

Summary Annual Report

for the State Police Retirement System, a pension and other post-employment benefits trust fund of the state of Michigan fiscal year ended Sept. 30, 2020

Prepared by Michigan Department of Technology, Management and Budget, Office of Retirement Services

A message from the director



The Department of Technology, Management and Budget (DTMB), Office of Retirement Services (ORS) is pleased to present the Summary Annual Report for the State Police Retirement System (SPRS), henceforth referred to as the System, for the

fiscal year (FY) ended Sept. 30, 2020.





ORS is able to cost-effectively provide these

ORS provides retirement and related retiree

healthcare plans to help attract, retain, and

reward a highly gualified workforce.

benefits to retirees. In 2020, the total defined benefit (DB) pension administration cost was \$68 per active member and retiree. This was \$34 below the peer average of \$102 per active member and retiree (CEM Benchmarking).

Director Anthony Estell

Accomplishments

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 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.

COVID-19 pandemic impact

In response to the COVID-19 pandemic, ORS utilized the Incident Management Plan governance to organize plans for response, business continuity, and recovery. In four days, ORS successfully transitioned 165 employees from working in the office to telecommuting.

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 for 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.

Streamlined survivor benefit process

ORS improved the process when an overpayment is 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.

Accomplishments, continued

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. Leadership and Customer Education staff began looking at other feasible options to deliver the newsletter on time when it became apparent operations could be impacted by the pandemic. DTMB,

Honors

Government Finance Officers Association Award

The Government Finance Officers Association of the United States and Canada awarded the System with the Certificate of Achievement for Excellence in Financial Reporting for our FY 2019 comprehensive annual financial report. This marks the 29th consecutive year ORS has received this prestigious award. Print and Mail Management was 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.

Public Pension Standards Award

ORS was awarded the 2020 Standards Award from the Public Pension Coordinating Council's Standards Program (PPCC) for both funding and administration. ORS has received this award 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.

About the State Police Retirement System

This report is issued in compliance with the Public Employee Retirement System Investment Act, 1965 Public Act (PA) 314, as amended. The contents come from the complete SPRS 2020 comprehensive annual financial report, available on our website at Michigan.gov/ORSMSP, the annual actuarial valuations as of Sept. 30, 2020, and additional analysis performed after Sept. 30, 2020.

State police pensions are protected by Michigan's Constitution. The System's net assets are held in trust to meet future benefit payments.

The State of Michigan Investment Board is the investment fiduciary and custodian of all investments of the System pursuant to state law.

Executive summary

The present value of the assets as of Sept. 30, 2020, was \$1.8 billion for pension and other post-employment benefits (OPEB), and the total actuarial accrued liability (AAL) was \$3.1 billion resulting in a total unfunded actuarial accrued liability (UAAL) of \$1.3 billion.

The System's assets increased by \$71.2 million in FY 2020. Asset increases were primarily due to investment income and contributions from employees. The overall AAL for pension and OPEB increased by \$23.6 million primarily due to differences between expected and actuarial results.

The pension funding ratio declined slightly by 0.4 percentage points primarily as a result of experience losses with the pension plan.

The OPEB funding ratio improved by 7.6 percentage points due to demographic gains and continued positive experience in the retiree health plan.

Statement of assets and liabilities					
FY 2020	Pension ¹	OPEB ²			
AAL	\$2,374,413,132	\$729,463,420			
Present value of assets	\$1,545,271,705	\$280,968,719			
UAAL	\$829,141,427	\$448,494,701			
Funding ratio	65.1%	38.5%			
FY 2019	Pension ³	OPEB ⁴			
AAL	\$2,320,701,604	\$759,597,388			
Present value of assets	\$1,519,978,363	\$235,042,435			
UAAL	\$800,723,241	\$524,554,953			
Funding ratio	65.5%	30.9%			
1. 2020 SPRS Pension Actuarial Valuation. Page B-1.					

1 2020 SP

2. 2020 SPRS OPEB Actuarial Valuation, Page A-2.

