gabriel Roeder Smith & Co.

Other Postemployment Benefits ($ in millions)

Valuation Date Sept 30	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) Entry Age (b)	Unfunded (Overfunded) Accrued Liability (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a % of Covered Payroll ((b-a)/c)
2008		$ 6.7	$ 6.7		$ 5.9	113.0 %
2009		6.6	6.6		6.1	108.2
2010		7.4	7.4		5.9	124.5
2011		7.9	7.9		5.4	145.3
2012		8.5	8.5		6.2	137.5
2013		7.7	7.7		6.2	123.4
2014		8.7	8.7		6.1	142.5
2015		9.1	9.1		5.9	154.0
2016	$ 1.0	9.9	8.9	10.4 %	5.9	151.1
2017	1.0	7.2	6.1	14.3	5.9	103.6
2017[1]	1.0	7.5	6.5	13.7	5.9	109.3

[1] Revised actuarial assumptions

Source: Gabriel Roeder Smith & Co.

Schedule of Other Postemployment Benefits

For Year Ended September 30, 2018

Claims		
Health insurance	$	706,611
Vision insurance		(265)
Dental insurance		10,285
Total Claims		716,630
Estimated Claims Liability		
Health insurance		977
Vision insurance		265
Dental insurance		1,693
Total Estimated Claims Liability		2,935
Administrative Fees		
Staff Salaries		50,896
Retirement and Social Security		28,712
Other Fringe Benefits		9,828
Health insurance		27,184
Vision insurance		546
Dental insurance		3,595
Total Administrative Fees		120,761
Subtotal		840,326
Refunds		800
Grand Total	$	841,126

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Schedules of Average Benefit Payments

Schedule of Average Benefit Payments - Pension*
Last Ten Years

Payment Periods	Credited Service (Years) as of September 30							
	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 +	Total
Period 10/1/07 to 9/30/08:								
Average Monthly Benefit	$ 888	$ 1,467	$ 2,164	$ 3,265	$ 3,323	$ 3,074	$ 3,704	$ 2,939
Average Final Average Salary	3,900	70,222	64,589	72,403	81,027	80,861	97,424	73,861
Number of Active Retirants	5	31	107	206	123	44	24	540
Period 10/1/08 to 9/30/09:								
Average Monthly Benefit	$ 888	$ 1,421	$ 2,303	$ 3,377	$ 3,401	$ 3,211	$ 3,793	$ 3,031
Average Final Average Salary	37,149	74,389	67,177	78,416	83,236	81,197	90,472	77,308
Number of Active Retirants	5	32	109	210	126	40	20	542
Period 10/1/09 to 9/30/10:								
Average Monthly Benefit	$ 888	$ 1,421	$ 2,389	$ 3,459	$ 3,429	$ 3,257	$ 4,004	$ 3,096
Average Final Average Salary	37,149	74,389	69,084	79,411	84,463	82,687	94,002	78,630
Number of Active Retirants	5	32	110	204	127	42	21	541
Period 10/1/10 to 9/30/11:								
Average Monthly Benefit	$ 888	$ 1,398	$ 2,423	$ 3,597	$ 3,449	$ 3,539	$ 3,879	$ 3,183
Average Final Average Salary	37,149	74,389	70,443	81,961	84,631	86,761	94,002	80,306
Number of Active Retirants	5	32	106	207	124	44	21	539
Period 10/1/11 to 9/30/12:								
Average Monthly Benefit	$ 1,094	$ 1,356	$ 2,454	$ 3,617	$ 3,420	$ 3,520	$ 3,914	$ 3,182
Average Final Average Salary	30,958	74,718	71,197	81,578	85,701	88,202	93,952	80,555
Number of Active Retirants	6	34	103	208	126	45	19	541
Period 10/1/12 to 9/30/13:								
Average Monthly Benefit	$ 1,115	$ 1,335	$ 2,519	$ 3,791	$ 3,628	$ 3,693	$ 3,972	$ 3,355
Average Final Average Salary	52,361	76,646	74,667	88,864	89,648	90,100	92,991	85,735
Number of Active Retirants	5	33	99	217	130	46	24	554
Period 10/1/13 to 9/30/14:								
Average Monthly Benefit	$ 1,159	$ 1,391	$ 2,496	$ 3,772	$ 3,743	$ 3,719	$ 3,876	$ 3,373
Average Final Average Salary	43,634	76,195	74,592	90,417	93,965	91,634	97,007	87,534
Number of Active Retirants	6	32	98	214	134	46	24	554
Period 10/1/14 to 9/30/15:								
Average Monthly Benefit	$ 1,511	$ 1,391	$ 2,503	$ 3,793	$ 3,887	$ 3,996	$ 4,042	$ 3,474
Average Final Average Salary	59,132	81,204	76,126	91,310	95,344	96,935	97,792	89,602
Number of Active Retirants	6	29	96	217	143	43	26	560
Period 10/1/15 to 9/30/16:								
Average Monthly Benefit	$ 1,511	$ 1,337	$ 2,523	$ 3,866	$ 3,882	$ 4,027	$ 4,076	$ 3,509
Average Final Average Salary	59,132	80,925	77,284	92,681	95,740	98,622	101,248	90,780
Number of Active Retirants	6	29	91	213	139	43	26	547
Period 10/1/16 to 9/30/17:								
Average Monthly Benefit	$ 1,388	$ 1,408	$ 2,500	$ 3,892	$ 3,982	$ 4,215	$ 4,206	$ 3,574
Average Final Average Salary	101,246	84,661	78,108	94,497	97,008	102,377	100,443	92,954
Number of Active Retirants	5	29	92	208	138	48	31	551

