MICHIGAN STATE EMPLOYEES' RETIREMENT SYSTEM

Comprehensive Annual Financial Report for the Fiscal Year Ended September 30, 2020

M S E R S

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

Prepared by:
Financial Services
For
Office of Retirement Services
P.O. Box 30171
Lansing, Michigan 48909-7671
517-284-4400
1-800-381-5111

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INTRODUCTORY SECTION

Certificate of Achievement
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Retirement Board Members
Advisors and Consultants
Organization Chart

Government Finance Officers Association

Certificate of Achievement for Excellence in Financial Reporting

Presented to

Michigan State Employees' Retirement System

For its Comprehensive Annual
Financial Report
For the Fiscal Year Ended

September 30, 2019

Christopher P. Morrill

Executive Director/CEO

Public Pension Coordinating Council

Public Pension Standards Award
For Funding and Administration
2020

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

Michigan State Employees'
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 27, 2021

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 State Employees' Retirement System (System) for fiscal year 2020.

INTRODUCTION TO REPORT

The System was established by legislation under Public Act 240 of 1943 (the Michigan State Employees' Retirement Act) and 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 in this report. The purpose of the System is to provide retirement, disability, death, and healthcare benefits for all State employees. 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.

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 contribution rates. The annual actuarial valuation was completed by Gabriel Roeder Smith & Company for the fiscal year ended September 30, 2019, and recommends employer contribution rates for the fiscal year ended September 30, 2022. Actuarial certification and supporting statistics are included in the Actuarial Section in 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 an MD&A. This letter of transmittal is intended to complement the 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

The System was established by Public Act 240 of 1943. 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. Effective March 31, 1997, Public Act 487 of 1996 closed the plan to new members and all new employees become participants of the State's defined contribution (DC) plan. The System serves over 71,000 members and is funded by employer contributions, member contributions, and investment earnings. 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 of Michigan Investment Board 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 5.0 percent for the pension plan and 4.9 percent for the other postemployment benefits (OPEB) plan. For the last five years, the System has experienced an annualized rate of return of 8.3 percent for the pension plan and 8.2 percent for the OPEB plan. A summary of asset allocation and rates of return is presented in the Investment Section in 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. 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 fiduciary 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 – The actuarial value of the assets and actuarial accrued liability for pension benefits of the System were $12.4 billion and $19.0 billion, respectively, resulting in a funded ratio of 65.4 percent on September 30, 2019. A historical perspective of funding levels for the Pension Plan is presented on the Schedule of Funding Progress in the Statistical section in this report.

OPEB – Prefunding for OPEB began in fiscal year 2013. The actuarial value of the assets and actuarial accrued liability for OPEB were $3.1 billion and $9.2 billion, respectively, resulting in a funded ratio of 33.4 percent as of September 30, 2019. A historical perspective of funding levels is presented on the Schedule of Funding Progress in the Statistical section in this report.

MAJOR GOALS ACCOMPLISHED

Pandemic impact — In response to the pandemic, ORS utilized the Incident Management Plan governance to organize plans for response, business continuity, and recovery. In four days, ORS successfully transitioned 165 ORS employees from working in the office to working from home. To facilitate this transition, ORS developed a process for taking inventory of equipment, packing, and loading it into staff vehicles. To support internal communications, the ORS executive team implemented weekly video updates to staff. Customer Education staff recorded and posted closed-captioned member presentations to the ORS website to replace in-person presentations and partnered with Disability Determination Services to create a process to ensure continued disability file reviews. ORS staff successfully developed and implemented alternatives to walk-in services and in-person workshops to educate state of Michigan, Michigan public school, and state police customers about their retirement plans.

CARES Act implementation — ORS implemented relief provisions related to the COVID-19 pandemic through the federal Coronavirus Aid, Relief, and Economic Security (CARES) Act. Participants in the State Employees' Retirement System, Michigan Public School Employees' Retirement System, Judges Retirement System, Legislative Retirement System, State Police Retirement System, and the Educational Achievement Authority were eligible to take a one-time CARES Act loan from their State of Michigan 401(k) and/or 457 Plan accounts. To assist plan members financially affected by the pandemic, additional loan and distribution options were made available to 401(k) and 457 Plan participants, as well as the deferment of loan payments, until the end of the year.

Electronic *Connections* newsletter — ORS previously mailed the *Connections* newsletter twice each year **—** in June and December — along with direct deposit statements to more than 290,000 recipients. Customer Education staff and leadership began looking at other feasible options to deliver the newsletter on time when it became apparent operations could be impacted by the pandemic. The Department of Technology, Management and Budget's Print and Mail Management were not yet sure what its resource limitations would be. ORS staff and leadership discussed the options and weighed the costs and benefits of continuing to deliver the newsletter by mail. With the need to provide budget savings, an electronic-only version became the logical and responsible choice. ORS delivered the first electronic format *Connections* newsletter in June 2020.

Streamlined survivor benefit process — ORS improved the process when there is an overpayment issued on the retiree's behalf upon their death. Instead of requiring the deceased retiree's survivor to return any overpaid pension payments for which the retiree was not entitled to after their death, ORS can set up a recovery against the survivor's benefit to recoup the overpaid funds.

miAccount *1099-R* statements — ORS implemented a new feature in miAccount that allows customers to opt out of receiving paper annual *1099-R* statements. The *1099-R* statements can be viewed and printed in miAccount for current or previous years.

Electronic workshops — As news of the pandemic spread in early March, ORS cancelled all scheduled in-person retirement information meetings. The Outreach and Instructional Design teams moved quickly to create and record the *Planning Your Retirement (PYR)* workshop for Michigan public school DB plan members and the *Pre-Retirement Orientation (PRO)* workshop for state of Michigan DB plan members. The online *PYR* workshop was completed and available on the website by March 13. The online *PRO* was completed by March 23. More than 1,300 retirement plan members have registered for the online workshops.

HONORS

Public Pension Standards Award – ORS was awarded the 2020 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 the fiscal year 2019 Comprehensive Annual Financial Report (CAFR). This marks the 29th consecutive year ORS has received this prestigious award.

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, the 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 State Employees' Retirement System. Their cooperation contributes significantly to the success of the System.

Sincerely,

Brom Stibitz, Director
Department of Technology, Management & Budget

Anthony J. Estell, Director
Office of Retirement Services

RETIREMENT BOARD MEMBERS*

As of January 27, 2021

Phillip Thompson
General Public
Term Expires Dec. 31, 2023

Ann Marie Storberg
Ex-officio Member Representing
State Treasurer

David A. Berridge
Active State Employee
Term Expires Dec. 31, 2024

John Gnodtke
Ex-officio Member
Representing State Personnel Director

Lauri Schmidt
Retired State Employee
Term Expires Dec. 31, 2023

Lisa Geminick
Ex-officio Member Representing
Attorney General

Craig Murray
Ex-officio Member
Representing Auditor General

Judge David H. Sawyer
Vice Chair
Active Judge
Term Expires Dec. 31, 2021

Col. John Wojcik - Chair
Michigan National Guard
Term Expires Dec. 31, 2022

* 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 27, 2021

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

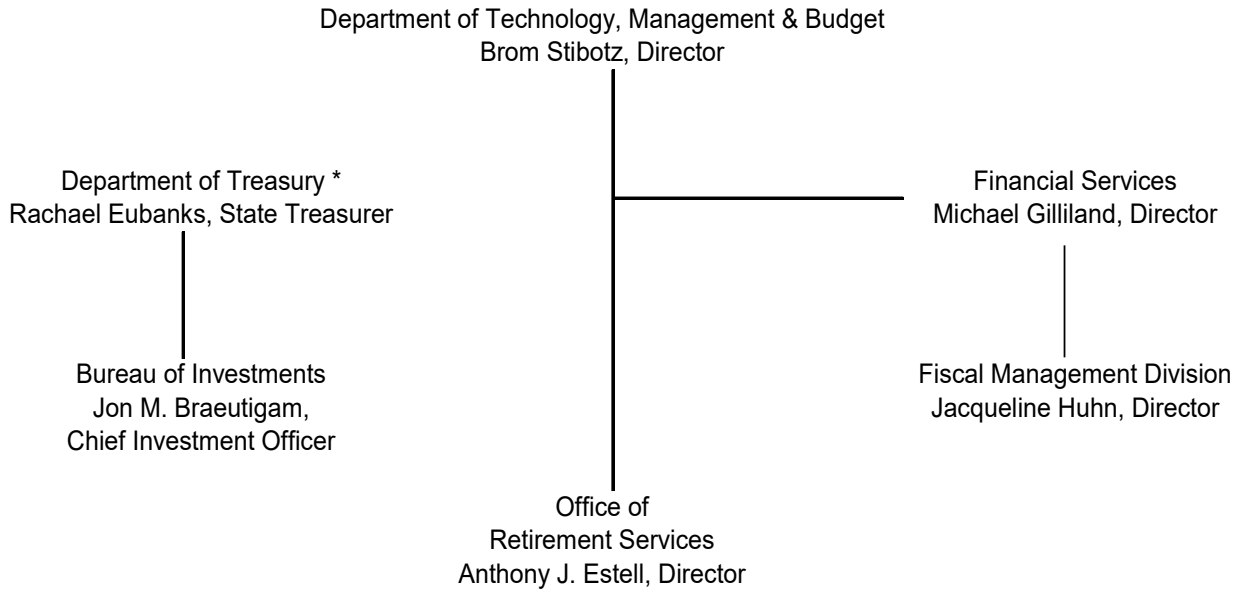
Investment Manager and Custodian
Rachael Eubanks
State Treasurer
State of Michigan

Legal Advisor
Dana Nessel
Attorney General
State of Michigan

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

ORGANIZATION CHART

As of January 27, 2021



* 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 67) and Schedule of Investment Commissions (page 68), for information regarding the investment fees and commissions paid as well as investment professionals utilized by the System.

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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*

Colonel John J. Wojcik, Chair
State of Michigan Retirement Board
and
Mr. Brom Stibitz, Director
Department of Technology, Management, and Budget
and
Mr. Anthony J. Estell, Director
Office of Retirement Services

Dear Colonel Wojcik, Mr. Stibitz, and Mr. Estell:

Report on the Financial Statements
We have audited the accompanying financial statements of the Michigan State Employees' Retirement System as of and for the fiscal year ended September 30, 2020 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 State Employees' Retirement System as of September 30, 2020 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.

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 changes in net OPEB liability, schedules of contributions, schedules of 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 27, 2021

Our discussion and analysis of the Michigan State Employees' Retirement System's (System) financial performance provides an overview of the System's financial activities for the fiscal year ended September 30, 2020. Please read it in conjunction with the transmittal letter in the Introductory Section on page 4 and the basic financial statements, which follow this discussion.

FINANCIAL HIGHLIGHTS

- System assets exceeded liabilities at the close of fiscal year 2020 by $15.6 billion (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 $2.2 billion, which are comprised primarily of contributions of $1.5 billion and investment gains of $762.3 million.
- Deductions decreased over the prior year from $1.9 billion to $1.9 billion or 2.3%. This net decrease is the result of increased pension payments, decreased OPEB benefit payments, and decreased administrative expenses.

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 18) and *The Statement of Changes in Pension Plan and Other Postemployment Benefit Plan Fiduciary Net Position* (page 19). 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 45), the Schedule of Changes in Net OPEB Liability (page 46), and Schedules of Contributions (page 47) to determine whether the System is becoming financially stronger or weaker.

FINANCIAL ANALYSIS

System total assets as of September 30, 2020, were $16.3 billion and were mostly comprised of equity in common cash, receivables, investments, and security lending collateral. Total assets increased $403.9 million or 2.5% between fiscal years 2019 and 2020, due primarily to higher equity in investments.

Total liabilities as of September 30, 2020, were $665.4 million and were comprised of accounts payables and securities lending. Total liabilities increased $25.9 million or 4.0% between fiscal years 2019 and 2020, primarily due to increase in obligations in security lending.

System assets exceeded its liabilities at the close of fiscal year 2020 by $15.6 billion. Total fiduciary net position restricted for pension and OPEB increased $378.0 million or 2.5% from the previous year, primarily due to increased other governmental contributions from Medicare Advantage and decreased health care expenses.

PLAN FIDUCIARY NET POSITION
(in thousands)

	2020	2019	Increase (Decrease)
Assets			
Equity in common cash	$ 224,039	$ 119,126	88.1 %
Receivables	180,757	130,340	38.7
Investments	15,276,574	15,064,065	1.4
Securities lending collateral	633,795	597,767	6.0
Total Assets	16,315,165	15,911,299	2.5
Liabilities			
Unearned revenue	5	32	(85.6)
Accounts payable and other accrued liabilities	31,611	41,782	(24.3)
Obligations under securities lending	633,795	597,698	6.0
Total Liabilities	665,410	639,513	4.0
Net Position Restricted for Pension Benefits and OPEB	$ 15,649,755	$ 15,271,786	2.5 %

ADDITIONS TO PLAN FIDUCIARY NET POSITION

The reserves needed to finance pension and other postemployment benefits are accumulated through the collection of employer and employee contributions and through earnings on investments. Contributions and net investment income for fiscal year 2020 totaled approximately $2.2 billion.

Total additions for fiscal year 2020 increased approximately $23.5 million or 1.1% from those of fiscal year 2019 due primarily to increased other governmental contributions from Medicare Advantage and net investment income. Total contributions increased between fiscal years 2019 and 2020 by $6.7 million or 0.5%, while net investment income increased $7.0 million or 0.9%. The Investment Section of this report reviews the results of investment activity for fiscal year 2020.

DEDUCTIONS FROM PLAN FIDUCIARY NET POSITION

The primary expenses of the System include the payment of pension benefits to members and beneficiaries, payment for health, dental and vision benefits, refund of contributions, and the cost of administering the System. Total deductions for fiscal year 2020 were $1.9 billion, a decrease of 2.3% from fiscal year 2019 deductions.

The health, dental and vision care expenses during the year decreased $63.2 million or 13.5%, from $468.7 million to $405.5 million. The payment of pension benefits increased $34.1 million or 2.4% between fiscal years 2019 and 2020. In fiscal year 2020, the increase in pension benefit expenses resulted from an increase in retirees (132) and an increase in benefit payments to retirees. Administrative expenses decreased by $10.3 million 31.8% between fiscal years 2019 and 2020, primarily due to decreased health administrative fees. Refunds and transfers to other systems increased by $210 thousand or 162.1% between fiscal years 2019 and 2020 largely due to service credit purchase overpayments.

CHANGES IN PLAN FIDUCIARY NET POSITION

(in thousands)

	2020	2019	Increase (Decrease)
Additions			
Member contributions	$ 25,265	$ 28,442	(11.2) %
Employer contributions	1,317,296	1,365,318	(3.5)
Other governmental contributions	123,515	65,604	88.3
Net investment income (loss)	762,256	755,266	0.9
Miscellaneous income	9,888	83	11,859.1
Total additions	2,238,221	2,214,713	1.1
Deductions			
Pension benefits	1,432,401	1,398,265	2.4
Health care benefits	405,513	468,671	(13.5)
Refunds and transfers to other systems	340	130	162.1
Uncollectible receivables	-	4,423	(100.0)
Administrative and other expenses	21,998	32,262	(31.8)
Total deductions	1,860,251	1,903,751	(2.3)
Net Increase (Decrease) in Net Position	377,970	310,962	21.5
Net Position Restricted for Pension Benefits and OPEB:			
Beginning of Year	15,271,786	14,960,823	2.1
End of Year	$ 15,649,755	$ 15,271,786	2.5 %

RETIREMENT SYSTEM AS A WHOLE

The System's overall Fiduciary Net Position experienced an increase in fiscal year 2020. The System's rate of return for the Pension Plan's investments decreased an overall 0.1% from a 5.1% return in fiscal year 2019 to a 5.0% return during fiscal year 2020. The System's rate of return for the OPEB Plan's investments remained materially unchanged by an overall 0.0% from a 4.9% return in fiscal year 2019 to a 4.9% return during fiscal year 2020. 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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STATEMENT OF PENSION PLAN AND OTHER POSTEMPLOYMENT BENEFIT PLAN FIDUCIARY NET POSITION

As of September 30, 2020
(in thousands)

	Pension Plan	OPEB Plan	Total
Assets:			
Equity in common cash	$ 27,881	$ 196,158	$ 224,039
Receivables:			
Amounts due from members	811	-	811
Amounts due from employer	42,505	53,475	95,980
Amounts due from federal agencies	-	16,795	16,795
Amounts due from other	-	25,243	25,243
Amounts due from employer long term	2,736	-	2,736
Amounts due from federal agencies long term	-	39,053	39,053
Interest and dividends	109	30	140
Total receivables	46,161	134,596	180,757
Investments:			
Short term investment pools	532,017	136,379	668,396
Fixed income pools	1,482,915	412,872	1,895,787
Domestic equity pools	2,587,245	721,194	3,308,439
Real estate and infrastructure pools	970,061	270,272	1,240,333
Private equity pools	2,386,336	665,859	3,052,195
International equity pools	1,932,079	538,570	2,470,650
Absolute return pools	581,554	162,303	743,857
Real Return and Opportunistic Pools	1,483,271	413,646	1,896,917
Total investments	11,955,478	3,321,096	15,276,574
Securities lending collateral	497,017	136,778	633,795
Total assets	12,526,537	3,788,629	16,315,165
Liabilities:			
Unearned revenue	-	5	5
Accounts payable and other accrued liabilities	1,984	29,363	31,347
Obligations under securities lending	497,017	136,778	633,795
Other accrued liabilities long term	-	264	264
Total liabilities	499,000	166,410	665,410
Net Position Restricted for Pension Benefits and OPEB:	$ 12,027,536	$ 3,622,219	$ 15,649,755

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

STATEMENT OF CHANGES IN PENSION PLAN AND OTHER POSTEMPLOYMENT BENEFIT PLAN FIDUCIARY NET POSITION

For Fiscal Year Ended September 30, 2020
(in thousands)

	Pension Plan	OPEB Plan	Total
Additions:			
Contributions:			
Member contributions	$ 25,265	$ -	$ 25,265
Employer contributions	613,729	703,567	1,317,296
Other governmental contributions	-	123,515	123,515
Total contributions	638,994	827,083	1,466,076
Investment income (loss):			
Net increase (decrease) in fair value of investments	410,528	111,568	522,096
Interest, dividends, and other	223,800	60,336	284,136
Investment expenses:			
Real estate operating expenses	(284)	(73)	(358)
Other investment expenses	(36,437)	(9,268)	(45,705)
Securities lending activities:			
Securities lending income	5,985	1,653	7,638
Securities lending expenses	(4,347)	(1,204)	(5,551)
Net investment income (loss)	599,246	163,011	762,256
Miscellaneous income	73	9,816	9,888
Total additions	1,238,312	999,909	2,238,221
Deductions:			
Benefits paid to plan members and beneficiaries:			
Retirement benefits	1,432,401	-	1,432,401
Health benefits	-	370,209	370,209
Dental/vision benefits	-	32,305	32,305
Personal health care	-	2,946	2,946
Heath reimbursement account	-	52	52
Refunds of contributions	311	28	340
Administrative and other expenses	5,956	16,042	21,998
Total deductions	1,438,668	421,583	1,860,251
Net Increase (Decrease) in Net Position	(200,356)	578,325	377,970
Net Position Restricted for Pension Benefits and OPEB:			
Beginning of Year	12,227,892	3,043,893	15,271,786
End of Year	$ 12,027,536	$ 3,622,219	$ 15,649,755

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

NOTE 1 – PLAN DESCRIPTION

ORGANIZATION

The Michigan State Employees' Retirement System (System) is a single-employer, state-wide, defined benefit public employee retirement plan governed by the State of Michigan (State) originally created under Public Act 240 of 1943, as amended. Section 2 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 or retirant 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 by the State to provide retirement, survivor and disability benefits to the State's government employees. In addition, the System's OPEB plan provides all retirees with the option of receiving health, dental, and vision coverage under the Michigan State Employees' Retirement Act as well as eligible special duty officers from the Michigan Military Retirement Provisions (MRP). The System is a qualified pension trust fund under section 401(a) of the Internal Revenue Code. By statute, employees of the following employers are also covered by this plan: American Legion, American Veterans, Veterans of Foreign Wars, Disabled American Veterans, Mackinac Island State Park, Marine Corps League, Michigan Bar Association, Business Enterprise Program, Third Circuit Court, Recorders Court, and 36th District Court. Although the System reports information for several small employers, the State is legally responsible for almost all contractually required contributions to the System. This level of responsibility is ongoing and is unlikely to change significantly in the foreseeable future. Therefore, the reporting requirements for a single employer plan have been adopted.