3. 2019 SPRS Pension Actuarial Valuation, Page B-1.

4. 2019 SPRS OPEB Actuarial Valuation, Page A-2.

Membership

Members of the DB plan are enlisted Michigan State Police officers. Membership in the plan is automatic when officers complete recruit school and subscribe to the constitutional oath of office.

Members also include troopers participating in the Deferred Retirement Option Plan (DROP) and receiving employee wages.

Employees who work for the Michigan State Police, but are not enlisted officers, are not members of this plan.

Plan membership and retirement allowances
as of Sent 30 2020

as of Sept. 30, 2020	
Membership ¹	
Retirees and beneficiaries currently receiving benefits	
Regular benefits	2,527
Survivor benefits	524
Disability benefits	206
Total	3,257
Current employees	
Vested	650
Non-vested	1,098
Total	1,748
Inactive employees	
Entitled to benefits and not yet receiving them	31
DROP participants	249
Total all members	5,285
1. Comprehensive annual financial report for the FY ended Sept. 30, 2020, F	Page 20.
Retirement allowances ²	
Average annual retirement allowance	\$41,932
Total annual retirement allowances being paid	\$136,572,303
2. Pension Actuarial Valuation for the FY ended Sept. 30, 2020, Page D-2.	

Assets and liabilities

The System's total assets on a market basis as of Sept. 30, 2020, were \$1.9 billion, mostly composed of cash and investments.

Total liabilities as of Sept. 30, 2020, were \$75.3 million and include accounts payable, obligations under securities lending, and other accrued long-term liabilities.

Total net assets held in trust for pension and OPEB increased by \$51.3 million from the previous year.

Assets and liabilities ¹ (dolla (combined pension and OPE	thousan	ds)	
Assets	FY 2019		FY 2020
Cash	\$ 12,302	\$	18,048
Receivables	10,406		12,510
Investments	1,716,238		1,759,343
Securities lending collateral	68,038		73,198
Total assets	\$ 1,806,985	\$	1,863,099
Liabilities	FY 2019		FY 2020
Accounts payable and other liabilities	2,428		2,083
Obligations under securities lending	68,030		73,198
Other accrued liabilities long term	-		29
Total liabilities	70,458		75,310
Net assets	\$ 1,736,527	\$	1,787,789
1. Compared another annual financial war aut fau that	 1 C t 70 0000	D	I.F.

1. Comprehensive annual financial report for the FY ended Sept. 30, 2020, Page 15. Liabilities in this context are exclusive of AAL for pension and OPEB. The sum total of all

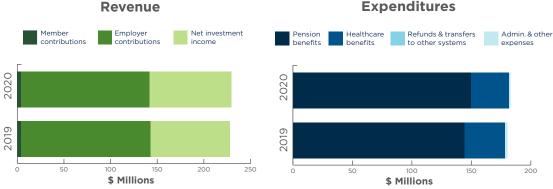
the line items may not equal the total due to rounding.

Revenue and expenditures, change in net assets

The reserves needed to finance pension and OPEB are accumulated through the collection of employer and employee contributions including earnings on investments.

Contributions and net investment income for FY 2020 totaled \$234.3 million. The primary expenses of the System include the payment of pension benefits to members and beneficiaries; payment for health, dental, and vision benefits; refunds of contributions to former members; and the cost of administering the System.

Additions and deductions ¹ (dollars in thousands)					
Additions		FY 2019		FY 2020	
Member contributions	\$	3,693	\$	4,100	
Employer contributions		138,905		137,467	
Other governmental contributions		5,218		4,577	
Net investment income (loss)		85,507		87,725	
Miscellaneous income		39		446	
Total additions	\$	233,361	\$	234,314	
Deductions		FY 2019		FY 2020	
Pension benefits	\$	144,171	\$	149,407	
Healthcare benefits		33,803		32,046	
Refunds and transfers to other systems		23		11	
Administrative and other expenses		2,247		1,588	
Total deductions	\$	180,243	\$	183,052	
Net position		FY 2019		FY 2020	
Net increase (decrease) in net position	\$	53,118	\$	51,263	
Beginning of year		1,683,409		1,736,527	
End of year	\$	1,736,527	\$	1,787,789	
1. Comprehensive annual financial report for the FY e	nded Se	ept. 30, 2020, Pa	age 16.		