*Number counts only include members participating in the defined benefit pension plan for the corresponding benefit.

Source: Gabriel Roeder Smith & Co.

Schedule of Average Benefit Payments - Health*

Last Ten Years

Payment Periods	Credited Service (Years) as of September 30							
	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 +	Total
Period 10/1/07 to 9/30/08								
Average Monthly Benefit	$ 17	$ 2,102	$ 2,264	$ 3,456	$ 3,488	$ 4,648	$ 5,859	$ 3,287
Average Final Average Salary	19,500	84,638	66,144	78,843	88,876	105,720	131,721	81,745
Number of Active Retirants	1	3	18	32	19	8	2	83
Period 10/1/08 to 9/30/09								
Average Monthly Benefit	$ 17	$ 2,102	$ 2,264	$ 3,699	$ 3,337	$ 5,392	$ 5,859	$ 3,361
Average Final Average Salary	19,500	84,638	66,144	85,685	89,254	125,557	131,721	85,455
Number of Active Retirants	1	3	18	30	20	6	2	80
Period 10/1/09 to 9/30/10								
Average Monthly Benefit	$ 17	$ 2,102	$ 2,264	$ 3,804	$ 3,367	$ 5,392	$ 5,859	$ 3,378
Average Final Average Salary	19,500	84,638	65,338	79,121	90,360	125,557	131,721	82,664
Number of Active Retirants	1	3	20	32	21	6	2	85
Period 10/1/10 to 9/30/11								
Average Monthly Benefit	$ 17	$ 2,102	$ 2,146	$ 3,864	$ 3,418	$ 5,798	$ 5,859	$ 3,465
Average Final Average Salary	19,500	84,638	63,592	84,583	92,892	131,136	131,721	85,891
Number of Active Retirants	1	3	19	31	18	7	2	81
Period 10/1/11 to 9/30/12								
Average Monthly Benefit	$ 17	$ 2,102	$ 2,139	$ 3,796	$ 3,418	$ 5,781	$ 5,859	$ 3,482
Average Final Average Salary	19,500	84,638	66,599	83,460	92,892	131,136	131,721	86,964
Number of Active Retirants	1	3	16	30	18	7	2	77
Period 10/1/12 to 9/30/13								
Average Monthly Benefit	$ 17	$ 2,102	$ 2,332	$ 3,882	$ 3,386	$ 5,483	$ 5,859	$ 3,522
Average Final Average Salary	19,500	84,638	72,845	89,450	96,066	127,752	131,721	91,047
Number of Active Retirants	1	3	14	29	18	6	2	73
Period 10/1/13 to 9/30/14								
Average Monthly Benefit	$ 17	$ 2,102	$ 2,293	$ 3,732	$ 3,646	$ 5,081	$ 5,859	$ 3,502
Average Final Average Salary	19,500	84,638	72,072	87,984	100,088	127,752	131,721	91,744
Number of Active Retirants	1	3	13	28	19	6	2	72
Period 10/1/14 to 9/30/15								
Average Monthly Benefit	-	$ 1,728	$ 2,425	$ 4,050	$ 4,187	$ 5,081	$ 5,859	$ 3,852
Average Final Average Salary	-	84,638	75,582	93,677	109,512	127,752	131,721	98,425
Number of Active Retirants	-	3	12	29	19	6	2	71
Period 10/1/15 to 9/30/16								
Average Monthly Benefit	-	$ 1,523	$ 2,631	$ 4,357	$ 4,263	$ 4,542	$ 5,859	$ 4,038
Average Final Average Salary	-	94,507	84,721	98,068	108,486	127,752	131,721	102,473
Number of Active Retirants	-	2	10	27	17	6	2	64
Period 10/1/16 to 9/30/17								
Average Monthly Benefit	-	$ 1,927	$ 2,631	$ 4,532	$ 4,720	$ 4,745	$ 5,859	$ 4,264
Average Final Average Salary	-	77,073	84,721	101,830	112,020	131,836	131,721	104,578
Number of Active Retirants	-	1	10	25	14	5	2	57