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. The Department Director appoints the Office Director, with whom the general oversight of the System resides. The State of Michigan Investment Board serves as the investment fiduciary and custodian for the System.

MEMBERSHIP

At September 30, 2020, the System's pension plan membership consisted of the following:

Inactive plan members or their beneficiaries currently receiving benefits:	
Regular benefits	49,941
Survivor benefits	7,542
Disability benefits	3,150
Total	60,633
Inactive plan members entitled to but not yet receiving benefits:	2,440
Active plan members:	
Vested	6,786
Non-vested	71
Total	6,857
Total plan members	69,930

Enrollment in the OPEB plan is voluntary. The number of participants is as follows:

Health, Dental and Vision Plan	
Eligible participants	
Retirees and survivors	61,004
Inactive vested members	6,057
Active members[1, 2]	48,711
Participants receiving benefits:	
Health	52,452
Dental	53,918
Vision	53,723
Expenses for the year (in thousands)	$ 421,583
Employer payroll contributions rate	20.67%

[1] Active member count includes Personal Healthcare Fund members eligible for the $1,000/$2,000 lump sum at termination benefit.

[2] Includes members of the MRP who also participate in this plan.

Applications for enrollment after retirement are accepted anytime during the year, with coverage effective six months.

BENEFIT PROVISIONS - PENSION

Introduction

Benefit provisions of the defined benefit (DB) pension plan are established by State statute, which may be amended. Public Act 240 of 1943, State Employees' Retirement Act, as amended, establishes eligibility and benefit provisions for the defined benefit pension plan. Retirement benefits are determined by final average 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 duty disability, nonduty disability and survivor benefits.

A member who has separated from employment may request a refund of his or her member contribution account. A refund may cancel a former member's rights to future benefits. However, former members who return to employment and who previously received a refund of their contributions may reinstate their service through repayment of the refund upon satisfaction of certain requirements.

Effective March 31, 1997, Public Act 487 of 1996 closed the plan to new entrants. All new employees become members of the defined contribution plan. The Public Act allows returning employees and members who left State employment on or before March 31, 1997, to elect the defined benefit plan instead of the defined contribution plan.

Pension Reform 2012

On December 15, 2011, the Governor signed Public Act 264 of 2011 into law. The legislation granted members a choice regarding their future retirement plan. They had the following options:

- **Option 1: DB Classified** Members voluntarily elected to remain in the DB plan for future service and contribute 4% of their annual compensation to the pension fund until they terminate state employment. The 4% contribution began on April 1, 2012.
- **Option 2: DB 30** Members voluntarily elected to remain in the DB plan for future service and contribute 4% of pay until they reach 30 years of service. When they reach 30 years of service, they will switch to the State's DC plan. The 4% contribution began April 1, 2012, and continues until they switch to the DC plan or terminate employment, whichever comes first.
- **Option 3: DB/DC Blend** Members voluntarily elected not to pay the 4% and therefore became participants in the DC plan for future service beginning April 1, 2012. As a DC plan participant they receive a 4% employer contribution to their 401(k) account and are eligible for an additional dollar-for-dollar employer match of up to 3% of pay to the plan.

Deferred members of the DB plan (with 10 or more years of service) who are reemployed by the State on or after January 1, 2012, become participants in the DC plan. Their pension calculation is determined by their final average compensation (FAC) and years of service as of March 31, 2012. They retain their eligibility for the retiree health insurance premium subsidy offered by the State.

Former nonvested members of the DB plan (with less than 10 years of service) who are reemployed by the State on or after January 1, 2012, and before January 1, 2014, become participants in the DC plan. When they have earned sufficient service credit for vesting (10 years) they would be eligible for a pension based on their FAC and years of service in the DB plan as of March 31, 2012. They retain their eligibility for the retiree health insurance premium subsidy offered by the State.

Former nonvested members (with less than 10 years of service) of the DB plan who are reemployed by the State on or after January 1, 2014, become members of the DC plan. Any service credit previously earned would count towards vesting for the DC plan. They will not be eligible for any pension or retiree health insurance coverage premium but will become a participant in the Personal Healthcare Fund where they will contribute up to 2% of their compensation to a 401(k) or 457 account, earning a matching 2% employer contribution. They will also receive a credit into a health reimbursement account (HRA) at termination if they terminate employment with at least 10 years of service. The credit will be $2,000 for participants who are at least 60 years old or $1,000 for participants who are less than 60 years old at termination.

Regular Retirement

The retirement benefit is based on a member's years of credited service (employment) and FAC. The normal benefit equals 1.5% of a member's FAC multiplied by the years and partial year of credited service and is payable monthly over the member's lifetime.

Under PA 264 of 2011, FAC is initially determined as the annual average of the highest three years of compensation (including overtime paid before January 1, 2012, but excluding overtime paid after December 31, 2011). If the end date for the initial FAC calculation is between January 1, 2012, and January 1, 2015, then a prorated amount of post-2008 average overtime will be added to the initial FAC calculation. If the end date for the initial FAC calculation is January 1, 2015, or later, then an annual average of overtime – for the six-year period ending on the FAC calculation date – will be added to that initial FAC calculation to get the final FAC number.

For members who switch to the DC plan for future service, the pension calculation (FAC times 1.5% times years of service) will be determined as of the point the member switches to the DC plan. If the FAC period includes the date of the switch to the DC plan, then the FAC will include up to 240 hours of accrued annual leave multiplied by the rate of pay as of the date of the switch. The hours will be paid at separation.

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

- age 60 with 10 or more years of credited service; or
- age 55 with 30 or more years of credited service; or
- age 55 with at least 15 but less than 30 years of credited service. The benefit allowance is permanently reduced 0.5% for each month from the member's age on the effective date of retirement to the date the member will attain age 60.

Employees in covered positions are eligible for supplemental benefits and may retire after attaining:

- age 51 with 25 or more years in a covered position; or
- age 56 with 10 or more years in a covered position.

In either case, the three years immediately preceding retirement must have been in a covered position. Employees in covered positions are responsible for the custody and supervision of inmates.

Employees of closing Department of Health and Human Services facilities are eligible for retirement under one of the following conditions:

- age 51 with 25 years of service, the last 5 of which were rendered in the closing facility; or
- age 56 with 10 years of service, the last 5 of which were rendered in the closing facility; or
- 25 years of service at the closing facility regardless of age.

Employees of the State Accident Fund, Michigan Biologic Products, or Liquor Control Commission who were terminated as the result of privatization may retire if the member's age and length of service was equal to or greater than 70 on the date of transfer or termination.

Conservation Officers (CO) with a hire date on or before April 1, 1991, are eligible to retire after 25 years of service, 20 of which must have been rendered as a CO. COs hired after April 1, 1991, and before March 31, 1997, must have 23 years of service as a CO to be eligible for a full retirement benefit with only 25 years of service. In either case, two years immediately preceding retirement must be as a CO.

Deferred Retirement

Any member with 10 or more years of credited service who terminates employment but has not reached the age of retirement is a deferred member and is entitled to receive a monthly pension upon reaching age 60, provided the member's accumulated contributions have not been refunded. Deferred retirement is available after five years of service for State employees occupying unclassified positions in the executive and legislative branches and certain Department of Health and Human Services employees subject to reduction in forced layoffs by reason of deinstitutionalization.

Nonduty Disability Benefit

A member with 10 or more years of credited service who becomes totally and permanently disabled not due to performing duties as a State employee is eligible for a nonduty disability pension. The nonduty disability benefit is computed in the same manner as an age and service allowance based upon service and salary at the time of disability.

Duty Disability Benefit

A member who becomes totally and permanently disabled from performing duties as a State employee as a direct result of State employment, and who has not met the age and service requirement for a regular pension, is eligible for a duty disability pension. Public Act 109 of 2004 amended the State Employees' Retirement Act to change the calculation of the pension benefit and increase the minimum annual payment. If the member is under age 60, the duty disability allowance is now a minimum of $6,000 payable annually. At age 60 the benefit is recomputed under service retirement.

Survivor Benefit

Upon the death of a member who was vested, the surviving spouse shall receive a benefit calculated as if the member had retired the day before the date of death and selected a survivor pension. Certain designated beneficiaries can be named to receive a survivor benefit. Public Act 109 of 2004 amended the State Employees' Retirement Act to change the calculation of Duty Death benefits and redefines eligibility for deceased member's survivors. The new minimum duty-related death benefit has been increased to $6,000.

Pension Payment Options

When applying for retirement, an employee may name a person other than his or her spouse as a beneficiary if the spouse waives this right. If a beneficiary is named, the employee must choose whether the beneficiary will receive 100%, 75% or 50% of the retiree's pension benefit after the retiree's death. The decision is irrevocable. A description of the options follows.

Regular Pension

The pension benefit is computed with no beneficiary rights. If the retiree made contributions while an employee and has not received the total accumulated contributions before death, a refund of the balance of the contributions is made to the beneficiary of record. If the retiree did not make any contributions, there will not be payments to beneficiaries.

100% Survivor Pension

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. If the beneficiary predeceases the retiree, the pension "pops up" to the regular pension amount; another beneficiary cannot be named.

75% Survivor Pension

Under this option, after the retiree's death, the beneficiary will receive 75% 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 lower than the factor used in the 100% option previously described. If the beneficiary predeceases the retiree, the pension "pops up" to the regular pension amount; another beneficiary cannot be named.

50% Survivor Pension

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 lower than the factor used in the 100% or 75% option previously described. If the beneficiary predeceases the retiree, the pension "pops up" to the regular pension amount; another beneficiary cannot be named.

Equated Pension

An equated pension may be chosen by any member under age 65 except a disability retiree and an early supplemental retiree. Equated pensions provide an additional amount until age 65 and may be combined with Regular, 100%, 75% or 50% option. At age 65 the monthly amount is permanently reduced. The initial and

reduced amounts are based on an estimate of social security benefits at age 65, provided by the Social Security Administration Office. In order to calculate this benefit, members choosing this option must provide ORS with an estimate from the Social Security Administration Office. The actual amount received from social security may vary from the estimate.

Postretirement Adjustments

One-time upward benefit adjustments were made in 1972, 1974, 1976, 1977 and 1987. Beginning October 1, 1988, a 3% non-compounding increase, up to a maximum of $25 monthly, is paid each October to recipients who have been retired 12 full months. Beginning in 1983, eligible benefit recipients share in a distribution of investment income earned in excess of 8% annually. This distribution is known as the supplemental payment. The supplemental payment is offset by one year's cumulative increases received after the implementation of the annual 3% increase in benefits. These adjustment payments were not issued during fiscal years 1991 through 1994. Members who retired on or after October 1, 1987, are not eligible for the supplemental payment.

Member Contributions

Under Public Act 264 of 2011, members who voluntarily elected to remain in the DB plan contribute 4% of compensation to the retirement system. In addition, members may voluntarily contribute to the System for the purchase of creditable service, such as military service or maternity leave, or a universal buy-in. If a member terminates 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.

Employer Contributions

The statute requires the employer to contribute to finance the benefits of plan members. These employer contributions are determined annually by the System's actuary and are based upon level-dollar value funding principles so the contribution rates do not have to increase over time.

Banked Leave Time

Public Act 33 of 2004 amended the State Employees' Retirement Act to include Banked Leave Time (BLT) for members. BLT is an extension of the State's current annual leave program, which banks a predetermined number of hours per pay period. However, the BLT program will not have an effect on a member's final average compensation calculation.

BENEFIT PROVISIONS – OTHER POSTEMPLOYMENT

Introduction

Benefit provisions of the other postemployment benefit (OPEB) plan are established by State statute, which may be amended. Public Act 240 of 1943, as amended, establishes eligibility and benefit provisions for the OPEB plan. Defined Benefit (Tier 1) members are eligible to receive health, prescription drug, dental, and vision coverage on the first day they start receiving pension benefits. Defined Contribution (Tier 2) participants who elected to retain the graded premium subsidy benefit under the reform elections of Public Act 264 of 2011 are also eligible to receive subsidized health prescription drug, dental and vision coverage after terminating employment, if they meet eligibility requirements. There is no provision for ad hoc or automatic increases. The State Employees' Retirement Act requires joint authorization by DTMB and the Civil Service Commission to make changes to retiree medical benefit plans. Defined Contribution (Tier 2) participants who elected the Personal Healthcare Fund under Public Act 264 of 2011, and those hired on or after January 1, 2012, are not eligible for any subsidized health, prescription drug, dental or vision coverage in retirement, but may purchase it at their own expense (certain conditions apply).

Former nonvested members of the DB plan who are reemployed by the state on or after January 1, 2014 are not eligible for retiree health insurance coverage premium subsidy but will become a participant in the Personal Healthcare Fund described on page 22.

Public Act 185 of 2010 required that each actively employed member or qualified participants of the System, beginning with the first pay date after November 1, 2010, and ending September 30, 2013, contribute an amount equal to 3% of the member's or qualified participant's compensation toward retiree healthcare. Public Act 264 of 2011 rescinded that provision and refunded any collected contributions to all members.

In addition to member contributions, the employer funds OPEB benefits for both Tier 1 and Tier 2 members on a prefunded basis. Retirees with the Premium Subsidy benefit contribute 20% of the monthly premium amount for the health (including prescription coverage), dental and vision coverage. Retirees with a graded premium subsidy benefit accrue credit towards insurance premiums in retirement, earnings a 30% subsidy with ten years of service, with an additional 3% subsidy for each year of service thereafter, not to exceed the maximum allowed by statute or 80%.

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. Contributions from the employers 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. The reserves are described below, and details are provided in the supporting schedules.

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 total and net pension and other postemployment benefit liabilities. It also includes comprehensive note disclosures regarding the pension and other postemployment benefit liabilities, 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 on page 29, Note 5 on page 32, and in the Required Supplementary Information beginning on page 45.

As of September 30, 2016, the System applied 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

Reserve for Employee Contributions

Beginning April 2012, members contribute 4% of their compensation to this reserve as well as purchases of eligible service credit and repay previously refunded contributions. This reserve represents active member contributions and interest less amounts transferred to the Reserve for Retired Benefit Payments for regular and disability retirement, amounts refunded to terminated members and unclaimed amounts transferred to the income account. At September 30, 2020, the balance in this reserve was $265.2 million.

Reserve for Employer Contributions

All employer contributions are credited to this reserve. Interest from the income account is credited annually. Amounts are transferred annually from this reserve to the Reserve for Retired Benefit Payments to fund that reserve. At September 30, 2020, the balance in this reserve was ($10.6) million.

Reserve for Retired Benefit Payments

This 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. Monthly benefits, which are paid to the retiree, reduce the reserve. At the end of each fiscal year, an amount determined by an annual actuarial valuation is transferred from the Reserve for Employer Contributions to this reserve to bring the reserve into balance with the actuarial present value of retirement allowances. At September 30, 2020, the balance in this reserve was $15.0 billion.

Reserve for Undistributed Investment Income

The net investment earnings (losses) are recorded in this reserve. Interest as authorized by the board is transferred annually to the other reserves. Administrative expenses are paid from this reserve. At September 30, 2020, the net balance of this reserve was ($3.2) billion.

Reserve for Health (OPEB) Related Benefits

This reserve is credited with employee and employer contributions for retirees' health (including prescription coverage), dental, and vision benefits. Starting in fiscal year 2012, the employer contribution 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. In addition, in fiscal year 2020, 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, 2020, the balance in this reserve was $3.6 billion.

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. As of September 30, 1998, all capitalized equipment was fully depreciated. No additional equipment has been capitalized for the System since that date.

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.

		2020 (in thousands)
Building Rentals	$	162
Technological Support		1,840
Attorney General		113
Investment Services		3,713
Personnel Services		3,513

Cash

At September 30, 2020, the System had $224.0 million 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 ($1.3) million for the year ended September 30, 2020.

NOTE 3 – CONTRIBUTIONS

The State is required by Public Act 240 of 1943, as amended, to contribute amounts necessary to finance the coverage of members and retiree benefits. Members currently participate in the System on a contributory basis of 4% of the annual compensation to the pension plan. Under certain circumstances, members may contribute to the System for the purchase of creditable service, such as military service or maternity leave. Effective August 1, 1998, the retirement act was amended to permit a universal buy-in. With a universal buy-in, a member may elect to purchase no more than 5 years of service credit (less other service credit purchased). Contribution provisions are specified by State statute and may be amended only by action of the State Legislature.

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 normal cost is the annual cost assigned, under the actuarial funding method, to the current and subsequent plan years 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, 2020, were determined as of the September 30, 2017 actuarial valuations. The pension and OPEB unfunded (overfunded) actuarial accrued liabilities (UAAL) as of September 30, 2017, are amortized over a 17 year period beginning October 1, 2019 and ending September 30, 2036. The UAAL amortization payment portion of the contribution rates is charged across the covered payroll of all current employees in the defined benefit and the defined contribution plans, in accordance with Public Act 240 of 1943, Section 38.38. All sources that fund the covered payroll are charged a proportionate share of the UAAL amortization payment. The schedule on the next page summarizes pension and OPEB contribution rates in effect for fiscal year 2020.

Pension Contribution Rates

Benefit Structure	Member	Employer
Defined Benefit*	0.0 - 4.0 %	23.82 – 27.72%
Defined Contribution	0.0	16.99

* Employee Contributions are not mandatory if the member's pension is frozen.

OPEB Contribution Rates

Benefit Structure	Member	Employer
Defined Benefit	0.0 %	20.67 %
Defined Contribution – Premium Subsidy	0.0	20.67
Defined Contribution – Personal Health Care	0.0	20.67

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

In March 2001, the Internal Revenue Service issued a private letter ruling allowing the System's members to purchase service credit and repay refunds using tax-deferred (pre-tax) dollars. The program was implemented and payments began in fiscal year 2002.

The program allows members to purchase service credit and repay refunds on a tax-deferred basis. Members sign an irrevocable agreement that identifies the contract duration, monthly payment, total contract amount, and years of service credit being purchased. The duration of the contract can range from 1 to 20 years. The amounts are withheld from the members' paycheck and are treated as employer pick-up contributions pursuant to Internal Revenue Code Section 414(h). At September 30, 2020, there were 568 agreements. Agreement amounts that will not be collected within 12 months are discounted using the contractual interest rate of 8.00%. The average length remaining of a contract was approximately 6.8 years for 2020. The short-term receivable was $913 thousand and the discounted long-term receivable was $2.7 million at September 30, 2020.

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).