Expenditures

2020 plan expenditures

Persion plan administrative and other expenses Pollars Interse weenditures are the administrative costs of running the System and are paid by DTMB, ORS and DTMB, Financial Services through and anterpaid by DTMB, ORS and DTMB, Financial Services through and anterpaid by DTMB, ORS and DTMB, Financial Services through and anterpaid by DTMB, ORS and DTMB, ORS and DTMB, Financial Services through and anterpaid by DTMB, ORS and	Plan expenses for FY ended Sept. 30, 2020 ^{1,2}		
anul appepration. Personnel services Staff salaries \$ 184,346 Retirement and Social Security 99,714 Other fringe benefits 3023,237 Subtotal \$ 223,377 Subtotal \$ 223,377 Accounting \$ 24,127 Accounting \$ 24,127 Accounting \$ 24,127 Accounting \$ 24,127 Actuarial \$ 24,037 Actuarial \$ 24,037 Actuar	Pension plan administrative and other expenses		Dollars
staf salaries \$ 184,344 Retirement and Social Security 99,714 Other fringe benefits 37,287 subtal Subtal Sultatal subtal Sultatal Sultatal refessional services Sultatal Sultatal Accounting \$ 24,127 Actuarial 99,049 97,049 Attorney general 64,593 44,000 Audit 73,200 2,281 Medical 4,931 2,281 Medical 4,931 2,281 Medical 4,931 2,281 Subtotal \$ 266,231 Building rentals \$ 16,655 Equipment purchase, maintenance, and rentals 471 Subtotal \$ 12,366 Fravel and board meetings (excluding travel and education for board members) \$ 16,65 Postage, telephone, and other 20,120 86 86 Printing 3,678 3,678 3,678 Fechnological support 125,255 3 3,678 Motal		vices through an	
Retirement and Social Security9,7,4Other fringe benefits37,287Subtotal\$32,127Subtotal\$24,127Accounting\$24,127Acturial97,099Attorney general64,593Audit73,200Consulting2,281Medical4,931Subtotal\$Building rentals4,931Equipment purchase, maintenance, and rentals4,931Subtotal\$Postage, telephone, and other\$Priseige supplies8Postage, telephone, and other20,120Printing3,678Subtotal20,201Pinting3,678Subtotal20,202Pinting3,678Pinting3,678Subtotal20,202Pinting3,678Subtotal20,202Pinting3,678Subtotal20,202Pinting3,678Pinting3,678Subtotal125,255Subtotal125,255Subtotal125,255Subtotal125,255Subtotal125,255Subtotal125,255Subtotal125,255Subtotal125,255Subtotal125,255Subtotal125,255Subtotal125,255Subtotal125,255Subtotal125,255Subtotal125,255Subtotal125,255Subtotal125,255	Personnel services		
Other fringe benefits37,287Subtotal\$321,347Forfessional services37,287Accounting\$321,347Accounting\$24,127Actuarial97,099Attorney general64,593Audit73,200Consulting2,281Medical4,391Subtotal\$266,231Building end equipment\$10,665Equipment purchase, maintenance, and rentals31Subtotal\$12,366Mecical\$12,366Potage, telephone, and other\$20,202Printing\$3,678Consulting\$3,678Consulting\$3,678Consulting\$3,678Subtotal\$3,678Consulting\$	Staff salaries	\$	184,346
subtotal\$ 021,949Professional servicesAccounting\$ 24,127Acturaia97,009Attorney general64,593Audit73,200Consulting2,281Medical4,301Subtotal8 026,231Building rentals4Equipment purchase, maintenance, and rentals411,665Subtotal\$ 012,136Favel and board meetings (excluding travel and education for board members)\$ 117Office supplies8Potage, telephone, and other20,202Printing3,678Tavel and board meetings (excluding travel and education for board members)\$ 20,202Printing3,678Consolicial support125,255Subtotal125,255Subtotal125,255Subtotal125,255Subtotal for board members\$ 24,272Subtotal25,255Subtotal125,255Subtotal125,255Subtotal125,255Subtotal125,255Subtotal125,255Subtotal125,255Subtotal125,255Subtotal125,255Subtotal125,255Subtotal125,255Subtotal125,255Subtotal125,255Subtotal125,255Subtotal125,255Subtotal125,255Subtotal125,255Subtotal125,255Subtotal125,255Subtotal125,255 <t< td=""><td>Retirement and Social Security</td><td></td><td>99,714</td></t<>	Retirement and Social Security		99,714