*Average monthly benefits shown are pension benefits

Source: Gabriel Roeder Smith & Co.

Schedule of Average Benefit Payments - Dental*

Last Ten Years

Payment Periods	Credited Service (Years) as of September 30							
	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 +	Total
Period 10/1/07 to 9/30/08								
Average Monthly Benefit	-	$ 1,923	$ 2,510	$ 3,447	$ 3,513	$ 4,178	$ 3,990	$ 3,354
Average Final Average Salary	-	84,070	68,761	77,730	81,887	94,839	88,958	79,829
Number of Active Retirants	-	5	25	56	38	16	6	146
Period 10/1/08 to 9/30/09								
Average Monthly Benefit	-	$ 1,923	$ 2,616	$ 3,510	$ 3,505	$ 4,429	$ 4,054	$ 3,394
Average Final Average Salary	-	84,070	70,379	81,063	83,005	101,786	99,613	82,293
Number of Active Retirants	-	5	26	55	37	14	4	141
Period 10/1/09 to 9/30/10								
Average Monthly Benefit	-	$ 1,923	$ 2,631	$ 3,639	$ 3,503	$ 4,447	$ 4,054	$ 3,456
Average Final Average Salary	-	84,070	72,415	78,988	84,063	102,499	99,613	82,374
Number of Active Retirants	-	5	26	55	39	15	4	144
Period 10/1/10 to 9/30/11								
Average Monthly Benefit	-	$ 1,923	$ 2,658	$ 3,769	$ 3,526	$ 4,250	$ 4,054	$ 3,541
Average Final Average Salary	-	84,070	73,097	83,097	83,661	106,381	99,613	84,703
Number of Active Retirants	-	5	24	53	38	16	4	140
Period 10/1/11 to 9/30/12								
Average Monthly Benefit	-	$ 1,923	$ 2,647	$ 3,731	$ 3,447	$ 4,309	$ 4,054	$ 3,481
Average Final Average Salary	-	84,070	75,085	82,627	84,757	103,377	99,613	84,860
Number of Active Retirants	-	5	22	51	38	15	4	135
Period 10/1/12 to 9/30/13								
Average Monthly Benefit	-	$ 1,923	$ 2,740	$ 3,783	$ 3,424	$ 4,309	$ 4,054	$ 3,514
Average Final Average Salary	-	84,070	77,339	88,393	89,718	103,377	99,613	88,885
Number of Active Retirants	-	5	21	50	37	15	4	132
Period 10/1/13 to 9/30/14								
Average Monthly Benefit	-	$ 1,923	$ 2,758	$ 3,790	$ 3,592	$ 4,148	$ 3,476	$ 3,517
Average Final Average Salary	-	84,070	78,748	90,107	93,759	103,377	99,613	90,883
Number of Active Retirants	-	5	21	44	35	15	4	124
Period 10/1/14 to 9/30/15								
Average Monthly Benefit	-	$ 1,699	$ 2,741	$ 3,863	$ 3,631	$ 4,184	$ 3,476	$ 3,552
Average Final Average Salary	-	84,070	81,188	89,897	94,432	108,597	99,613	91,921
Number of Active Retirants	-	5	20	46	33	14	4	122
Period 10/1/15 to 9/30/16								
Average Monthly Benefit	-	$ 1,589	$ 2,982	$ 4,073	$ 3,716	$ 3,977	$ 3,476	$ 3,686
Average Final Average Salary	-	88,862	87,229	94,191	94,351	111,362	99,613	95,283
Number of Active Retirants	-	4	16	41	29	13	4	107
Period 10/1/16 to 9/30/17								
Average Monthly Benefit	-	$ 1,745	$ 2,982	$ 4,171	$ 3,978	$ 4,077	$ 4,733	$ 3,877
Average Final Average Salary	-	81,169	87,229	96,403	97,245	109,072	121,142	97,547
Number of Active Retirants	-	3	16	39	28	15	4	105