Net Pension Liability

(in thousands)

Total Pension Liability	$	18,773,136
Plan Fiduciary Net Position		12,027,536
Net Pension Liability	$	6,745,600
Plan Fiduciary Net Position as a Percentage of Total Pension Liability		64.07%
Net Pension Liability as a Percentage of Covered Payroll		199.55%
Total Covered Payroll	$	3,380,365

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, 2020, are summarized in the following table:

	Asset Allocation	
Asset Class	**Target Allocation**	**Long-Term Expected Real Rate of Return***
Domestic Equity Pools	25.0 %	5.6 %
Private Equity Pools	16.0	9.3
International Equity Pools	15.0	7.4
Fixed Income Pools	10.5	0.5
Real Estate and Infrastructure Pools	10.0	4.9
Absolute Return Pools	9.0	3.2
Real Return and Opportunistic Pools	12.5	6.6
Short-Term Investment Pools	2.0	(0.1)
TOTAL	**100.0 %**	

* Long-term rates of return are net of administrative expenses and 2.1% inflation.

RATE OF RETURN

For the fiscal year ended September 30, 2020, the annual money-weighted rate of return on pension plan investment, net of pension plan investment expense, was 5.33%. 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 6.70% was used to measure the total pension liability for fiscal year 2020. In fiscal year 2019, the single discount rate used to measure the total pension liability was 6.70%. This single discount rate was based on the expected rate of return on pension plan investments of 6.70%. 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 pension plan's fiduciary net position is expected 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 all periods of 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, we determined the sensitivity of the net pension liability to changes in the single discount rate. The table presents the plan's net pension liability, in thousands, calculated using a single discount rate of 6.70%, 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	**Current Discount Rate Assumption**	**1% Increase**
5.70%	6.70%	7.70%
$8,608,706	$6,745,600	$5,159,237

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, 2020, is based on the results of an actuarial valuation date of September 30, 2019 and rolled-forward using generally accepted actuarial procedures.

ACTUARIAL VALUATIONS AND ASSUMPTIONS

Actuarial valuation for the pension plan involves 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.

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 follows:

Summary of Actuarial Assumptions

Valuation Date	September 30, 2019
Actuarial Cost Method	Entry Age, Normal
Asset Valuation Method	Fair Value
Actuarial Assumptions:	
Wage Inflation Rate	2.75%
Investment Rate of Return	6.70%, net of investment expenses
Projected Salary Increases	2.75% - 11.75%, including wage inflation at 2.75%
Cost-of-Living Pension Adjustments	3% annual non-compounded with maximum annual Increase of $300 for those eligible
Mortality	
Retirees	RP-2014 Male and Female Healthy Annuitant Mortality Tables scaled by 93% for males and 98% for females and adjusted for mortality improvements using projection scale MP-2017 from 2006.
Active	RP-2014 Male and Female Employee Mortality Table scaled by 100% for males and 100% for females and adjusted for mortality improvements using projection scale MP-2017 from 2006.
Disabled Retirees	RP-2014 Male and Female Disabled Annuitant Mortality Table scaled by 100% for males and 100% for females 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 the September 30, 2018 Comprehensive Annual Financial Report.

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

(in thousands)

Total OPEB Liability	$	9,460,695
Plan Fiduciary Net Position		3,622,219
Net OPEB Liability	$	5,838,476
Plan Fiduciary Net Position as a Percentage of Total OPEB Liability		38.29%
Net OPEB Liability as a Percentage of Covered Payroll		172.72%
Total Covered Payroll	$	3,380,365

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 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 were provided by the Bureau of Investments (BOI) for each major asset class included in the pension plan's target asset allocation as of September 30, 2020. These best estimates are summarized in the following table:

Asset Allocation

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return*
Domestic Equity Pools	25.0 %	5.6 %
Private Equity Pools	16.0	9.3
International Equity Pools	15.0	7.4
Fixed Income Pools	10.5	0.5
Real Estate and Infrastructure Pools	10.0	4.9
Absolute Return Pools	9.0	3.2
Real Return and Opportunistic Pools	12.5	6.6
Short-Term Investment Pools	2.0	(0.1)
TOTAL	**100.0** %	

* Long-term rates of return are net of administrative expenses and 2.1% inflation.

RATE OF RETURN

For the fiscal year ended September 30, 2020, the annual money-weighted rate of return on OPEB plan investment, net of OPEB plan investment expense, was 5.17%. 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 6.90% was used to measure the total OPEB liability for fiscal year 2020. In fiscal year 2019, the single discount rate used to measure the total OPEB liability was 6.90%. This single discount rate was based on the expected rate of return on OPEB plan investments of 6.90%. 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, we have determined the sensitivity of the net OPEB liability, in thousands, to changes in the single discount rate. The following table presents the plan's net OPEB liability, calculated using a single discount rate of 6.90%, 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 5.90%	Current Discount Rate Assumption 6.90%	1% Increase 7.90%
$6,952,351	$5,838,476	$4,903,126

SENSITIVITY OF THE NET OPEB LIABILITY TO HEALTHCARE COST TREND RATE

As required by GASB Statement No. 74, we have determined the sensitivity of the net OPEB liability to changes in the healthcare cost trend rates. The following table presents the plan's net OPEB liability, in thousands, calculated using 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
$4,856,096	$5,838,476	$6,973,959

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, 2020, is based on the results of an actuarial valuation date of September 30, 2019, and rolled-forward using generally accepted actuarial procedures.

ACTUARIAL VALUATIONS AND ASSUMPTIONS

Actuarial valuations for the OPEB plan involves 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.

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 follows:

Summary of Actuarial Assumptions

Valuation Date	September 30, 2019
Actuarial Cost Method	Entry Age, Normal
Asset Valuation Method	Fair Value
Actuarial Assumptions:	
Wage Inflation Rate	2.75%
Investment Rate of Return	6.90%, net of investment expenses
Projected Salary Increases	2.75% - 11.75%, including wage inflation at 2.75%
Healthcare Cost Trend Rate[2]	7.50% Year 1 graded to 3.50% Year 15; 3.00% Year 120
Mortality	
Retirees	RP-2014 Male and Female Healthy Annuitant Mortality Table scaled by 93% for males and 98% for females and adjusted for mortality improvements using projection scale MP-2017 from 2006.
Active	RP-2014 Male and Female Employee Mortality Table scaled by 100% for males and 100% for females and adjusted for mortality improvements using projection scale MP-2017 from 2006.
Disabled Retirees	RP-2014 Male and Female Disabled Annuitant Mortality Table scaled by 100% for males and 100% for females and adjusted for mortality improvements using projection scale MP-2017 from 2006.
Other Assumptions OPEB only:[1]	
Opt Out Assumption	10% of eligible participants are assumed to opt out of the retiree health plan (0% of MRP participants).
Survivor Coverage	80% of male and 67% of female future retirees are assumed to have coverage continuing after the retiree's death when 2-person coverage was assumed to be elected (100% of MRP participants).
Coverage Election at Retirement	75% of male and 60% of female future retirees and MRP: 90% of male and 90% 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 OPEB liability beginning with the September 30, 2018 Comprehensive Annual Financial Report.

[1] Applies to State employees hired before January 1, 2012.

[2] Applies to Medical and prescription drug (Rx) payments.

NOTE 6 – INVESTMENTS

INVESTMENT AUTHORITY

The State of Michigan Investment Board (Board) was created by Executive Order 2018-10 (Order) and serves as the investment fiduciary over the assets of the State sponsored defined benefit retirement systems. The Board is responsible for investing the System's assets in accordance with the duties and powers enumerated in the Order and with Public Act 380 of 1965, as amended. 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.

DERIVATIVE INSTRUMENTS

The Board employs the use of derivative instruments in the investment of the pension and other employee benefit trust funds (the trust funds).

Derivative instruments are used in managing the trust fund portfolios, but uses do not include speculation or leverage of investments. State investment statutes limit total derivative instrument 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 instrument 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 instrument exposure limitation. Less than 15% of the total trust funds' portfolio has been invested from time to time in future contracts, swap agreements, structured notes, options and forward contracts.

The derivative instrument fair values are reported on the *Statement of Pension Plan and Other Postemployment Benefit Plan Fiduciary Net Position* as of September 30, 2020, in their respective investment pool's fair value. Derivative instrument 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, 2020, 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".

Derivative Instrument Investment Table as of September 30, 2020 (in millions):

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
Future Contracts Fixed Income and International Equity Investments	- %	$ (144.9)	$ 0.4	$ (5.3)	$ -	$ -
Option Contracts Equity, Fixed Income and International Equity Investments	0.4%	1,318.0	56.3	49.6	-	-
Swap Agreements Fixed Income and International Equity Investments	2.3%	527.9	362.2	10.2	(5.8)	54.6
Total		$ 1,701.0	$ 418.9	$ 54.5	$ (5.8)	$ 54.6

To diversify the trust funds' portfolio, the Board 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 swap 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 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 2020 to June 2021. 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.

To reduce the risk in the Fixed Income and International Equity portfolio, the Board has entered into FX swap agreements, interest rate swap agreements and credit default swap agreements with investment grade counterparties. The FX swap agreements are tied to foreign currency forward exchange rates and are used to reduce the currency risk within the Fixed Income portfolio. The swap agreements are entered into on an as-needed basis and are generally tied to the maturity of a 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 and International Equity 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 a 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. For the Over-The-Counter (OTC) derivative instrument investments, the system held collateral of $13.5 million in cash deposits and $8.3 million in securities on behalf of counterparties. Collateral securities in the amount of $3.5 million were held on our behalf by counterparties.

The Board traded bond future contracts to manage duration, yield curve exposure, adjust interest rate exposures and replicate government bond positions.

To enhance returns while limiting downside risk, the Board traded equity options in single securities and on indices in the Large Cap Core and All Cap GARP funds. Attractively priced equity options were used for the purpose of stock replacement, in order to drive excess returns over the S&P 500, as well as to provide added exposure to strong equity markets while limiting principal at risk. Put options are used to protect against large negative moves in the market indices. Options traded by the Board in the Fixed Income and International Equity pools are used to manage interest rate and volatility exposures. Written options generate income in expected interest rate scenarios and may generate capital losses, if unexpected 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. However, purchased options are often sold well before expiration in order to lock in profits at prices well below listed strike prices, and thereby generate consistent returns.

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 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 Board, 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 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, 2020, such investment pool had an average duration of 27 days and an average weighted final maturity of 67 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, 2020, 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, 2020, was $633,795 thousand and $619,751 thousand, 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 rating 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 Board 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 Board Investment Policy Statement for the System. Public Act 314 defines investment grade as investments in the top four major grades, rated by one of the NRSROs. At September 30, 2020, the System was in compliance with Public Act 314 and the Investment Policy Statement in all material aspects.

Rated Debt Investments
(in thousands)
As of September 30, 2020

Investment Type	Fair Value	S&P	Fair Value	Moody's
Short Term	$ 662,730	A-1	$ 662,730	P-1
Money Market	34,346	AAA	34,346	Aaa
Government Securities				
U.S. Agencies- Sponsored	467	AAA	331,916	Aaa
	331,449	AA	-	Aa
Fixed Income				
	74,163	AAA	114,717	Aaa
	47,350	AA	45,689	Aa
	113,573	A	166,276	A
	277,838	BBB	218,290	Baa
	86,442	BB	103,089	Ba
	53,830	B	71,653	B
	32,629	CCC	32,304	Caa
	19,853	CC	21,987	Ca
	81	C	96	C
	8,281	D	-	D
	446,038	NR	385,975	NR
Securities Lending Collateral				
Short Term	199,648	A-1	199,648	P-1
Fixed Income	15,583	AA	72,977	Aa
	418,563	A	231,709	A
	-	NR	129,460	NR
Mutual Funds	20,257	BBB	20,257	Baa
	31,439	BB	31,439	Ba
Total	$ 2,874,559		$ 2,874,559	

NR – Not Rated

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

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 Board does not have a policy for custodial credit risk. However, the State's custodial bank had a credit rating of A at September 30, 2020. As of September 30, 2020, 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, 2020, 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 Board'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, 2020, the fair value of the System's short-term investments was $697.1 million with the weighted average maturity of 101 days.

The Board 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, 2020

	Fair Value	Effective Duration in Years
Government		
U. S. Treasury	$ 621,996	8.2
U. S. Agencies - Backed	84,487	0.9
U. S. Agencies - Sponsored	331,916	2.1
Corporate	1,151,831	3.2
International*		
U. S. Treasury	224,839	0.9
Corporate	59,941	0.9
Total	$ 2,475,009	

Debt securities are exclusive of securities lending collateral.

* International contains Domestic Government and Corporate Debt Securities as a part of their derivative instrument 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 Board 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, 2020, the total amount of foreign investment subject to foreign currency risk was $2,377.0 million, which amounted to 15.3% of total investments (exclusive of securities lending collateral) of the System.

Foreign Currency Risk

(in thousands)
As of September 30, 2020

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		$ 367	$ 1,860	$ 3,452
	Canada	Dollar		312	17,147	6,200
	Mexico	Peso	$ 119	1,226	2,355	20,311
	Peru	Sol		236		
	Colombia	Peso		92		
	Chile	Peso		1,480		
	Argentina	Peso			741	
PACIFIC						
	Australia	Dollar	76	771	14,947	
	Hong Kong	Dollar			15,245	
	India	Rupee	2,031	385		21,305
	Indonesia	Rupiah	62	292		
	Japan	Yen	970	3,098	32,359	
	Malaysia	Ringgit		1,002		
	Taiwan	New Dollar	1,803		3,992	
	China	Renminbi	2,787		9,250	572
	Singapore	Dollar	711	176	0	
	South Korea	Won		8,430	3,008	
	Thailand	Baht		465		
	New Zeeland	Dollar			2,255	
	China	Yuan		(7)	95	
	China	Yuan Offshore			(95)	
EUROPE						
	Denmark	Krone			6,391	
	European Union	Euro	25,379	23,584	59,936	110,490
	Hungary	Forint				
	Poland	Zloty		(91)		
	United Kingdom	Pound Sterling	3,312	2,159	32,944	13,575
	Romania	Leu				
	Sweden	Krona		50	23,799	
	Switzerland	Franc	2,132		4,884	
	Turkey	Lira			0	
	Czech Republic	Koruna		114		
	Russia	Ruble		280		
AFRICA						
	South Africa	Rand	179	413	1,835	
	Egypt	Pound		187		
	Liberia	Dollar	683			
MIDDLE EAST						
	Israel	New Shekel		1,083		
OTHER						
	Various	Various		22,516	1,426,742	432,522
	Total		$ 40,245	$ 68,619	$ 1,659,691	$ 608,428

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 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, 2020. 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 below.

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.

Investments by fair value level:	Balance at September 30, 2020	Fair Value Measurement Using (in thousands) Quoted Prices In Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Total cash and cash Equivalents	$ 87,802	$ 994	$ 86,808	-
Equity				
Depository Receipts	29,055	29,055	-	-
Warrants	1	1	-	-
Common Stocks	2,893,437	2,893,437	-	-
Preferred Stocks	3,281	3,281	-	-
Real Estate Investment Trusts	131,493	131,493	-	-
Swaps	5,231	-	5,231	-
Commingled Funds, ETF's and PTP's	1,706,877	1,706,877	-	-
Options	56,348	56,408	(60)	-
Convertible Bonds	123	-	123	-
Total Equity	4,825,844	4,820,551	5,294	-
Fixed Income				
Asset Backed	397,559	-	393,813	$ 3,747
Corporate Bonds	467,107	-	462,589	4,518
Commercial mortgage-backed	336,955	-	336,865	89
Government Issues	911,379	846,967	64,412	-
Swaps	(6,059)	-	(6,059)	-
US Agency Issues	309,374	-	309,374	-
Forwards	-		-	-
Commingled Funds, ETF's and PTP's	156,457	156,457	-	-
Options	(84)	-	(84)	-
Total Fixed Income	2,572,689	1,003,424	1,560,910	8,355
Total investments by fair value level	**$ 7,486,335**	**$ 5,824,969**	**$ 1,653,012**	**$ 8,355**

Investments measured at the net asset value (NAV)	
Private Equity	$ 3,006,698
Real Estate & Infrastructure	1,217,189
Absolute Return	738,836
Real Return & Opportunistic	1,866,432
Other Limited Partnerships	433,314
Total investments measured at the NAV	**$ 7,262,469**
Total investments measured at fair value	**$ 14,748,805**

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 (in thousands)

Total investments measured at the NAV	$ 3,006,698
Unfunded commitments	1,545.511

Private Equity funds. This types of investment includes investments in approximately 291 partnerships that invest in leveraged buyouts, venture capital, mezzanine debt, distressed debt, secondary funds and other investments. This 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, 2020, 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, 2020, a buyer for these investments has not been identified.

Real Estate and Infrastructure (in thousands)

Total investments measured at the NAV	$	1,217,189
Unfunded commitments		267,161

Real Estate and Infrastructure funds include approximately 105 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 (in thousands)

Total investments measured at the NAV	$	738,836
Unfunded commitments		174,471

This type includes approximately 8 investments 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 type have been determined using the NAV per share (or its equivalent) of the investments. For 76.3% of the investments, investors may redeem at various dates between October 1, 2020 and April 1, 2022; 6.1% of the investments are redeemable between April 1, 2022 through April 1, 2023; and the remaining 17.6% is not redeemable on demand.

Real Return and Opportunistic Portfolio (in thousands)

Total investments measured at the NAV	$	1,866,432
Unfunded commitments		684,447

This type includes approximately 90 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 type 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.

All Other Investments (in thousands)

Total investments measured at the NAV	$	433,314
Unfunded commitments		32,005

The balance of plan assets reported at fair value includes 13 investments:

- LPs that invest in fixed income investments such as; residential rehabilitation, middle market business loans and senior secured debt financing. These investments cannot be redeemed by limited partners. Distributions are received through the liquidation of the underlying assets of the fund.
- LPs that invest in fixed income type investments permitting partners to request redemption monthly or quarterly, after initial lock up period of 1 year or less, requiring 45 to 65 days' advance notice.

- LPs investing in global investments permitting partners to request partial redemptions quarterly or monthly, with advance notice, subject to the sole discretion of the general partner.
- LPs that invest in private equity, private credit/loans, and tangible real assets that cannot be redeemed by limited partners. Distributions from each fund will be received as the underlying investments of the funds are liquidated.

NOTE 7 – COMMITMENTS AND CONTINGENCIES

Under the Administrative Procedures Act, members may appeal a decision made by the Retirement 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.

SCHEDULE OF CHANGES IN NET PENSION LIABILITY

(in thousands)

	Fiscal Year						
	2020	2019	2018	2017	2016	2015	2014
Total Pension Liability							
Service Cost	$ 62,891	$ 64,690	$ 71,912	$ 68,311	$ 74,042	$ 80,413	$ 84,040
Interest	1,220,112	1,244,463	1,226,594	1,251,600	1,250,117	1,242,353	1,206,258
Changes of benefit terms	-	-	-	-	-	-	-
Differences between expected and actual experience	27,308	25,071	115,726	19,798	3,441	55,072	-
Changes of assumptions	-	514,809	1,393,264	710,646	-	-	406,962
Benefit payments, including refunds of member contributions	(1,432,712)	(1,398,381)	(1,362,481)	(1,322,657)	(1,289,728)	(1,265,480)	(1,223,033)
Net Change in Total Pension Liability	(122,402)	450,651	1,445,015	727,697	37,872	112,358	474,227
Total Pension Liability - Beginning	18,895,538	18,444,887	16,999,872	16,272,175	16,234,303	16,121,945	15,947,718
Total Pension Liability - Ending (a)	$ 18,773,136	$ 18,895,538	$ 18,444,887	$ 16,999,872	$ 16,272,175	$ 16,234,303	$ 16,121,945
Plan Fiduciary Net Position							
Contributions - Employer	$ 613,729	$ 600,083	$ 650,740	$ 703,131	$ 716,465	$ 749,332	$ 705,100
Contributions - Member	25,265	28,442	35,598	40,839	46,666	46,688	47,527
Net Investment Income	599,246	611,140	1,273,509	1,411,395	781,528	232,588	1,529,626
Benefit payments, including refunds of member contributions	(1,432,712)	(1,398,381)	(1,362,481)	(1,322,657)	(1,289,728)	(1,265,480)	(1,223,033)
Administrative and Other Expenses	(5,956)	(6,988)	(6,488)	(6,285)	(6,629)	(6,228)	(6,931)
Other	73	(4,406)	64	294	278	55	-
Net Change in Plan Fiduciary Net Position	(200,356)	(170,109)	590,942	826,716	248,580	(243,045)	1,052,290
Plan Fiduciary Net Position - Beginning	12,227,892	12,398,002	11,807,059	10,980,343	10,731,762	10,974,806	9,922,516
Plan Fiduciary Net Position - Ending (b)	$ 12,027,536	$ 12,227,892	$ 12,398,002	$ 11,807,059	$ 10,980,343	$ 10,731,762	$ 10,974,806
Net Pension Liability - Ending (a) - (b)	$ 6,745,600	$ 6,667,646	$ 6,046,886	$ 5,192,813	$ 5,291,832	$ 5,502,541	$ 5,147,139
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	64.07%	64.71%	67.22%	69.45%	67.48%	66.11%	68.07%
Covered Payroll*	$ 3,380,365	$ 3,220,895	$ 3,115,261	$ 3,050,238	$ 872,358	$ 946,977	$ 1,006,633
Net Pension Liability as a Percentage of Covered Payroll	199.55%	207.01%	194.11%	170.24%	606.61%	581.06%	511.32%

* Covered payroll based on implementation of GASB 82

SCHEDULE OF CHANGES IN NET OPEB LIABILITY

(in thousands)

	Fiscal Year			
	2020	2019	2018	2017
Total OPEB Liability				
Service Cost	$ 93,810	$ 90,760	$ 93,346	$ 108,530
Interest	746,333	723,058	760,408	735,979
Changes of benefit terms	-	-	-	-
Differences between expected and actual experience	(2,570,285)	(941,588)	(1,055,687)	(71,816)
Changes of assumptions	569,841	975,792	809,101	-
Benefit payments, including refunds of member contributions	(297,051)	(427,977)	(402,543)	(476,200)
Net Change in Total OPEB Liability	(1,457,351)	420,045	204,625	296,493
Total OPEB Liability - Beginning	10,918,046	10,498,001	10,293,376	9,996,883
Total OPEB Liability - Ending (a)	$ 9,460,695	$ 10,918,046	$ 10,498,001	$ 10,293,376
Plan Fiduciary Net Position				
Contributions - Employer	$ 703,567	$ 765,235	$ 688,884	$ 703,330
Contributions - Member	-	-	-	27
Net Investment Income	163,011	144,126	229,539	217,955
Benefit payments, including refunds of member contributions	(297,051)	(427,977)	(402,543)	(476,200)
Administrative and Other Expenses	(1,017)	(377)	(459)	(445)
Other	9,816	66	172	778
Net Change in Plan Fiduciary Net Position	578,325	481,072	515,592	445,447
Plan Fiduciary Net Position - Beginning	3,043,893	2,562,821	2,047,229	1,601,782
Plan Fiduciary Net Position - Ending (b)	$ 3,622,219	$ 3,043,893	$ 2,562,821	$ 2,047,229
Net OPEB Liability - Ending (a) - (b)	$ 5,838,476	$ 7,874,153	$ 7,935,180	$ 8,246,147
Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	38.29%	27.88%	24.41%	19.89%
Covered Payroll*	$ 3,380,365	$ 3,220,895	$ 3,115,261	$ 3,050,238
Net OPEB Liability as a Percentage of Covered Payroll	172.72%	244.47%	254.72%	270.34%

* Covered payroll based on implementation of GASB 85.

SCHEDULES OF CONTRIBUTIONS

PENSION BENEFITS

(in thousands)

Fiscal Year Ended Sept. 30	Actuarially Determined Contribution (ADC)	Actual Employer Contribution	Contribution Deficiency (Excess)	Covered Payroll[2]	Actual Contribution as a % of Covered Payroll
2011	$ 447,924	$ 424,547	$ 23,377	$ 1,276,058	33.3 %
2012 [1]	512,616	419,927	92,689	1,155,591	36.3
2013	611,132	604,845	6,287	1,081,729	55.9
2014	624,467	705,100	(80,633)	1,006,633	70.0
2015 [1]	654,515	749,332	(94,817)	946,977	79.1
2016	752,161	716,465	35,697	872,358	82.1
2017	709,651	703,131	6,520	3,050,238	23.1
2018	627,621	650,740	(23,118)	3,115,261	20.9
2019	592,909	600,083	(7,175)	3,220,895	18.6
2020	601,956	613,729	(11,773)	3,380,365	18.2

[1] Revised actuarial assumptions

[2] Beginning fiscal year 2017, Covered payroll based on implementation of GASB 82.

OTHER POSTEMPLOYMENT BENEFITS

(in thousands)

Fiscal Year Ended Sept. 30	Actuarially Determined Contribution (ADC)	Actual Employer Contribution	Contribution Deficiency (Excess)	Covered Payroll[2]	Actual Contribution as a % of Covered Payroll
2011	$ 1,020,144	$ 452,969	$ 567,175	$ 3,039,875	14.9 %
2012	960,640	672,655	287,984	2,895,193	23.2
2013 [1]	678,650	729,863	(51,213)	2,881,140	25.3
2014	619,512	755,883	(136,371)	2,857,324	26.5
2015 [1]	645,412	713,661	(68,249)	3,029,113	23.6
2016	659,698	686,652	(26,954)	2,989,101	23.0
2017	676,227	703,330	(27,103)	3,050,238	23.1
2018	744,210	688,884	55,326	3,115,261	22.1
2019	762,743	765,235	(2,492)	3,220,895	23.8
2020	681,397	703,567	(22,170)	3,380,365	20.8

[1] Revised actuarial assumptions

[2] Beginning fiscal year 2017, Covered payroll based on implementation of GASB 85.

SCHEDULES OF INVESTMENT RETURNS

PENSION BENEFITS

Fiscal Year	Annual Return[1]
2014	14.01 %
2015	1.01
2016	5.90
2017	13.24
2018	11.10
2019	5.12
2020	5.33

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

OPEB BENEFITS

Fiscal Year	Annual Return[1]
2017	13.30 %
2018	10.86
2019	5.79
2020	5.17

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

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 presented to show the responsibility of the Employer in meeting the actuarial requirements to maintain the System on a sound financial basis.

The Schedules of Changes in Net Pension and OPEB Liability, Schedules of Contributions, and Schedules 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 Schedules of Changes in Net Pension and OPEB Liability represents in actuarial terms, the accrued liability less the fair value of assets represents in actuarial terms, the accrued liability less the fair value of assets. The Schedules 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.

The actuarially determined contributions presented in the Schedule of Contributions for pension and OPEB are calculated as of September 30, three years prior to the end of the fiscal year in which contributions are reported. The following actuarial methods and assumptions were used to determine the fiscal year 2020 contributions reported in that schedule.

Methods and Assumptions Used to Determine Contributions for Fiscal Year 2020:

Pension and OPEB	
Valuation Date	September 30, 2017
Actuarial Cost Method	Entry Age, Normal
Remaining Amortization Period	17 years, as of October 1, 2019, ending September 30, 2036
Price Inflation	2.50%
Projected Salary Increases[1]	3.50% - 12.50%, including wage inflation at 3.50%
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition.
Mortality[2]	
Retirees	RP-2000 Combined Healthy Life Mortality Tables, adjusted for mortality improvements to 2015 (2030 for male MRP special duty officers) using projection scale BB. 100% of the male table rates were used for males and 100% of the female table rates were used for females.
Active	RP-2000 Combined Healthy Life Mortality Table, adjusted for mortality improvements to 2015 (2030 for MRP male special duty officers) using projection scale BB. 50% of the male table rates were used for males and 50% of the female table rates were used for females.
Pension[1]	
Investment Rate of Return	7.00% net of investment and administrative expenses
Asset Valuation Method	5 year smoothed fair value
Amortization Method	Level dollar, closed period
OPEB	
Investment Rate of Return	7.35% net of investment and administrative expenses
Asset Valuation Method	Fair value
Amortization Method	Level percent of payroll, closed period
Projected Salary Increases	3.50% for MRP special duty officers only.
Healthcare Cost Trend Rates[3]	8.25% Year 1 Graded to 3.50% Year 9
Aging Factors	Based on 2013 SOA “Health Care Costs – From Birth to Death”
Notes	Some of the assumptions used to develop the 2020 Total Pension Liability (TPL) and the 2020 Total OPEB Liability (TOL) are different than the assumptions shown above. The assumptions used to develop the TPL are described in Note 4 (page 29) of this report and the assumptions used to develop the TOL are described in Note 5 (page 32) of this report.

[1] Applies to SERS only.
[2] For MRP special duty officers and their beneficiaries, mortality assumptions apply only for the OPEB plan.
[3] Applies to medical and Rx payments.

SUMMARY SCHEDULE OF PENSION PLAN ADMINISTRATIVE AND OTHER EXPENSES

For Fiscal Year Ended September 30, 2020
(in thousands)

Personnel Services:		
Staff Salaries	$	1,810
Staff Retirement and Social Security		979
Staff Other Fringe Benefits		366
Total		3,155
Professional Services:		
Accounting		273
Actuarial		130
Attorney General		113
Audit		133
Consulting		10
Medical		146
Total		805
Building and Equipment:		
Building Rentals		129
Equipment Purchase, Maintenance, and Rentals		5
Total		134
Miscellaneous:		
Travel and Board Meetings		2
Office Supplies		1
Postage, Telephone, and Other		350
Printing		39
Technological Support		1,470
Total		1,861
Total Administrative and Other Expenses	$	5,956

SUMMARY SCHEDULE OF OPEB PLAN ADMINISTRATIVE AND OTHER EXPENSES

For Fiscal Year Ended September 30, 2020
(in thousands)

Personnel Services:		
Staff Salaries	$	205
Staff Retirement and Social Security		111
Staff Other Fringe Benefits		41
Total		358
Professional Services:		
Accounting		69
Actuarial		33
Audit		33
Consulting		3
Medical		37
Total		174
Building and Equipment:		
Building Rentals		33
Equipment Purchase, Maintenance, and Rentals		1
Total		34
Miscellaneous:		
Travel and Board Meetings		-
Office Supplies		-
Postage, Telephone, and Other		71
Printing		10
Technological Support		370
Total		451
Retiree Insurance Providers:		
Health Fees		13,294
Dental Fees		1,660
Vision Fees		71
Total		15,026
Total Administrative and Other Expenses	$	16,042

SCHEDULE OF INVESTMENT EXPENSES

For Fiscal Year Ended September 30, 2020
(in thousands)

Real Estate Operating Expenses	$	358
Securities Lending Expenses		5,551
Other Investment Expenses[1]		
ORS-Investment Expenses[2]		3,713
Custody Fees		323
Management Fees		40,363
Research Fees		1,305
Total Investment Expenses	$	51,614

[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, 2020, fees totaled $59,545.

SCHEDULE OF PAYMENTS FOR PROFESSIONAL SERVICES

For Fiscal Year Ended September 30, 2020
(in thousands)

Accounting	$	341
Actuary		163
Attorney General		113
Independent Auditors		166
Consulting		13
Medical Advisor		183
Total Payments	$	979

DETAIL OF CHANGES IN PLAN FIDUCIARY NET POSITION

(Pension and other Postemployment Benefits)

For the Fiscal Year Ended September 30, 2020
(in thousands)

	Employee Contributions	Employer Contributions	Retired Benefit Payments	Undistributed Investment Income	OPEB	Total
Additions:						
Contributions:						
Member contributions	$ 25,265	$ -	$ -	$ -	$ -	$ 25,265
Employer contributions:	-	613,729	-	-	703,567	1,317,296
Other governmental contributions	-	-	-	-	123,515	123,515
Total contributions	25,265	613,729	-	-	827,083	1,466,076
Investment income (loss):						
Net increase (decrease) in fair value of investments	-	-	-	410,528	111,568	522,096
Interest, dividends, and other	-	-	-	223,800	60,336	284,136
Investment expenses:						
Real estate operating expenses	-	-	-	(284)	(73)	(358)
Other investment expenses	-	-	-	(36,437)	(9,268)	(45,705)
Securities lending activities:						
Securities lending income	-	-	-	5,985	1,653	7,638
Securities lending expenses	-	-	-	(4,347)	(1,204)	(5,551)
Net investment income (loss)	-	-	-	599,246	163,011	762,256
Miscellaneous income	-	66	6	-	9,816	9,888
Total additions	25,265	613,795	6	599,246	999,909	2,238,221
Deductions:						
Benefits paid to plan members and beneficiaries:						
Retirement benefits	-	-	1,432,401	-	-	1,432,401
Health benefits	-	-	-	-	370,209	370,209
Dental/vision benefits	-	-	-	-	32,305	32,305
Personal health care	-	-	-	-	2,946	2,946
Health reimbursement account	-	-	-	-	52	52
Refund of contributions	227	85	-	-	28	340
Administrative and other expenses	-	-	-	5,956	16,042	21,998
Total deductions	227	85	1,432,401	5,956	421,583	1,860,251
Net Increase (Decrease) before other changes	25,038	613,710	(1,432,394)	593,290	578,325	377,970
Other Changes in Net Position:						
Interest allocation	7,542	-	794,579	(802,121)	-	-
Transfers upon retirement	(43,619)	-	43,619	-	-	-
Total other changes in net position	(36,077)	-	838,198	(802,121)	-	-
Net Increase (Decrease) in Net Position	(11,038)	613,710	(594,197)	(208,831)	578,325	377,970
Net Position Restricted for Pension Benefits and OPEB:						
Beginning of Year	276,233	(624,345)	15,579,975	(3,003,971)	3,043,893	15,271,786
End of Year	$ 265,195	$ (10,635)	$ 14,985,778	$ (3,212,802)	$ 3,622,219	$ 15,649,755

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

INTRODUCTION

The State of Michigan Investment Board (Board) was created by Executive Order 2018-10 (Order) and serves as the investment fiduciary over the assets of the State sponsored defined benefit retirement systems (Systems). The Board is responsible for investing the Systems' assets in accordance with the duties and powers enumerated in the Order and State law. Pursuant to powers provided in the Order, the Board duly authorized and delegated duties to the Department of Treasury's Bureau of Investments (BOI) to invest, prudently manage, and oversee the assets of the Systems and to take certain other actions that support the BOI's mandate in this regard. In furtherance of these duties, the BOI delivers quarterly investment activity reports to the Board that detail the investments, goals, and objectives of the Systems.

The Board is comprised of five members: three (3) public members appointed by the Governor and two (2) ex-officio members. The public members serve four (4) year terms and are limited to two (2) such terms. The State Treasurer, as the chair of the Board, and the State Budget Director are the ex-officio members. As of September 30, 2020, members of the Board were as follows: Rachael Eubanks (chair, ex-officio member), Chris Kolb (ex-officio member), James B. Nicholson (public member), Reginald G. Sanders, CFA, CAIA (public member), and Dina L. Richard, CPA (public member). The public members serve without pay but may receive reasonable reimbursement for actual and necessary travel and other expenses to attend official Board meetings.

INVESTMENT POLICY & GOALS

The Board's Investment Policy Statement states that it and the BOI will operate in accordance with Public Employee Retirement System Investment Act (Act No. 314 of 1965) and within standard investment practices of the prudent person. This includes being 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, Systems' assets are to be invested in a fiduciary capacity for the sole and exclusive benefit of the members of the Systems.

The Systems' Proxy Voting Policy sets forth directives on various issues as holders of publicly traded securities, including but not limited to: Boards of Directors, corporate governance, social issues, and various corporate actions. All proxies are reviewed and voted in accordance with the System's policy.

The primary function of the Systems is to provide retirement, survivor, and disability benefits along with health and other postemployment benefits to its members. The Board is investment fiduciary and custodian of the Systems' investments pursuant to the Order and other State law. The goals of the Systems 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 supported by investing the assets of the Systems according to a five-year asset allocation model. The Systems currently invest in eight different asset classes, which provides for a well-diversified portfolio.

ASSET ALLOCATION

(Excludes Collateral on Loaned Securities)

Investment Category	As of 9/30/20 Actual %	Five-Year Target %
Domestic Equity Pools	21.3%	25.0%
International Equity Pools	15.9	15.0
Private Equity Pools	19.7	16.0
Real Estate and Infrastructure Pools	8.0	10.0
Fixed Income Pools	12.2	10.5
Absolute Return Pools	4.8	9.0
Real Return and Opportunistic Pools	12.3	12.5
Short-Term Investment Pools	5.8	2.0
TOTAL	**100.0%**	**100.0%**

INVESTMENT AUTHORITY

Pursuant to State law Executive Order 2018-10, which in part transferred to the Board the powers enumerated in (i) Section 91 of Act No. 380 of the Public Acts of 1965, as amended, and (ii) Section 12c of Act No. 314 of 1965), the Board is the investment fiduciary for the System, which is comprised of the State sponsored defined benefit retirement systems: Michigan Public School Employees' Retirement System, State Employees' Retirement System, Michigan State Police Retirement System, Michigan Judges' Retirement System, and the Michigan Military Retirement Provisions. 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 Act no. 261 of the Public Acts of 1957, as amended).

Public Act 314 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, 2020, the total Michigan State Employees Retirement System's (System) rate of return was 5.0% for the Pension Plan and 4.9% 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, 2020, were: 7.0%, 8.3%, and 9.0% 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. Another objective is to rank above median in a universe of managers possessing a similar market cap and style characteristics.

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 these 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). They 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, 2020:

Active	50.6 %
Passive	49.4
Total	**100.0 %**

Large-Cap	61.4 %
Multi-Cap	28.0
Mid-Cap	8.2
Small-Cap	2.4
Total	**100.0 %**

The System's Domestic Equity pools total rate of return was 10.4% for the Pension Plan and 10.5% for the OPEB Plans for fiscal year 2020. This compared with 13.4% for the S&P 1500 Index.

At the close of fiscal year 2020, the Domestic Equity pools represented 21.3% of total investments. The following summarizes the System's 20.4% ownership share of the Domestic Equity pools at September 30, 2020:

Domestic Equity Pools

(In thousands)

Short-Term Pooled Investments	$	55,921
Equities		3,238,644
Long Term Obligations		10,191
Settlement Principal Payable		(3,942)
Settlement Proceeds Receivable		4,728
Accrued Dividends		2,841
Accrued Interest		56
Total	**$**	**3,308,439**

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.

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. Another objective is to 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. Another objective is to 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 its 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, 2020:

Active	77.4 %
Passive	22.6
Total	**100.0 %**

Developed	95.5 %
Emerging	4.5
Total	**100.0 %**

The System's International Equity pools total rate of return was 5.9% for Pension Plan and 5.9% for the OPEB Plans for fiscal year 2020. This compared with 3.0% for the MSCI ACWI Ex US Net.

At the close of fiscal year 2020, the International Equity pools represented 15.9% of total investments. The following summarizes the System's 20.2% ownership share of the International Equity Pools at September 30, 2020:

International Equity Pools

(in thousands)

Short-Term Pooled Investments	$ 78,435
Equities	2,087,832
Fixed Income Securities	284,790
Market Value of Equity Contracts	18,155
Accrued Dividends and Interest	1,438
Total	**$ 2,470,650**

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, 2020:

Buyout Funds	47.1%
Special Situation Funds	12.1
Fund of Funds	22.0
Venture Capital Funds	11.2
Liquidation Portfolio	5.5
Mezzanine Funds	2.1
Total	**100.0%**

The Private Equity pools had a return of 5.9% for the Pension and 5.9% for the OPEB Plans for the fiscal year ended September 30, 2020, versus the benchmark of 10.7%.