*Average monthly benefits shown are pension benefits

Source: Gabriel Roeder Smith & Co.

Schedule of Average Benefit Payments - Vision*

Last Ten Years

Payment Periods	Credited Service (Years) as of September 30							
	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 +	Total
Period 10/1/07 to 9/30/08								
Average Monthly Benefit	$ 17	$ 2,186	$ 2,588	$ 3,801	$ 3,775	$ 4,510	$ 4,038	$ 3,618
Average Final Average Salary	19,500	96,442	70,418	81,753	86,286	102,184	101,887	84,189
Number of Active Retirants	1	3	18	42	35	13	4	116
Period 10/1/08 to 9/30/09								
Average Monthly Benefit	$ 17	$ 2,186	$ 2,728	$ 3,916	$ 3,719	$ 4,624	$ 4,317	$ 3,667
Average Final Average Salary	19,500	96,442	72,545	85,688	87,123	106,348	111,045	86,469
Number of Active Retirants	1	3	19	43	35	12	3	116
Period 10/1/09 to 9/30/10								
Average Monthly Benefit	$ 17	$ 2,186	$ 2,749	$ 3,955	$ 3,753	$ 4,624	$ 5,372	$ 3,707
Average Final Average Salary	19,500	96,442	75,332	83,630	88,016	106,348	137,252	86,723
Number of Active Retirants	1	3	19	42	37	12	2	116
Period 10/1/10 to 9/30/11								
Average Monthly Benefit	$ 17	$ 2,186	$ 2,706	$ 4,052	$ 3,785	$ 4,700	$ 5,372	$ 3,773
Average Final Average Salary	19,500	96,442	74,044	88,977	87,701	110,830	137,252	89,139
Number of Active Retirants	1	3	18	43	36	13	2	116
Period 10/1/11 to 9/30/12								
Average Monthly Benefit	$ 17	$ 2,186	$ 2,647	$ 4,088	$ 3,666	$ 4,452	$ 5,372	$ 3,682
Average Final Average Salary	19,500	96,442	76,442	88,175	88,146	107,446	137,252	88,147
Number of Active Retirants	1	3	17	42	36	12	2	113
Period 10/1/12 to 9/30/13								
Average Monthly Benefit	$ 17	$ 2,186	$ 2,647	$ 4,133	$ 3,669	$ 4,452	$ 5,372	$ 3,729
Average Final Average Salary	19,500	96,442	76,442	95,575	92,812	107,446	137,252	93,164
Number of Active Retirants	1	3	17	42	36	12	2	113
Period 10/1/13 to 9/30/14								
Average Monthly Benefit	$ 17	$ 2,186	$ 2,635	$ 4,117	$ 3,858	$ 4,251	$ 4,685	$ 3,755
Average Final Average Salary	19,500	96,442	76,039	95,551	97,154	107,446	128,996	94,736
Number of Active Retirants	1	3	16	39	34	12	3	108
Period 10/1/14 to 9/30/15								
Average Monthly Benefit	-	$ 1,813	$ 2,763	$ 4,178	$ 4,001	$ 4,381	$ 4,685	$ 3,895
Average Final Average Salary	-	96,442	79,112	94,711	99,476	111,122	128,996	96,819
Number of Active Retirants	-	3	15	41	32	12	3	106
Period 10/1/15 to 9/30/16								
Average Monthly Benefit	-	$ 1,649	$ 2,942	$ 4,369	$ 4,141	$ 4,155	$ 4,685	$ 4,043
Average Final Average Salary	-	112,213	88,092	98,758	100,113	114,619	128,996	100,931
Number of Active Retirants	-	2	12	37	28	11	3	93
Period 10/1/16 to 9/30/17								
Average Monthly Benefit	-	$ 2,179	$ 2,942	$ 4,495	$ 4,300	$ 4,033	$ 4,912	$ 4,171
Average Final Average Salary	-	112,485	88,092	101,484	101,237	108,829	119,411	101,861
Number of Active Retirants	-	1	12	35	28	14	5	95

*Average monthly benefits shown are pension benefits

Source: Gabriel Roeder Smith & Co.