At the close of fiscal year 2020, the Private Equity pools represented 19.7% of total investments. The following summarizes the System's 19.0% ownership share of the Private Equity pools at September 30, 2020:

Private Equity Pools
(in thousands)

Short-Term Pooled Investments	$ 44,378
Equities	3,006,696
Long Term Obligations	948
Accrued Interest	173
Total	**$ 3,052,195**

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	42.7 %
Commercial office buildings	12.1
Hotel	8.5
Infrastructure	11.2
Industrial warehouse buildings	15.9
Single Family	1.7
Retail shopping centers	5.2
Land	1.6
Short Term Investments	1.1
Total	**100.0 %**

The Real Estate and Infrastructure pools generated a return of (7.0)% for the Pension and OPEB Plans for fiscal year 2020. The two benchmark returns from the National Council of Real Estate Investment Fiduciaries: the National Property Blended Index (less 130 basis points) was 0.7% and the Open-End Diversified Core Equity Index was 0.5%.

At the close of fiscal year 2020, the Real Estate and Infrastructure pools represented 8.0% of total investments. The following summarizes the System's 20.1% ownership share of the Real Estate and Infrastructure pools at September 30, 2020:

Real Estate and Infrastructure Pools

(in thousands)

Short-Term Pooled Investments	$ 13,593
Real Estate Equities	1,088,514
Infrastructure Equities	138,032
Dividend Receivable	194
Total	**$ 1,240,333**

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. Another objective is to rank above median in a nationally recognized universe of managers possessing a similar style.

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 3.2% for the Pension and OPEB Plans for fiscal year 2020. This compared with 7.0% for the Barclays Aggregate Bond Index.

At the close of fiscal year 2020, the Fixed Income pools represented 12.2% of total investments. The following summarizes the System's 20.5% ownership share of the Fixed Income pools at September 30, 2020:

Fixed Income Pools

(In thousands)

Short-Term Pooled Investments	$ 16,384
Fixed Income Securities	1,877,909
Settlement Principal Payable	(2,381)
Accrued interest	3,875
Total	**$ 1,895,787**

ABSOLUTE RETURN 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.

Another objective is to exceed the appropriate HFRI Fund of Funds Conservative Index 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 2.8% for the Pension and OPEB Plans versus the benchmark's 2.2%.

At the close of fiscal year 2020, the Absolute Return pools represented 4.8% of total investments. The following summarizes the System's 20.1% ownership share of the Absolute Return Strategies pool at September 30, 2020:

Absolute Return Pools
(in thousands)

Short-Term Pooled Investments	$	5,022
Equities		738,835
Total	**$**	**743,857**

REAL RETURN AND OPPORTUNISTIC POOLS

The primary investment objective of the Real Return and Opportunistic Pool is to generate a rate of return that meets or exceeds the increase in the CPI by at least four percent (4%) annually net of fees over one, three, and five-year periods and a market cycle. If a peer universe is available, another objective is to 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. Another objective is to rank above median in a nationally recognized universe of managers possessing a similar style.

The Real Return and Opportunistic pools rate of return for the fiscal year was 6.9% for the Pension and OPEB Plans versus the benchmark's 6.2%.

At the close of fiscal year 2020, the Real Return and Opportunistic pools represented 12.3% of total investments. The following summarizes the System's 20.1% ownership share of the Real Return and Opportunistic pools at September 30, 2020:

Real Return and Opportunistic Pools
(in thousands)

Short-Term Pooled Investments	$	30,095
Equities		1,866,822
Total	**$**	**1,896,917**

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 1.5% for the Pension plan and 1.5% OPEB plan versus the benchmark's 0.9%.

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

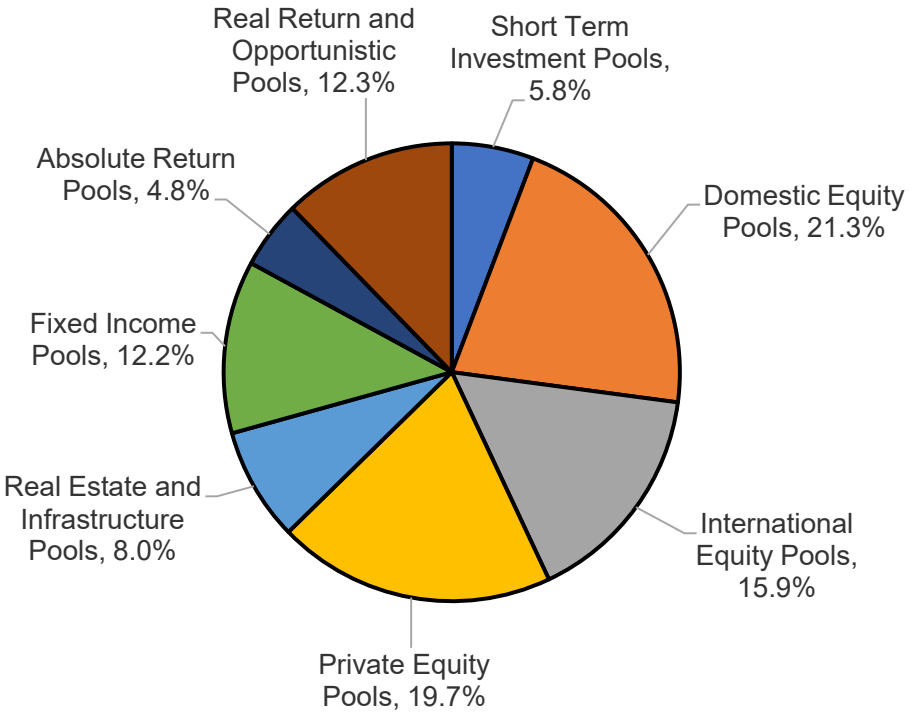
At the close of fiscal year 2020, the Short Term Investment pools represented 5.8% of total investments. The following summarizes the System's 55.1% ownership share of the Short Term Investment pools at September 30, 2020:

Short-Term Investment Pools

(in thousands)

Short-Term Pooled Investments	$	453,247
Fixed Income Securities		439,069
Accrued interest		109
Total	**$**	**892,425**

ASSET ALLOCATION – SECURITY TYPE ONLY



PENSION PLAN INVESTMENT RESULTS

For the Period Ending September 30, 2020

Investment Category	Current Year	Annualized Rate of Return[1] 3 Years	5 Years	10 Years
Total Portfolio	5.0 %	7.0 %	8.3 %	9.0 %
Domestic Equity Pools	10.4	11.0	12.9	12.9
S&P 1500 Index	13.4	11.3	13.6	13.5
International Equity Pools	5.9	2.1	7.1	5.2
International Blended Benchmark [2]	3.0	1.2	6.2	4.2
Private Equity Pools	5.9	11.3	10.3	13.0
Private Equity Blended Benchmark [3]	10.7	14.0	14.0	17.4
Real Estate and Infrastructure Pools	(7.0)	3.4	5.4	8.8
NCREIF Property Blended Index [4]	0.7	3.8	4.9	8.0
Fixed Income Pools	3.2	4.5	4.7	4.1
Barclays Aggregate Bond	7.0	5.2	4.2	3.6
Absolute Return Pools	2.8	4.2	3.7	4.6
HFRI Fund of Funds Cons 1 month lag	2.8	2.1	2.5	2.2
Real Return and Opportunistic Pools	6.9	10.0	9.3	9.3
Real Return and Opportunistic Benchmark [5]	6.2	6.8	7.1	7.2
Short Term Investment Pools	1.5	2.0	1.5	0.9
30 Day Treasury Bill	0.9	1.6	1.1	0.6

[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] Index is blend of S&P 500 plus 300 bps with a three month lag.

[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 12/1/18 Benchmark is 50% (CPI+4%) and 50% (actuarial rate 7.05%). History prior to 12/1/18 reflects 50% (CPI+5%) and 50% (actuarial rate 8%).

OPEB INVESTMENT RESULTS

For the Period Ending September 30, 2020

Investment Category	Current Year	Annualized Rate of Return[1] 3 Years	5 Years
Total Portfolio	4.9 %	6.9 %	8.2 %
Domestic Equity Pools	10.5	11.1	12.9
S&P 1500 Index	13.4	11.3	13.6
International Equity Pools	5.9	2.1	7.1
International Blended Benchmark [2]	3.0	1.2	6.2
Private Equity Pools	5.9	11.3	10.3
Private Equity Blended Benchmark [3]	10.7	14.0	14.0
Real Estate and Infrastructure Pools	(7.0)	3.4	5.4
NCREIF Property Blended Index [4]	0.7	3.8	4.9
Fixed Income Pools	3.2	4.5	4.7
Barclays Aggregate Bond	7.0	5.2	4.2
Absolute Return Pools	2.8	4.2	3.7
HFRI Fund of Funds Cons 1 month lag	2.2	2.5	2.1
Real Return and Opportunistic Pools	6.9	10.0	9.3
Real Return and Opportunistic Benchmark [5]	6.2	6.8	7.1
Short-Term Investment Pools	1.5	2.0	1.5
30-Day Treasury Bill	0.9	1.6	1.1

[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] Index is blend of S&P 500 plus 300 bps with a 3 month lag.

[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 12/1/18 Benchmark is 50% (CPI + 4%) and 50% (actuarial rate 7.05%). History prior to 12/1/18 reflects 50% (CPI+5%) and 50% (actuarial rate 8%).

LARGEST STOCK HOLDINGS

(By Fair Value)
September 30, 2020

Rank	Shares	Stocks	Fair Value
1	1,139,179	Apple Inc.	$ 131,928,315
2	616,701	Microsoft Corp.	129,710,714
3	31,160	Amazon.com Inc.	98,113,446
4	179,241	Facebook Inc. CL A	46,943,248
5	179,067	Visa Inc. CL A	35,808,114
6	167,226	Berkshire Hathaway Inc. CL B	35,609,148
7	23,919	Alphabet Inc. CL A	35,056,140
8	117,781	Home Depot Inc.	32,709,010
9	203,195	Johnson & Johnson	30,251,730
10	82,675	Mastercard Inc. CL A	27,958,169

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

The System's investments 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.

LARGEST BOND HOLDINGS

(By Fair Value)
September 30, 2020

Rank	Par Amount	Bonds & Notes	Fair Value
1	39,553,878	FNMA TBA 30 YR 3 Single Family Mortgage	$ 41,442,730
2	30,173,549	US Treasury N/B 2.375% Due 05/15/2029	34,733,762
3	30,669,274	FNMA TBA 30 YR 2.5 Single Family Mortgage	32,126,742
4	26,754,873	US Treasury N/B 2% Due 02/15/2050	30,354,239
5	19,843,789	US Treasury N/B 3.375% Due 11/15/2048	28,947,127
6	19,843,789	US Treasury N/B 2.875% Due 05/15/2049	26,641,062
7	25,056,596	FNMA TBA 30 YR 2 Single Family Mortgage	25,862,681
8	24,995,438	US Treasury N/B 2.75% Due 08/15/2021	25,567,599
9	24,115,210	FNMA TBA 30 YR 2.5 Single Family Mortgage	25,219,805
10	20,241,442	US Treasury N/B 3% Due 09/30/2025	22,974,037

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

Largest Bond Holdings are exclusive of securities lending collateral.

The System's investments 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 of Michigan Investment Board (Board) is the investment fiduciary and custodian of the System's funds pursuant to State law. Outside advisors are utilized to augment the State of Michigan's internal staff. 69.2% of the total investment portfolio is managed by fully discretionary outside advisors. The Michigan Department of Treasury's cost of operations applicable to the retirement system for the fiscal year end amounted to $3,713 thousand or seven and eight tenths basis points (.078%) of the fair value of the Assets under Management by the Board.

SCHEDULE OF INVESTMENT FEES

Investment Managers' Fees:

	Assets under Management (in thousands)	Fees (in thousands)	Basis Points*
State Treasurer	$ 4,772,728	$ 3,713	7.8
Outside Advisors for			
Fixed Income	1,073,179	3,059	28.5
Absolute Return	743,857	586	7.9
Real Return and Opportunistic	1,882,947	7,800	41.4
International Equity	1,944,647	3,514	18.1
Domestic Equity	790,717	1,837	23.2
Private Equity	3,052,195	16,709	54.7
Real Estate and Infrastructure	1,240,333	6,858	55.3
Total	**$ 15,500,603**	**$ 44,076**	

Other Investment Services Fees:		
Assets in Custody	$ 15,276,574	$ 1,629
Security Lending Collateral	633,795	371

* Private Equity partnership agreements that define the management fees, the asset management fees range from 0 to 250 basis points of the committed capital. For Real Estate/Infrastructure, the asset management fees range from 12 to 150 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, 2020

	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	$ 101	4,060	$ 0.02	$ 0.01	$ 0.01	$ 40	$ 40
BTIG LLC	100,649	11,521,206	0.01	0.01	-	115,212	-
Capital Institutional Services Inc.	39,141	7,768,347	0.01	0.01	-	17,408	-
Cowen & Company LLC	45,487	2,274,364	0.02	0.01	0.01	22,744	22,744
Credit Suisse Securities LLC	25,146	607,375	0.04	0.01	0.03	6,074	18,222
Drexel Hamilton LLC	3,531	706,182	0.01	0.01	-	7,062	1,383
J. P. Morgan Securities Inc.	45,468	2,324,147	0.02	0.01	0.01	23,241	23,241
Merrill Lynch,Pierce,Fenner & Smith Inc.	26,514	1,109,997	0.02	0.01	0.01	11,100	11,100
Mischler Financial Group Inc.	4,777	477,710	0.01	0.01	-	4,777	-
MKM Partners LLC	82,428	4,121,391	0.02	0.01	0.01	41,214	41,214
Morgan Stanley & Co. Inc.	13,603	685,214	0.02	0.01	0.01	6,852	6,852
Raymond James and Associates Inc.	1,601	64,032	0.03	0.01	0.02	640	788
Roberts & Ryan Inv.	26,299	1,314,964	0.02	0.01	0.01	13,150	13,150
Stifel, Nicolaus & Co. Inc.	637	25,498	0.02	0.01	0.01	255	255
Wayne & Company	104,717	35,378,743	0.00	0.01	0.01	3,538	3,538
Glen Eagle Wealth	10	4,087	0.00	0.01	0.01	41	41
Total	**$ 520,109**	**68,387,317**	**$ 0.02** [2]	**$ 0.01**	**$ 0.01**	**$ 273,348**	**$ 142,568**

[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, 2020

	Fair Value [1]	Percent of Total Fair Value	Investment & Interest Income[2]	Percent of Total Investment & Interest Income
Fixed Income Pools	$ 1,895,787,170	12.2 %	$ 84,220,676	10.5 %
Domestic Equity Pools	3,308,439,006	21.3	331,027,470	41.1
Real Estate and Infrastructure Pools	1,240,333,143	8.0	(83,854,738)	(10.4)
Private Equity Pools	3,052,195,162	19.7	184,422,701	22.9
International Equity Pools	2,470,649,665	15.9	144,127,516	17.9
Absolute Return Pools	743,857,245	4.8	13,892,048	1.7
Real Return and Opportunistic Pools	1,896,917,246	12.3	123,443,170	15.3
Short Term Investment Pools	892,425,349 [3]	5.8	8,095,573	1.0
Total	$ 15,500,603,985	100.0 %	$ 805,374,416	100.0 %

[1] Fair value excludes $633,794,778 in securities lending collateral for fiscal year 2020.

[2] Total Investment & Interest Income excludes net security lending income of $2,086,994 and unrealized loss of $68,982 for securities lending collateral.

[3] Short term investment pools fair value includes $224,029,713 of equity in common cash and excludes $9,353 of warrants outstanding and cash in transit.

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ACTUARIAL SECTION

Actuary's Certification
Summary of Actuarial Assumptions and Methods
Schedules of Active Member Valuation Data
Prioritized Solvency Test
Analysis of System Experience - Pension
Analysis of System Experience - OPEB
Summary of Plan Provisions

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

October 23, 2020

Mr. Brom Stibitz, Director
Department of Technology, Management and Budget
and
The Retirement Board
Michigan State Employees' Retirement System
P.O. Box 30171
Lansing, Michigan 48909

Ladies and Gentlemen:

The basic financial objective of the Michigan State Employees' Retirement System (SERS) is to establish and receive contributions which when combined with present assets and future investment return 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 SERS pension and retiree health (i.e., OPEB) plans as of September 30, 2019. The purpose of the September 30, 2019 annual actuarial valuations was to determine the contribution requirements for the fiscal year ending September 30, 2022, to measure the System's funding progress, and to provide actuarial 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, 2019.

In addition to the funding valuation reports, separate reports are issued to provide financial reporting information for SERS 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. The GASB Statement Nos. 67, 68, 74 and 75 financial reporting valuations are based upon a measurement date of September 30, 2020.

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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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
- Note 4 - Net Pension Liability; Summary of Actuarial Assumptions and Methods
- Note 5 – Net OPEB Liability; Summary of Actuarial Assumptions and Methods
- Note A – Methods and Assumptions Used to Determine Contributions for FY 2020
- Schedules of Changes in the Net Pension Liability (NPL) and the Net OPEB Liability (NOL) and Related Ratios
- Schedules of Contributions Multiyear
- Sensitivity of the NPL to Changes in the Discount Rate
- Sensitivity of the NOL to Changes in the Discount Rate
- Sensitivity of the NOL to Changes in the Healthcare Cost Trend Rate Assumption

Actuarial Section

- Summary of Actuarial Assumptions and Methods used in the September 30, 2019 Pension Funding Valuation
- 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 Retirement
- Schedule of Retired Members by Type of Pension Benefit (Selected Option)
- Schedule of Retired Members by Type of Health Benefit
- Schedule of Average Benefit Payments – Pension, Medical/Rx, Dental, and Vision
- Schedules of Funding Progress

In addition, we provided the information for the Schedule of OPEB Unfunded Actuarial Accrued Liability by Tier.

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The September 30, 2019 funding valuations and the September 30, 2020 financial reporting valuations were 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 SERS 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. Louise M. Gates and Mita D. Drazilov 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,

Louise M. Gates, ASA, FCA, MAAA

Mita D. Drazilov, ASA, FCA, MAAA

SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

1. The investment return rate used in the pension valuation was 6.70% per year net of investment expenses, compounded annually. This rate of return is not the assumed real rate of return. Considering a wage inflation assumption of 2.75%, the 6.70% nominal rate of investment return translates into a real rate of investment return of 3.95% over wage inflation. Adopted 2018.

2. The healthy life mortality table used in evaluating allowances to be paid was the RP-2014 Male and Female Healthy Annuitant Mortality Tables, scaled by 93% for males and 98% for females, adjusted for mortality improvements using projection scale MP-2017 from 2006. Adopted 2018.

3. Sample probabilities of regular, unreduced retirement are shown in Schedule 1 on the next page. Adopted 2018.

4. Sample probabilities of withdrawal from service and disability, together with individual pay increase assumptions, are shown in Schedule 2 on the next page of this report. Adopted withdrawal/pay increase 2018 and disability 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 actuarial liabilities and normal cost. Adopted 1975. Unfunded actuarial accrued liabilities are financed over a declining 40-year period for years beginning October 1, 1996. Adopted 1996.

7. The Department of Technology, Management and Budget approved the use of market value of assets as of September 30, 2006 for valuation purposes. For investment gains and 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 2007.

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 and Budget after consulting with the actuary.

10. A 5-year experience investigation, covering the period from October 1, 2012 through September 30, 2017 was completed in 2018. 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 & Company was awarded the actuarial and consulting services contract beginning October 4, 2006.

SCHEDULE 1

PERCENT OF ELIGIBLE ACTIVE MEMBERS RETIRING WITHIN NEXT YEAR

Retirement Ages	Correction Officers	Conservaton Officers	Other Members
45	- %	28 %	- %
48	-	28	-
51	35	28	-
55	23	28	15
58	18	28	10
61	18	28	13
64	22	40	16
67	50	50	21
70	100	100	50
75	100	100	100

SCHEDULE 2

SEPARATION FROM ACTIVE EMPLOYMENT BEFORE AGE & SERVICE RETIREMENT & INDIVIDUAL PAY INCREASE ASSUMPTIONS

Sample Ages	Years of Service	Percent of Active Members Withdrawing Within Next Year (Men and Women)	Percent of Active Members Becoming Disabled Within Next Year		Percent Increase in Pay During Next Year
			Non-Duty Disabilities	Duty Disabilities	
All	0	17.00 %	- %	- %	- %
	1	12.00	-	-	-
	2	8.00	-	-	-
	3	5.50	-	-	-
	4	4.50	-	-	-
25	5 & Over	3.50	0.03	-	8.75
35		2.38	0.10	0.01	3.95
45		1.84	0.34	0.04	3.25
55		1.60	0.92	0.08	3.15
60		1.60	2.10	0.11	2.75

SCHEDULE OF ACTIVE MEMBER PENSION VALUATION DATA

Valuation Date Sept. 30	Number	Reported Annual Payroll*	Average Annual Pay	Increase (Decrease)	Average Age	Average Service
2010	25,478	$ 1,621,709	$ 63,651	0.8 %	52.6	24.1
2011	19,650	1,276,058	64,939	2.0	51.9	23.3
2012 [1]	17,860	1,551,591	64,703	(0.4)	52.5	24.2
2013	16,466	1,081,729	65,695	1.5	53.2	25.0
2014	14,985	1,010,987	67,467	2.7	53.7	25.8
2015	13,404	922,093	68,792	2.0	54.2	26.5
2016	11,965	850,584	71,089	3.3	54.7	27.2
2017	10,459	780,135	74,590	4.9	55.1	27.8
2018	9,128	702,141	76,922	3.1	55.6	28.5
2019	7,788	617,584	79,299	3.1	56.0	29.0

[1] Excludes 516 individuals who became active members of Defined Contribution Plan during the 2011-2012 plan year.

* In thousands of dollars

SCHEDULE OF ACTIVE MEMBER OPEB VALUATION DATA

Valuation Date Sept. 30	Number	Reported Annual Payroll*	Average Annual Pay	Increase (Decrease)	Average Age	Average Service
2012	50,609	$ 2,895	$ 57,207	- %	45.4	13.3
2013	50,419	2,881	57,144	(0.1)	45.5	13.4
2014	49,744	2,857	57,441	0.5	45.5	13.4
2015	49,020	3,209	61,784	7.6	45.5	13.3
2016	53,308	2,989	56,072	(9.3)	44.4	12.2
2017	49,348	3,244	65,730	17.2	45.0	12.7
2018	49,387	3,324	67,298	2.4	45.0	12.4
2019	49,602	3,424	69,025	2.6	44.8	12.0

* In millions of dollars.

SCHEDULE OF CHANGES IN RETIREMENT ROLLS

Year Ended Sept. 30	Added to Rolls No.	Added to Rolls Annual Allowances*	Removed from Rolls No.	Removed from Rolls Annual Allowances*	Rolls - End of Year No.	Rolls - End of Year Annual Allowances*	Increase in Annual Allowances	Average Annual Allowances
2010	2,937	$ 78,647	1,504	$ 23,518	50,462	$ 934,092	6.1 %	$ 18,511
2011	6,656	205,413	1,470	25,542	55,648	1,113,963	19.3	20,018
2012	2,186	59,238	1,546	29,801	56,288	1,143,400	2.6	20,313
2013	2,181	63,061	1,615	31,132	56,854	1,175,329	2.8	20,673
2014	2,421	69,805	1,660	32,801	57,615	1,212,333	3.1	21,042
2015	2,490	76,224	1,652	33,955	58,453	1,254,602	3.5	21,463
2016	2,306	71,644	1,721	35,486	59,038	1,290,760	2.9	21,863
2017	2,452	78,842	1,806	38,217	59,684	1,331,385	3.1	22,307
2018	2,224	74,366	1,898	39,706	60,010	1,366,045	2.6	22,764
2019	2,394	78,936	1,903	41,489	60,501	1,403,492	2.7	23,198

* In thousands of dollars.

SCHEDULE OF CHANGES IN THE OPEB ROLLS

Year Ended Sept. 30	Added to Rolls[1] No.	Added to Rolls[1] Annual Allowances*	Removed from Rolls[1] No.	Removed from Rolls[1] Annual Allowances*	Rolls – End of Year No.	Rolls – End of Year Annual Allowances*	Increase in Annual Allowances	Average Annual Allowances
2011		$ -	-	$ -	50,194	$ 476,201	- %	$ -
2012	1,915	22,870	1,530	27,052	45,491	472,019	(0.9)	9,332
2013	1,852	20,413	1,630	46,270	50,801	446,162	(5.5)	8,783
2014	2,052	22,366	1,643	25,398	51,210	443,130	(0.7)	8,653
2015	2,168	24,216	1,630	24,904	51,748	442,442	(0.2)	8,550
2016	1,989	60,150	1,716	22,012	52,021	480,580	8.6	9,238
2017	2,080	56,820	1,825	25,580	52,276	511,820	6.5	9,791
2018	1,827	22,642	1,816	28,835	52,287	505,627	(1.2)	9,670
2019	2,130	27,055	1,853	29,146	52,564	503,537	(0.4)	9,580

* In thousands of dollars.

[1] Annual allowance amounts are not available for fiscal years 2011 and prior.

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 millions)

	Actuarial Accrued Liability (AAL)				Portion of AAL Covered by Assets			
	(1)	(2)	(3)					
Valuation Date Sept. 30	Active Member Contributions	Retirants and Beneficiaries	Active and Inactive Members (Employer Financed Portion)	Valuation Assets	(1)	(2)	(3)	(4) [1]
2010	$ 138	$ 9,151	$ 5,239	$ 10,782	100.0 %	100.0 %	28.5 %	74.2 %
2010 [1]	138	9,265	5,457	10,782	100.0	100.0	25.3	72.6
2011	93	11,197	4,307	10,212	100.0	90.4	-	65.5
2012	121	11,392	4,141	9,447	100.0	81.9	-	60.3
2013	162	11,612	3,874	9,438	100.0	79.9	-	60.3
2014	195	11,869	3,707	9,962	100.0	82.3	-	63.2
2014 [1]	195	12,149	3,829	9,962	100.0	80.4	-	61.6
2015	220	12,483	3,534	10,417	100.0	81.7	-	64.2
2016 [1]	239	13,240	3,537	10,937	100.0	80.8	-	64.3
2017	246	13,549	3,313	11,407	100.0	82.4	-	66.7
2017 [1]	246	14,104	3,531	11,884	100.0	82.5	-	66.5
2018	250	14,337	3,249	12,149	100.0	83.0	-	68.1
2018 [1]	250	15,259	3,846	12,494	100.0	80.2	-	65.8
2019	242	15,564	3,115	12,374	100.0	77.9	-	65.4

[1] Revised actuarial assumptions.

OTHER POSTEMPLOYMENT BENEFITS

($ in millions)

Valuation Date Sept. 30	Actuarial Accrued Liability (AAL) (1) Active Member Contributions	(2) Retirants and Beneficiaries	(3) Active and Inactive Members (Employer Financed Portion)[3]	Valuation Assets	Portion of AAL Covered by Assets (1)	(2)	(3)	(4)[1]
2010	$ -	$ 7,655	$ 7,011	$ -	- %	- %	- %	- %
2011	-	8,418	5,833	-	-	-	-	-
2012 [2]	-	5,633	3,124	344	-	6.1	-	3.9
2013	-	5,335	2,864	663	-	12.4	-	8.1
2014 [2]	-	5,792	2,957	1,058	-	18.3	-	12.1
2015	-	6,047	2,951	1,302	-	21.5	-	14.5
2016 [2]	-	6,680	3,317	1,602	-	24.0	-	16.0
2017	-	6,414	3,035	2,047	-	31.9	-	21.7
2017 [2]	-	6,498	3,097	2,047	-	31.5	-	21.3
2018	-	6,500	3,027	2,508	-	38.6	-	26.3
2018 [2]	-	7,164	3,466	2,562	-	35.8	-	24.1
2019	-	6,215	3,008	3,078	-	49.5	-	33.4

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

[2] Revised actuarial assumptions and/or methods.

[3] Includes liability for ‘Monetized’ members.

GAINS/(LOSSES) IN ACCRUED LIABILITIES

During Year Ended September 30, 2019
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.	$ (19,062,560)
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.	10,444,471
3	**Pay Increases.** If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss.	(37,067,761)
4	**Investment Income.** If there is greater investment income than assumed, there is a gain. If less income, a loss.	(149,972,942)
5	**Death After Retirement.** If retirants live longer than assumed, there is a loss. If not as long, a gain.	12,024,988
6	**Rehires.** Rehires into the System will generally result in an actuarial loss	-
7	**Other.** Miscellaneous gains and losses resulting from data adjustments, timing of financial transactions, etc.	(3,445,680)
8	**Composite Gain (or Loss) During Year.**	$ (187,079,484)

GAINS/(LOSSES) IN ACCRUED LIABILITIES

During Year Ended September 30, 2019
Resulting from Differences Between Assumed Experience & Actual Experience

	Type of Activity	Gain/(Loss)
1	**Premiums.** Gains and losses from actual premiums in valuation year versus that assumed from prior valuation	$ 2,079,486,962
2	**Investment Income.** If there is greater investment income than assumed, there is a gain. If less income, a loss.	(8,552,671)
3	**Demographic and Other.** Gain and losses resulting from demographic experience data adjustments, timing of financial transactions, etc.	261,648,762
4	**Composite Gain (or Loss) During Year.**	$ 2,332,583,053

Our actuarial valuation of the System as of September 30, 2019, is based on the present provisions of the Michigan State Employees' Retirement Act (Public Act 240 of 1943, as amended).

REGULAR RETIREMENT

(No reduction factor for age)

- **Eligibility** – Age 55 with 30 years service, or age 60 with 10 or more years of service. Corrections Officers may retire at age 51 with 25 or more years of service, or age 56 with 10 or more years of service. Conservation Officers may retire after 25 years of service regardless of age.
- **Annual Amount** – Total service times 1.5% of FAC. For members with 20 or more years of service, a $3,000 minimum annual benefit is payable. Corrections Officers receive an additional temporary supplement to age 62 equal to the product of supplemental service times 0.5% of FAC. Conservation Officers retiring after 25 years receive a benefit equal to 60% of FAC.

EARLY RETIREMENT

(Age Reduction Factor Used)

- **Eligibility** – Age 55 with 15 or more years of service.
- **Annual Amount** – Computed as regular retirement benefit but reduced by 0.5% for each month under age 60.

DEFERRED RETIREMENT

(Vested benefit)

- **Eligibility** – 10 years of service (five years for unclassified persons in the executive or legislative branch). Benefit commences at age 60.
- **Annual Amount** Regular retirement benefit based on service and final average compensation at time of termination.

DUTY DISABILITY RETIREMENT

- **Eligibility** – No age or service requirement.
- **Annual Amount** – Disability age 60+: Computed as regular retirement benefit with minimum benefit based on 10 years service. Disability prior to age 60: To age 60, benefit is computed as a regular retirement benefit using service at the time of disability retirement with a minimum benefit of $6,000 per year. Additional limitation such that benefit plus workers' compensation does not exceed final compensation. At age 60, benefit is recomputed as a regular retirement benefit with service granted for period in receipt of disability benefit before age 60. If the member dies before age 60, benefits are payable to a surviving spouse computed as a regular retirement benefit but based on service at time of disability retirement plus elapsed time between date of retirement and age 60.

NONDUTY DISABILITY RETIREMENT

- **Eligibility** – 10 years of service.
- **Annual Amount** – Computed as regular retirement benefit based on service and FAC at time of disability. Minimum annual benefit is $600. Eligible Group 2 and Group 3 members may elect this benefit (in lieu of PA 264 benefits).

DUTY DEATH BEFORE RETIREMENT

- **Eligibility** – No age or service requirement.
- **Annual Amount** – Accumulated employee contributions are refunded. Surviving spouse receives annual benefit computed as a regular retirement benefit as if the deceased member retired the day before date of death and elected Option A. Benefit is based on member's service at time of death, or 10 years of service, whichever is greater. A minimum benefit of $6,000 per year is payable. Children under age 21 each receive equal share of one-half of the benefit payable (surviving spouse receives the other half), to a maximum of one-half for all children. A given child's share of benefits terminates upon the child's marriage, death or attainment of age 21. In the event that there is no surviving spouse, the benefit is allocated equally among

all children subject to the limitations described on prior page. In the event that there is no surviving spouse or eligible children, benefits may be paid to an eligible, dependent parent. Benefits end upon the marriage or death of the surviving parent. Additional limitation such that benefit plus workers' compensation does not exceed final compensation.

NONDUTY DEATH BEFORE RETIREMENT

- **Eligibility** –10 years of service. In the case of a deceased vested former member, the survivor benefit commences when the deceased former member would have attained age 60.
- **Annual Amount** – Computed as regular retirement benefit but reduced in accordance with a 100% joint and survivor election.

POSTRETIREMENT COST-OF-LIVING ADJUSTMENTS

One-time upward adjustments have been made in 1972, 1974, 1976, 1977 and 1987. Beginning in 1983, some benefit recipients share in a distribution of a portion of investment income earned in excess of 8% annually (supplemental payment). Beginning in 1988, all benefit recipients are eligible for automatic 3% annual (non-compounded) benefit increases, with a maximum $300 annual increase. Eligibility for the above benefits:

Retired before October 1, 1987 Greater of supplemental payment or the combination of the 1987 one-time adjustment and the automatic increases.

Retired on or after October 1, 1987 Automatic increases only.

POSTRETIREMENT HEALTHCARE BENEFITS

Persons in receipt of retirement allowance (including members who did not retire directly from the System, but come from a vested deferred status), and their dependents, are eligible for 90% System paid health insurance coverage and 90% System paid dental and vision insurance.

MEMBER CONTRIBUTIONS

Group 1 Members: 4% of annual pay effective April 1, 2012.

Group 2 Members: 4% of annual pay effective April 1, 2012 until the date of transfer to DC pension plan.

Group 3 Members: N/A

DEFINED CONTRIBUTION LEGISLATION (PUBLIC ACT 487 OF 1996)

New state 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 could irrevocably elect to terminate membership in Tier 1 and become participants in Tier 2. Elections had to be 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.

A defined benefit disability pension or death-in-service pension may be payable if a Tier 2 participant becomes disabled or dies in service.

FORMER TIER 1 MEMBERS

A former non-vested member who is reemployed on or after January 1, 2014 is not eligible for membership in Tier 1. This type of member shall become a qualified participant in Tier 2, and shall be treated as being first employed by the State as of his or her date of reemployment.

STATISTICAL SECTION

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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
Ten Year History of Membership

STATISTICAL SECTION

CONTENTS

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.

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 Benefit 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 Benefits
- Schedule of Retired Members by Type of Retirement
- Schedule of Funding Progress – Pension Plan
- Schedule of Funding Progress – OPEB Plan
- Schedule of Other Postemployment Benefits
- Schedule of Average Benefit Payments – Pension
- Schedule of Average Benefit Payments – Health
- Schedule of Average Benefit Payments – Dental
- Schedule of Average Benefit Payments – Vision
- Ten Year History of Membership

SCHEDULE OF PENSION PLAN ADDITIONS BY SOURCE

Last Ten Years

Fiscal Year Ended Sept. 30	Member Contributions	Employer Contributions Dollars	Employer Contributions % of Annual Reported Payroll	Net Investment & Other Income	Total
2011	$ 25,830,556	$ 424,546,805	32.1 %	$ 360,432,214	$ 810,809,575
2012	33,290,784	419,926,997	36.3	1,330,021,741	1,783,239,522
2013	53,035,321	604,845,495	55.9	1,185,983,179	1,843,863,995
2014	47,527,233	705,100,454	70.0	1,529,625,882	2,282,253,569
2015	46,689,032	749,487,469	81.3	232,642,604	1,028,819,105
2016	46,665,882	716,464,627	84.2	781,651,240	1,544,781,748
2017	40,838,900	703,130,797	90.1	1,411,689,735	2,155,659,433
2018	35,598,366	650,739,520	92.7	1,273,573,539	1,959,911,425
2019	28,442,002	600,083,089	97.2	611,157,571	1,239,682,663
2020	25,264,952	613,728,653	NA	599,318,388	1,238,311,992

SCHEDULE OF OPEB PLAN ADDITIONS BY SOURCE

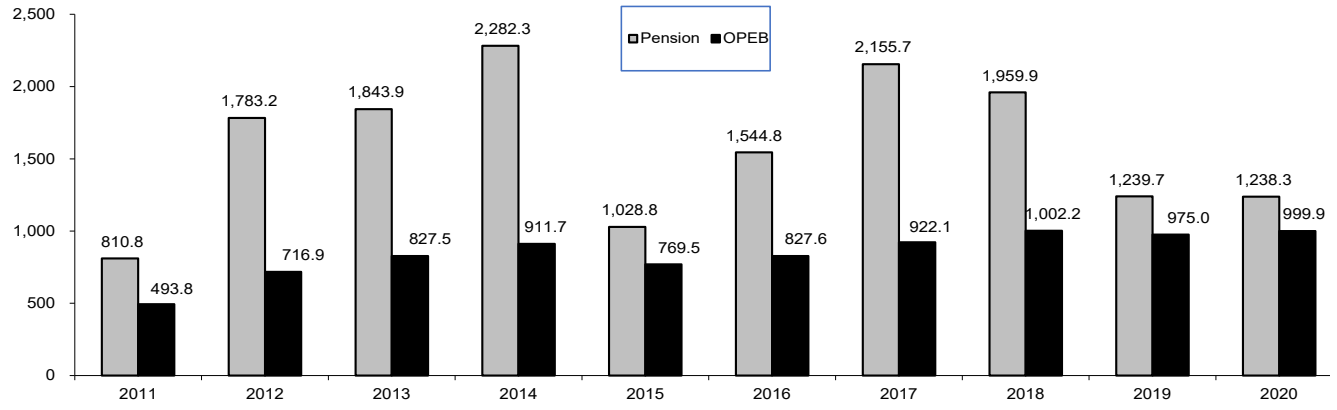
Last Ten Years

Fiscal Year Ended Sept. 30	Member Contributions	Employer Contributions Dollars	Employer Contributions % of Annual Reported Payroll	Net Investment & Other Income	Total
2011	$ 27,647,644	$ 388,196,118	30.4 %	$ 77,916,883	$ 493,760,645
2012	27,431,916	648,881,078	22.4	40,613,600	716,926,594
2013	43,590,023	688,348,987	23.9	95,530,670	827,469,680
2014	40,441,402	700,938,446	24.5	170,312,487	911,692,335
2015	37,687,750	664,368,713	21.9	67,437,137	769,493,600
2016	38,661,386	617,662,359	20.7	171,309,486	827,633,231
2017	27,000	643,568,646	19.8	278,495,329	922,090,975
2018	-	688,884,013	20.7	313,330,737	1,002,214,750
2019	-	765,235,166	22.4	209,795,649	975,030,816
2020	-	703,567,225	NA	296,341,673	999,908,898