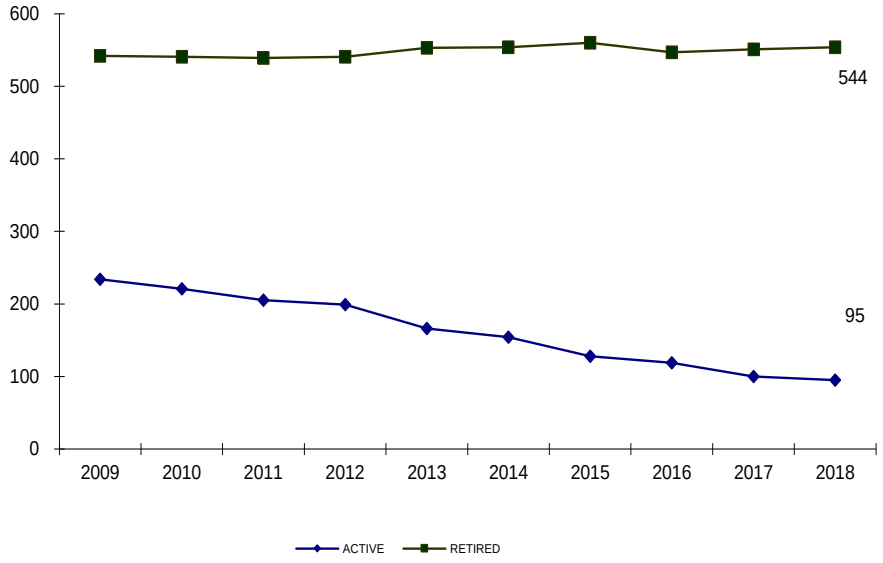
Schedule of Principal Participating Courts

For Fiscal Years Ending September 30, 2018 and 2008

	2018		2008	
Participating Court	**Employees**	**Percentage of Total System**	**Employees**	**Percentage of Total System**
Court of Appeals	10	10.0 %	26	10.0 %
03rd Circuit	9	9.0	36	13.8
36th District	6	6.0	27	10.4
06th Circuit	5	5.0	15	5.8
07th Circuit	3	3.0	4	1.5
All other	67	67.0	152	58.5
Total	**100**	**100.0 %**	**260**	**100.0 %**

Ten Year History of Membership

Fiscal Year Ended September 30



Source: Gabriel Roeder Smith & Co.

Schedule of Participating Courts at 9/30/18

Court of Appeals
Recorders Court
Supreme Court
03rd Circuit Court
06th Circuit Court
07th Circuit Court
13th Circuit Court
14th Circuit Court
16th Circuit Court
17th Circuit Court
21st Circuit Court
22nd Circuit Court
24th Circuit Court
40th Circuit Court
41st Circuit Court
57th Circuit Court
05th District Court
08th District Court
10th District Court
14th District Court
15th District Court
16th District Court
17th District Court
21st District Court
28th District Court
33rd District Court
36th District Court
39th District Court
40A District Court
41B District Court
48th District Court
52nd District Court
58th District Court
61st District Court
63rd District Court
64th District Court
66th District Court
67th District Court
68th District Court
70th District Court
71st District Court
78th District Court
82nd District Court
95th District Court
Cass County Probate Court
Gogebic County Probate Court
Huron County Probate Court
Iron County Probate Court
Isabella County Probate Court
Kent County Probate Court
Lake County Probate Court
Oscoda County Probate Court
Ottawa County Probate Court
Wayne County Probate Court
Wexford County Probate Court

ACKNOWLEDGMENTS

The *Michigan Judges' Retirement System Comprehensive Annual Financial Report* is prepared by Financial Services, Fiscal Management Division. Staff of the division for the fiscal year 2018 report included:

Management:

Jacqueline Huhn, Director
Aver Hamilton, Accounting Manager

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Cindy Molzan
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Technical and Support Staff:

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This report may be viewed online at: www.michigan.gov/ors