TOTAL ADDITIONS

Year Ended September 30

(in millions)



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
2011	$ 1,089,822,880	$ 474,986	$ 6,079,017	$ 1,096,376,883
2012	1,156,035,451	188,926	9,253,880	1,165,478,257
2013	1,187,911,357	114,053	5,658,318	1,193,683,728
2014	1,222,881,091	151,929	6,930,656	1,229,963,676
2015	1,265,335,477	144,115	6,227,748	1,271,707,340
2016	1,289,597,875	130,258	6,628,719	1,296,356,853
2017	1,322,339,410	318,670	6,284,973	1,328,943,054
2018	1,362,275,032	205,121	6,488,354	1,368,968,507
2019	1,398,264,962	116,402	11,411,169	1,409,792,533
2020	1,432,400,830	311,218	5,955,829	1,438,667,877

SCHEDULE OF OPEB PLAN DEDUCTIONS BY TYPE

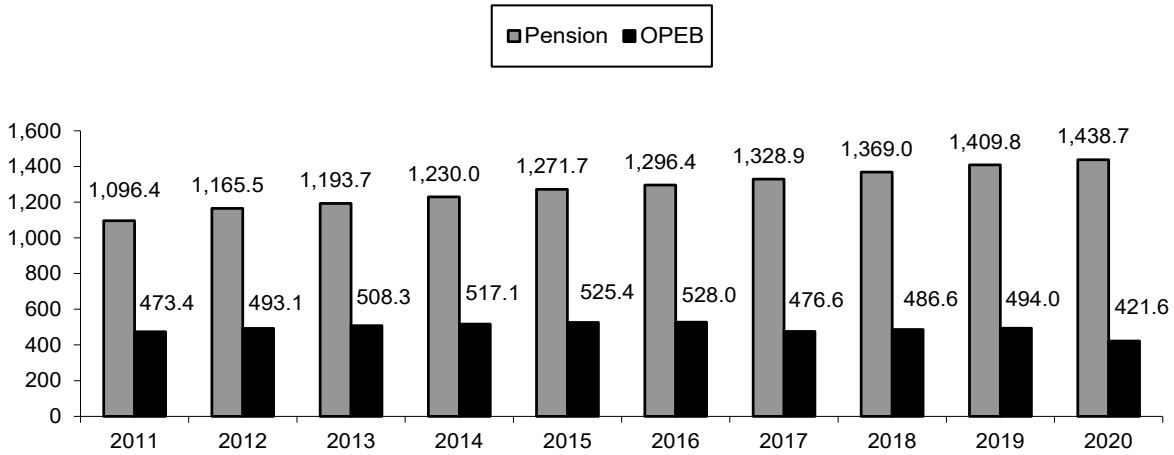
Last Ten Years

Fiscal Year Ended Sept. 30	Benefit Payments	Refunds and Transfers	Administrative and Other Expenses	Total
2011	$ 456,878,993	$ 21,085	$ 16,536,168	$ 473,436,246
2012	476,508,499	16,904	16,618,156	493,143,559
2013	485,707,110	14,735	22,603,899	508,325,744
2014	491,569,369	22,624	25,536,117	517,128,110
2015	500,629,557	17,402	24,754,938	525,401,896
2016	502,316,967	39,053	25,605,860	527,961,880
2017	452,299,965	27,039	24,317,443	476,644,447
2018	461,375,750	14,937	25,231,700	486,622,386
2019	468,671,388	13,129	25,273,990	493,958,508
2020	405,512,811	28,302	16,042,384	421,583,497

TOTAL DEDUCTIONS

Year Ended September 30

(in millions)



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SCHEDULE OF CHANGES IN FIDUCIARY NET POSITION – PENSION PLAN

Last Ten Years
(in thousands)

	Fiscal Year			
	2011	**2012**	**2013**	**2014**
Member contributions	$ 25,831	$ 33,291	$ 53,035	$ 47,527
Employer contributions	424,547	419,927	604,845	705,100
Net investment income	360,284	1,329,925	1,185,726	1,529,583
Transfer from other systems	2	-	1	-
Miscellaneous income	146	96	256	43
Total Additions	810,810	1,783,240	1,843,864	2,282,253
Pension benefits	1,089,823	1,156,035	1,187,911	1,222,881
Refunds of contributions	470	189	105	152
Transfer to other systems	5	-	9	-
Uncollectable account receivables	-	-	-	-
Administrative and other expenses	6,079	9,254	5,658	6,931
Total Deductions	1,096,377	1,165,478	1,193,684	1,229,964
Changes in net position	$ (285,567)	$ 617,762	$ 650,180	$ 1,052,290

SCHEDULE OF CHANGES IN FIDUCIARY NET POSITION – OPEB PLAN

Last Ten Years
(in thousands)

	Fiscal Year			
	2011	**2012**	**2013**	**2014**
Member contributions	$ 27,648	$ 27,432	$ 43,590	$ 40,441
Employer contributions	388,196	648,881	688,349	700,938
Other govermental contributions	64,773	23,774	41,514	54,945
Net investment income	12,851	16,592	53,592	115,308
Transfer from other systems	-	-	-	-
Miscellaneous income	293	248	425	60
Total Additions	493,761	716,927	827,470	911,692
Health care benefits	456,879	476,508	485,707	491,569
Refunds of contributions	21	17	15	23
Transfer to other systems	-	-	-	-
Administrative and Other Expenses	16,536	16,618	22,604	25,536
Total Deductions	473,436	493,144	508,326	517,128
Changes in net position	$ 20,324	$ 223,783	$ 319,144	$ 394,564

Fiscal Year (continued)					
2015	2016	2017	2018	2019	2020
$ 46,688	$ 46,666	$ 40,839	$ 35,598	$ 28,442	$ 25,265
749,487	716,465	703,131	650,740	600,083	613,729
232,588	781,528	1,411,395	1,273,509	611,140	599,246
1	3	20	-	-	-
54	120	274	64	17	73
1,028,819	1,544,782	2,155,659	1,959,911	1,239,683	1,238,312
1,265,335	1,289,598	1,322,339	1,362,275	1,398,265	1,432,401
144	130	318	205	116	311
-	-	1	-	-	-
-	-	-	-	4,423	-
6,228	6,629	6,285	6,488	6,988	5,956
1,271,707	1,296,357	1,328,943	1,368,968	1,409,793	1,438,668
$ (242,888)	$ 248,425	$ 826,716	$ 590,943	$ (170,110)	$ (200,356)

Fiscal Year (Continued)					
2015	2016	2017	2018	2019	2020
$ 37,688	$ 38,661	$ 27	$ -	$ -	$ -
664,369	617,662	643,569	688,884	765,235	703,567
49,292	68,990	59,762	83,620	65,604	123,515
18,034	102,120	217,955	229,539	144,126	163,011
-	-	-	-	-	-
111	199	778	172	66	9,816
769,494	827,633	922,091	1,002,215	975,031	999,909
500,630	502,317	452,300	461,376	468,671	405,513
17	39	27	15	13	28
-	-	-	-	-	-
24,755	25,606	24,317	25,232	25,274	16,042
525,402	527,962	476,644	486,622	493,959	421,583
$ 244,092	$ 299,671	$ 445,447	$ 515,592	$ 481,072	$ 578,325

SCHEDULE OF PENSION BENEFITS AND REFUNDS BY TYPE

Last Ten Years

Fiscal Year Ended Sept. 30	Regular Benefits*	Disability Benefits	Survivor Benefits	Refunds			Investment Income	Total
				Employer	Employee	Retired Benefits		
2011	$ 960,389,210	$ 42,816,787	$ 86,616,883	$ 44,655	$ 417,337	$ 8,411	$ -	$ 1,090,293,283
2012	1,020,591,855	44,263,358	91,180,238	54,635	111,837	20,419	2,035	1,156,224,377
2013	1,046,440,379	44,960,182	96,510,796	46,830	47,317	11,111	-	1,188,016,615
2014	1,075,606,289	46,058,694	101,216,109	77,348	75,536	(955)	-	1,223,033,020
2015	1,113,035,295	46,634,211	105,665,971	91,170	50,383	2,562	-	1,265,479,592
2016	1,132,833,858	46,774,427	109,989,590	84,564	23,706	2,164	19,824	1,289,728,133
2017	1,159,969,953	46,735,053	115,634,404	202,297	108,860	6,870	-	1,322,657,438
2018	1,194,267,310	46,440,568	121,567,154	100,673	64,959	39,489	-	1,362,480,153
2019	1,224,920,457	46,334,892	127,009,613	27,970	86,497	1,935	-	1,398,381,364
2020	1,254,553,190	46,049,155	131,798,485	84,575	226,643	-	-	1,432,712,048

* Includes prior post retirement adjustments

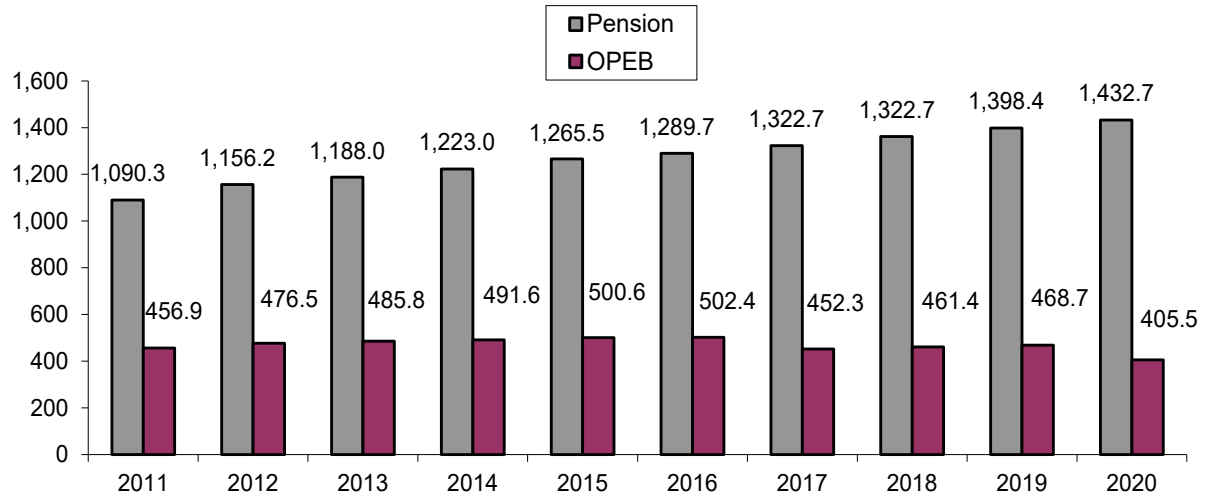
SCHEDULE OF OPEB BENEFITS AND REFUNDS BY TYPE

Last Ten Years

Fiscal Year Ended Sept. 30	Health Benefits	Dental Benefits	Vision Benefits	Personal Health Care	Health Reimbursement Account	OPEB Refunds	Total
2011	$ 417,417,811	$ 35,820,611	$ 3,640,571	$ -	$ -	$ 21,085	$ 456,900,078
2012	433,878,978	37,327,504	3,961,792	1,340,225	-	16,904	476,525,403
2013	440,197,204	37,726,459	3,377,956	4,433,182	10,126	14,735	485,759,661
2014	446,022,465	38,154,766	3,466,375	3,907,862	17,902	22,624	491,591,993
2015	453,617,812	38,919,834	3,163,993	4,893,957	33,959	17,401	500,646,957
2016	455,156,486	39,769,337	3,191,534	4,151,445	48,211	39,054	502,356,067
2017	408,393,708	36,329,749	4,338,876	3,198,031	39,600	27,039	452,327,004
2018	419,259,759	35,925,100	2,558,035	3,560,830	72,026	14,937	461,390,687
2019	425,870,326	36,411,328	3,359,234	3,000,680	29,820	13,129	468,684,517
2020	370,209,498	29,311,424	2,993,433	2,946,210	52,246	28,302	405,541,113

TOTAL BENEFIT DEDUCTIONS

Year Ended September 30
(in millions)



SCHEDULE OF RETIRED MEMBERS BY TYPE OF PENSION BENEFITS

September 30, 2019

Monthly Pension Benefit Amt	Number of Retirees	Selected Option*							
		Reg.	Opt. A	Opt. B	Opt. C	Opt. E	Opt. E1	Opt. E2	Opt. E3
$ 1 - 400	1,981	842	570	369	55	87	33	22	3
401 - 800	6,952	3,022	1,976	1,094	200	351	115	177	17
801 - 1,200	8,110	2,953	2,091	1,345	247	835	203	383	53
1,201 - 1,600	8,231	3,372	2,333	1,067	352	624	163	259	61
1,601 - 2,000	8,864	3,705	2,761	1,348	514	297	126	87	26
2,001 - 2,400	8,297	3,498	2,527	1,366	594	134	92	58	28
2,401 - 2,800	6,721	2,866	1,955	1,157	477	134	53	57	22
2,801 - 3,200	4,471	1,882	1,282	755	342	109	46	40	15
3,201 - 3,600	2,837	1,192	765	500	242	72	21	32	13
3,601 - 4,000	1,597	696	418	283	135	33	11	12	9
over 4,000	2,440	1,092	598	458	235	33	10	9	5
Totals	**60,501**	**25,120**	**17,276**	**9,742**	**3,393**	**2,709**	**873**	**1,136**	**252**

* Selected Option

Reg. – Straight life allowance
Opt. A – 100% survivor option
Opt. B – 50% survivor option
Opt. C – 75% survivor option
Opt. E – Social Security equated
Opt. E1 – Social Security equated w/100% survivor option
Opt. E2 – Social Security equated w/50% survivor option
Opt. E3 – Social Security equated w/75% survivor option

Source: Gabriel Roeder Smith & Co.

SCHEDULE OF RETIRED MEMBERS BY TYPE OF OTHER POSTEMPLOYMENT BENEFITS*

September 30, 2019

Monthly Pension Benefit Amt	Retirees	Health	Dental	Vision
$ 1 - 400	1,981	916	959	951
401 - 800	6,952	4,449	4,627	4,599
801 - 1,200	8,110	6,437	6,572	6,532
1,201 - 1,600	8,231	7,173	7,280	7,263
1,601 - 2,000	8,864	8,005	8,117	8,093
2,001 - 2,400	8,297	7,625	7,759	7,737
2,401 - 2,800	6,721	6,144	6,241	6,221
2,801 - 3,200	4,471	4,092	4,163	4,152
3,201 - 3,600	2,837	2,617	2,664	2,664
3,601 - 4,000	1,597	1,456	1,493	1,485
Over 4,000	2,440	2,233	2,272	2,265
Totals	60,501	51,147	52,147	51,962

* Number counts only include members participating in the defined benefit pension plan only
Source: Gabriel Roeder Smith & Co.

SCHEDULE OF RETIRED MEMBERS BY TYPE OF RETIREMENT

September 30, 2019

Monthly Pension Benefit Amt	Number of Retirees	Type of Retirement* 1	2	3	4	5	6	7	8
$ 1 - 400	1,981	1,456	241	13	171	7	51	8	34
401 - 800	6,952	4,402	896	82	926	12	302	37	295
801 - 1,200	8,110	4,890	1,148	23	1,059	2	364	173	451
1,201 - 1,600	8,231	5,071	815	19	993	3	363	595	372
1,601 - 2,000	8,864	6,041	777	17	522	2	240	1,104	161
2,001 - 2,400	8,297	6,133	534	7	176	0	125	1,246	76
2,401 - 2,800	6,721	5,098	294	1	44	0	71	1,187	26
2,801 - 3,200	4,471	3,411	135	2	10	0	25	883	5
3,201 - 3,600	2,837	2,188	69	0	11	0	20	547	2
3,601 - 4,000	1,597	1,260	29	0	1	0	4	301	2
over 4,000	2,440	2,147	43	0	2	0	9	238	1
Totals	**60,501**	**42,097**	**4,981**	**164**	**3,915**	**26**	**1,574**	**6,319**	**1,425**

* Type of Retirement
1 - Normal retirement for age & service
2 - Survivor payment - normal or early retirement
3 - Duty disability retirement (incl. survivors)
4 - Non-duty disability retirement (incl. survivors)
5 - Survivor payment - duty death in service
6 - Survivor payment - non-duty death in service
7 - Retirees with supplemental benefits for early retirement incentive factors
8 - Retirees with reduced benefits for early retirement reduction factors

Source: Gabriel Roeder Smith & Co.

SCHEDULE OF FUNDING PROGRESS – PENSION PLAN

($ 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)
2010[1]	$ 10,782	$ 14,860	$ 4,078	72.6 %	$ 1,622	251.5 %
2011	10,212	15,597	5,385	65.5	1,276	422.0
2012	9,447	15,654	6,207	60.3	1,156	537.1
2013	9,438	15,648	6,210	60.3	1,082	574.1
2014	9,962	15,771	5,809	63.2	1,011	574.6
2014[1]	9,962	16,173	6,211	61.6	1,011	614.4
2015	10,417	16,237	5,821	64.2	922	631.3
2016	10,937	16,291	5,353	67.1	851	629.3
2016[1]	10,937	17,016	6,078	64.3	851	714.6
2017	11,407	17,108	5,700	66.7	780	730.7
2017[1]	11,884	17,881	5,997	66.5	780	768.7
2018	12,149	17,836	5,687	68.1	702	810.0
2018[1]	12,494	18,955	6,501	65.8	702	925.9
2019	12,374	18,921	6,547	65.4	618	1,060.1

1 Revised actuarial assumptions.
Source: Gabriel Roeder Smith & Co.

SCHEDULE OF FUNDING PROGRESS – OPEB PLAN

($ in millions)

Valuation Date Sept 30	Actuarial Value of Assets (a)	Accrued Liability (AAL) Entry Age (b)	(Overfunded) Accrued Liability (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a % of Covered Payroll ((b-a)/c)
2010	$ -	$ 14,666	$ 14,666	- %	$ 2,938	499.2 %
2011	-	14,251	14,251	-	3,040	468.8
2012[1]	344	8,757	8,413	3.9	2,895	290.6
2013	663	8,199	7,536	8.1	2,881	261.6
2014[1]	1,058	8,749	7,691	12.1	2,857	269.2
2015	1,302	9,002	7,697	14.5	3,029	254.2
2016	1,602	9,498	7,896	16.9	2,989	264.2
2016[1]	1,602	9,997	8,395	16.0	2,989	280.9
2017	2,047	9,449	7,402	21.7	3,244	228.2
2017[1]	2,047	9,595	7,548	21.3	3,244	232.7
2018	2,508	9,527	7,018	26.3	3,324	211.2
2018[1]	2,562	10,630	8,069	24.1	3,324	242.8
2019	3,078	9,223	6,145	33.4	3,424	179.5

1 Revised actuarial assumptions.
Source: Gabriel Roeder Smith & Co.

SCHEDULE OF OTHER POSTEMPLOYMENT BENEFITS

For Year Ended September 30, 2020

(in thousands)

Claims		
Health Insurance	$	358,480
Vision Insurance		2,882
Dental Insurance		28,509
Estimated Claims Liability		
Health Insurance		11,729
Vision Insurance		112
Dental Insurance		802
Personnel Services:		
Staff Salaries		205
Staff Retirement and Social Security		111
Staff Other Fringe Benefits		41
Professional Services:		
Accounting		69
Actuarial		33
Audit		33
Consulting		3
Medical		37
Building and Equipment:		
Building Rentals		33
Equipment Purchase, Maintenance, and Rentals		1
Miscellaneous:		
Travel and Board Meetings		-
Office Supplies		-
Postage, Telephone, and Other		71
Printing		10
Technological Support		370
Retiree Insurance Providers:		
Health Fees		13,294
Dental Fees		1,660
Vision Fees		71
Other Expenses		
Refunds		28
Personal Health Care		2,946
Health Reimbursement Account		52
Grand Total	$	421,583

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 10/1/09 to 9/30/10								
Average Monthly Benefit	$ 942	$ 940	$ 650	$ 958	$ 1,315	$ 1,788	$ 2,292	$ 1,543
Average Final Average Salary	30,076	39,552	34,746	37,805	41,761	44,946	50,437	43,123
Number of Active Retirants	1,227	1,218	7,106	7,531	7,734	10,402	15,224	50,462
Period 10/1/10 to 9/30/11								
Average Monthly Benefit	$ 987	$ 1,005	$ 670	$ 993	$ 1,373	$ 1,850	$ 2,440	$ 1,668
Average Final Average Salary	31,075	39,981	35,412	39,132	43,695	47,053	54,109	45,804
Number of Active Retirants	1,298	1,386	7,139	7,656	8,199	11,216	18,754	55,648
Period 10/1/11 to 9/30/12								
Average Monthly Benefit	$ 1,048	$ 1,079	$ 692	$ 1,027	$ 1,407	$ 1,881	$ 2,464	$ 1,693
Average Final Average Salary	31,733	41,222	36,014	40,175	44,698	48,067	54,671	46,556
Number of Active Retirants	1,539	1,592	7,155	7,655	8,279	11,311	18,757	56,288
Period 10/1/12 to 9/30/13								
Average Monthly Benefit	$ 1,055	$ 1,126	$ 707	$ 1,051	$ 1,434	$ 1,902	$ 2,489	$ 1,723
Average Final Average Salary	31,296	41,294	36,418	41,064	45,578	48,834	53,324	47,333
Number of Active Retirants	1,102	1,795	7,192	7,710	8,388	11,554	19,113	56,854
Period 10/1/13 to 9/30/14								
Average Monthly Benefit	$ 386	$ 487	$ 669	$ 1,037	$ 1,433	$ 1,908	$ 2,505	$ 1,753
Average Final Average Salary	26,402	40,117	35,776	41,152	45,886	49,336	55,821	48,120
Number of Active Retirants	112	462	7,423	7,949	8,814	12,361	20,494	57,615
Period 10/1/14 to 9/30/15								
Average Monthly Benefit	$ 383	$ 456	$ 681	$ 1,058	$ 1,455	$ 1,938	$ 2,541	$ 1,789
Average Final Average Salary	26,312	40,611	36,081	41,764	46,623	50,309	56,758	48,985
Number of Active Retirants	103	467	7,434	7,903	8,851	12,679	21,016	58,453
Period 10/1/15 to 9/30/16								
Average Monthly Benefit	$ 372	$ 489	$ 694	$ 1,077	$ 1,479	$ 1,959	$ 2,572	$ 1,822
Average Final Average Salary	25,879	41,265	36,401	42,229	47,363	51,031	57,582	49,759
Number of Active Retirants	96	456	7,416	7,816	8,814	12,854	21,586	59,038
Period 10/1/16 to 9/30/17								
Average Monthly Benefit	$ 356	$ 491	$ 705	$ 1,092	$ 1,503	$ 1,985	$ 2,610	$ 1,859
Average Final Average Salary	27,282	41,193	36,628	42,565	48,094	51,844	58,576	50,596
Number of Active Retirants	89	457	7,406	7,719	8,779	12,984	22,250	59,684
Period 10/1/17 to 9/30/18								
Average Monthly Benefit	$ 366	$ 487	$ 718	$ 1,109	$ 1,527	$ 2,016	$ 2,647	$ 1,897
Average Final Average Salary	26,527	41,272	36,934	42,889	48,836	52,622	59,464	51,392
Number of Active Retirants	86	462	7,359	7,558	8,717	13,067	22,761	60,010
Period 10/1/18 to 9/30/19								
Average Monthly Benefit	$ 361	$ 494	$ 725	$ 1,128	$ 1,550	$ 2,043	$ 2,688	$ 1,933
Average Final Average Salary	27,097	41,656	37,134	43,226	49,501	53,319	60,423	52,166
Number of Active Retirants	78	456	7,383	7,451	8,706	13,118	23,309	60,501

* Average monthly benefits shown are pension benefits.
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 10/1/09 to 9/30/10								
Average Monthly Benefit	$ 1,018	$ 922	$ 682	$ 982	$ 1,344	$ 1,813	$ 2,329	$ 1,591
Average Final Average Salary	31,884	38,449	35,351	37,985	41,901	44,759	50,256	42,190
Number of Active Retirants	982	1,218	5,721	6,487	7,046	9,516	13,741	44,711
Period 10/1/10 to 9/30/11								
Average Monthly Benefit	$ 1,060	$ 995	$ 707	$ 1,017	$ 1,402	$ 1,875	$ 2,484	$ 1,721
Average Final Average Salary	32,687	39,054	36,121	39,281	43,823	46,829	53,921	46,043
Number of Active Retirants	1,057	1,358	5,678	6,542	7,454	10,241	16,843	49,171
Period 10/1/11 to 9/30/12								
Average Monthly Benefit	$ 1,120	$ 1,075	$ 731	$ 1,055	$ 1,439	$ 1,910	$ 2,512	$ 1,751
Average Final Average Salary	33,240	40,547	36,734	40,426	44,805	47,850	54,591	46,845
Number of Active Retirants	1,257	1,526	5,612	6,520	7,503	10,286	16,816	49,520
Period 10/1/12 to 9/30/13								
Average Monthly Benefit	$ 1,157	$ 1,128	$ 751	$ 1,083	$ 1,467	$ 1,934	$ 2,538	$ 1,787
Average Final Average Salary	34,086	40,640	37,226	41,330	45,600	48,606	55,128	47,648
Number of Active Retirants	861	1,694	5,525	6,481	7,544	10,467	17,053	49,625
Period 10/1/13 to 9/30/14								
Average Monthly Benefit	$ 353	$ 538	$ 707	$ 1,072	$ 1,472	$ 1,946	$ 2,563	$ 1,824
Average Final Average Salary	28,776	37,647	36,473	41,481	46,100	49,180	55,718	48,477
Number of Active Retirants	75	509	5,599	6,643	7,863	11,128	18,169	49,986
Period 10/1/14 to 9/30/15								
Average Monthly Benefit	$ 356	$ 543	$ 722	$ 1,097	$ 1,497	$ 1,980	$ 2,600	$ 1,864
Average Final Average Salary	29,236	37,933	36,778	42,156	46,822	50,187	56,622	49,372
Number of Active Retirants	69	498	5,527	6,574	7,582	11,372	18,606	50,498
Period 10/1/15 to 9/30/16								
Average Monthly Benefit	$ 342	$ 552	$ 738	$ 1,119	$ 1,522	$ 2,005	$ 2,636	$ 1,905
Average Final Average Salary	28,929	38,799	37,113	47,671	47,557	50,920	57,484	50,208
Number of Active Retirants	62	476	5,427	6,430	7,780	11,495	19,062	50,732
Period 10/1/16 to 9/30/17								
Average Monthly Benefit	$ 344	$ 561	$ 752	$ 1,139	$ 1,548	$ 2,035	$ 2,677	$ 1,949
Average Final Average Salary	29,457	38,961	37,368	43,045	48,313	51,723	58,464	51,089
Number of Active Retirants	55	468	5,321	6,273	7,700	11,540	19,578	50,935
Period 10/1/17 to 9/30/18								
Average Monthly Benefit	$ 380	$ 566	$ 766	$ 1,159	$ 1,574	$ 2,067	$ 2,718	$ 1,991
Average Final Average Salary	29,571	39,384	37,655	43,431	49,046	52,447	59,381	51,920
Number of Active Retirants	50	459	5,233	6,100	7,617	11,564	19,985	51,008
Period 10/1/18 to 9/30/19								
Average Monthly Benefit	$ 382	$ 576	$ 779	$ 1,179	$ 1,599	$ 2,098	$ 2,762	$ 2,036
Average Final Average Salary	31,714	40,259	37,933	43,749	49,655	53,232	60,362	52,785
Number of Active Retirants	41	445	5,130	5,951	7,565	11,574	20,441	51,147

* 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 10/1/09 to 9/30/10								
Average Monthly Benefit	$ 1,018	$ 920	$ 682	$ 984	$ 1,347	$ 1,817	$ 2,335	$ 1,593
Average Final Average Salary	31,970	38,623	35,431	38,181	42,047	44,884	50,397	43,487
Number of Active Retirants	988	1,232	5,806	6,523	7,063	9,559	13,833	45,004
Period 10/1/10 to 9/30/11								
Average Monthly Benefit	$ 1,060	$ 985	$ 706	$ 1,020	$ 1,404	$ 1,879	$ 2,488	$ 1,724
Average Final Average Salary	32,815	39,018	36,186	39,483	43,935	46,955	54,041	46,163
Number of Active Retirants	1,058	1,380	5,761	6,587	7,487	10,300	17,014	49,585
Period 10/1/11 to 9/30/12								
Average Monthly Benefit	$ 1,116	$ 1,061	$ 730	$ 1,056	$ 1,440	$ 1,912	$ 2,515	$ 1,752
Average Final Average Salary	33,242	40,446	36,738	40,577	44,914	47,929	54,697	46,926
Number of Active Retirants	1,265	1,552	5,722	6,574	7,533	10,360	17,004	50,010
Period 10/1/12 to 9/30/13								
Average Monthly Benefit	$ 1,148	$ 1,113	$ 749	$ 1,083	$ 1,469	$ 1,936	$ 2,542	$ 1,786
Average Final Average Salary	33,972	40,611	37,229	41,452	45,774	48,676	55,250	47,723
Number of Active Retirants	873	1,727	5,657	6,580	7,602	10,555	17,282	50,276
Period 10/1/13 to 9/30/14								
Average Monthly Benefit	$ 348	$ 532	$ 705	$ 1,072	$ 1,473	$ 1,947	$ 2,567	$ 1,823
Average Final Average Salary	28,959	37,747	36,488	41,585	46,202	49,257	55,836	48,546
Number of Active Retirants	81	538	5,749	6,748	7,936	11,237	18,424	50,713
Period 10/1/14 to 9/30/15								
Average Monthly Benefit	$ 350	$ 536	$ 720	$ 1,096	$ 1,497	$ 1,981	$ 2,604	$ 1,863
Average Final Average Salary	29,008	34,048	36,778	42,238	46,913	50,248	56,729	49,424
Number of Active Retirants	74	528	5,683	6,690	7,929	11,486	18,879	51,269
Period 10/1/15 to 9/30/16								
Average Monthly Benefit	$ 337	$ 543	$ 735	$ 1,119	$ 1,522	$ 2,006	$ 2,639	$ 1,903
Average Final Average Salary	28,700	38,807	37,072	42,758	47,647	50,992	57,571	50,243
Number of Active Retirants	67	503	5,605	6,548	7,864	11,628	19,344	51,559
Period 10/1/16 to 9/30/17								
Average Monthly Benefit	$ 335	$ 550	$ 749	$ 1,137	$ 1,548	$ 2,035	$ 2,680	$ 1,945
Average Final Average Salary	29,087	39,004	37,346	43,099	48,379	51,763	58,540	51,102
Number of Active Retirants	58	498	5,514	6,403	7,793	11,685	19,886	51,837
Period 10/1/17 to 9/30/18								
Average Monthly Benefit	$ 369	$ 558	$ 762	$ 1,156	$ 1,573	$ 2,069	$ 2,719	$ 1,988
Average Final Average Salary	29,159	39,540	37,600	43,459	49,090	52,527	59,437	51,929
Number of Active Retirants	53	489	5,419	6,238	7,713	11,731	20,332	51,975
Period 10/1/18 to 9/30/19								
Average Monthly Benefit	$ 371	$ 566	$ 775	$ 1,176	$ 1,599	$ 2,099	$ 2,763	$ 2,032
Average Final Average Salary	31,254	40,179	37,865	43,762	49,714	53,283	60,414	52,780
Number of Active Retirants	43	475	5,320	6,095	7,663	11,745	20,806	52,147

* Average monthly benefits shown are pension benefits.
Source: Gabriel Roeder Smith & Co.

SCHEDULE OF AVERAGE BENEFIT PAYMENTS – VISION*

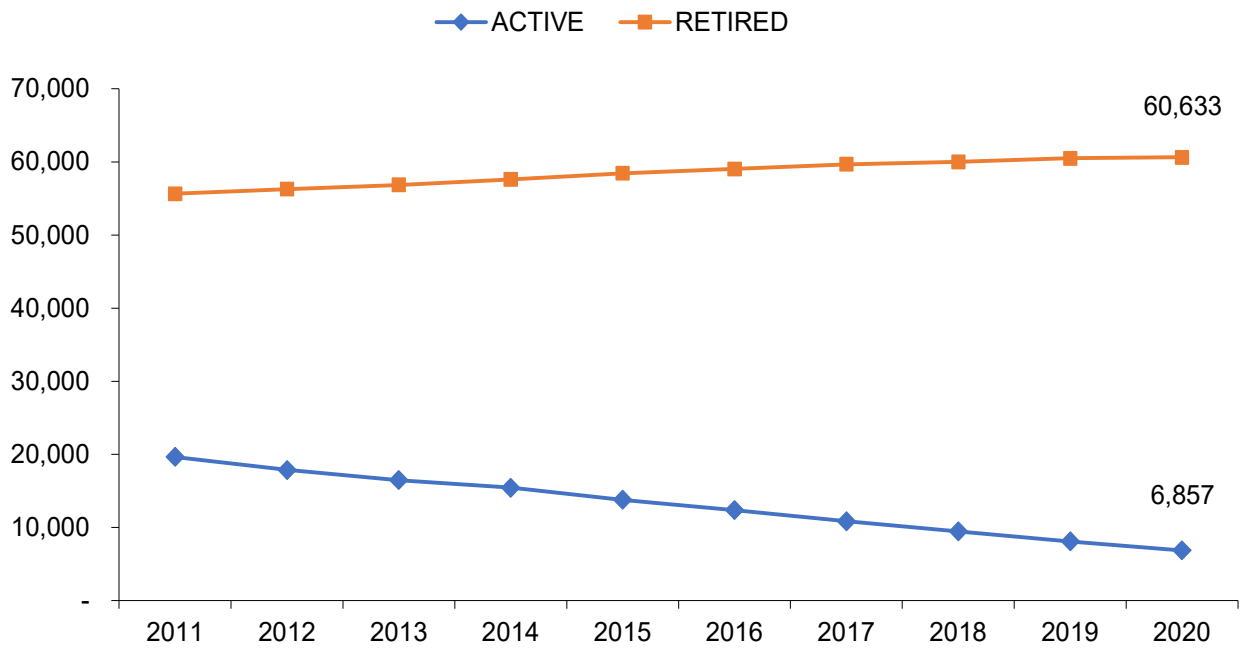
Last Ten Years

Payment Periods	Credited Service (Years) as of September 30							
	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30+	Total
Period 10/1/09 to 9/30/10								
Average Monthly Benefit	$ 1,002	$ 920	$ 681	$ 984	$ 1,346	$ 1,815	$ 2,334	$ 1,592
Average Final Average Salary	32,028	38,597	35,398	38,124	42,003	44,829	50,368	43,449
Number of Active Retirants	983	1,230	5,798	6,539	7,072	9,583	13,828	45,033
Period 10/1/10 to 9/30/11								
Average Monthly Benefit	$ 1,060	$ 986	$ 706	$ 1,019	$ 1,404	$ 1,878	$ 2,487	$ 1,723
Average Final Average Salary	32,787	39,015	36,150	39,380	43,901	46,904	54,014	46,119
Number of Active Retirants	1,059	1,379	5,745	6,600	7,485	10,312	16,995	49,575
Period 10/1/11 to 9/30/12								
Average Monthly Benefit	$ 1,119	$ 1,064	$ 731	$ 1,055	$ 1,439	$ 1,910	$ 2,514	$ 1,751
Average Final Average Salary	33,334	40,464	36,727	40,487	44,846	47,885	54,663	46,886
Number of Active Retirants	1,262	1,549	5,695	6,583	7,528	10,363	16,979	49,959
Period 10/1/12 to 9/30/13								
Average Monthly Benefit	$1,148	$1,116	$749	$1,082	$1,468	$1,934	$2,541	$1,786
Average Final Average Salary	33,953	40,564	37,214	41,381	45,661	48,628	55,216	47,682
Number of Active Retirants	872	1,724	5,633	6,577	7,590	10,557	17,255	50,208
Period 10/1/13 to 9/30/14								
Average Monthly Benefit	$342	$526	$705	$1,071	$1,473	$1,946	$2,566	$1,823
Average Final Average Salary	28,635	37,368	36,480	41,507	46,145	49,221	55,796	48,503
Number of Active Retirants	78	537	5,719	6,742	7,914	11,228	18,384	50,602
Period 10/1/14 to 9/30/15								
Average Monthly Benefit	$ 344	$ 531	$ 720	$ 1,095	$ 1,497	$ 1,980	$ 2,603	$ 1,863
Average Final Average Salary	29,065	37,721	36,785	42,191	46,869	50,207	56,690	49,392
Number of Active Retirants	72	529	5,647	6,678	7,905	11,476	18,838	51,145
Period 10/1/15 to 9/30/16								
Average Monthly Benefit	$ 335	$ 538	$ 735	$ 1,117	$ 1,522	$ 2,006	$ 2,639	$ 1,903
Average Final Average Salary	28,458	38,466	37,086	42,702	47,608	50,963	57,537	50,216
Number of Active Retirants	66	505	5,562	6,535	7,843	11,610	19,300	51,421
Period 10/1/16 to 9/30/17								
Average Monthly Benefit	$ 327	$ 546	$ 749	$ 1,137	$ 1,548	$ 2,035	$ 2,680	$ 1,946
Average Final Average Salary	28,751	38,743	37,345	43,062	48,350	51,756	58,516	51,088
Number of Active Retirants	59	498	5,466	6,385	7,771	11,660	19,835	51,674
Period 10/1/17 to 9/30/18								
Average Monthly Benefit	$ 360	$ 554	$ 763	$ 1,156	$ 1,573	$ 2,069	$ 2,719	$ 1,989
Average Final Average Salary	28,791	39,242	37,594	43,426	49,061	52,520	59,415	51,917
Number of Active Retirants	54	488	5,373	6,213	7,689	11,701	20,278	51,976
Period 10/1/18 to 9/30/19								
Average Monthly Benefit	$ 359	$ 563	$ 775	$ 1,176	$ 1,599	$ 2,099	$ 2,763	$ 2,033
Average Final Average Salary	30,755	39,904	37,876	43,732	49,712	53,269	60,395	52,773
Number of Active Retirants	44	472	5,278	6,071	7,639	11,708	20,750	51,962

*Average monthly benefits shown are pension benefits.
Source: Gabriel Roeder Smith & Co.

TEN YEAR HISTORY OF MEMBERSHIP

Fiscal Year Ended September 30



Source: Gabriel Roeder Smith & Co.

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ACKNOWLEDGMENTS

ACKNOWLEDGMENTS

The *Michigan State Employees' Retirement System Comprehensive Annual Financial Report* is prepared by Financial Services, Fiscal Management Division. Staff of the division for the fiscal year 2020 report included:

Management:

Jacqueline Huhn, Director
Aver Hamilton, Accounting Manager

Accountants:

Dan Harry
Rick Legal
Cindy Molzan
Hope Richardson
Paula Webb
Carol Wheaton

Technical and Support Staff:

Jamin Schroeder

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