Professional services Accounting \$ 24,127 Actuarial 97,099 Attorney general 64,593 Audit 73,200 Consulting 2,281 Medical 4,931 Subtotal \$ Building and equipment 4,931 Building rentals \$ Equipment purchase, maintenance, and rentals 471 Subtotal \$ Necellaneous 471 Travel and board meetings (excluding travel and education for board members) \$ Printing 3,678 Texlel and outpert 20,120 Printing 3,678 Texlel and education for board members) \$ Subtotal 125,255 Subtotal 125,255	Other fringe benefits		37,287
Accounting\$24,127Actuarial97,099Attorney general64,593Audit73,200Consulting2,281Medical4,931 subtotal \$Building rentals\$Equipment purchase, maintenance, and rentals411subtotal\$Subtotal\$Privel and board meetings (excluding travel and education for board members)\$Prixel and board meetings (excluding travel and education for board members)\$Prixting and etupport20,120Forbalogical support20,201Printing3,678Fothological support125,255Subtotal149,256	Subtotal	\$	321,347
Actuarial97,099Attorney general64,593Audit73,200Consulting2,281Medical4,931 subotal3 Building rentals 3 Equipment purchase, maintenance, and rentals411 subotal3subotal3 Parelaneous 1 Fravel and board meetings (excluding travel and equipment) 3 Office supplies86Postage, telephone, and other20,120Printing3,678Technological support125,255 subotal 149,256Subotal149,256	Professional services		
Attorney general 64,593 Audit 73,200 Consulting 2,281 Medical 4,931 Subtotal 2 Building and equipment 1 Building rentals 1 Equipment purchase, maintenance, and rentals 471 Subtotal 1 Subtotal 1 Subtotal 1 Fravel and board meetings (excluding travel and education for board members) 1 Office supplies 86 Postage, telephone, and other 20,100 Printing 3,678 Tachnological support 125,255 Subtotal 149,256	Accounting	\$	24,127
Audit 73,200 Consulting 2,281 Medical 4,931 Subtotal 2 66,231 Building rentals 10 Building rentals 11,665 Equipment purchase, maintenance, and rentals 471 Subtotal 11,665 Equipment purchase, maintenance, and rentals 471 Subtotal 12,136 Hocellaneous 117 Office supplies 86 Postage, telephone, and other 20,120 Printing 3,678 Technological support 125,255 Subtotal 149,256	Actuarial		97,099
Consulting2,281Medical4,931Subtotal\$266,231Building rentals\$1,665Equipment purchase, maintenance, and rentals471Subtotal\$12,136Miscellaneous\$117Office supplies86Postage, telephone, and other20,120Printing3,678Technological support125,255Subtotal149,256	Attorney general		64,593
Medical4,931Subtotal2 66,231Subtotal2 66,231Building rentals\$ 11,665Equipment purchase, maintenance, and rentals471Subtotal1 21,366Subtotal\$ 12,136Miscellaneous\$ 117Travel and board meetings (excluding travel and education for board members)\$ 117Office supplies68Postage, telephone, and other20,120Pinting3,678Total support125,255Subtotal149,256	Audit		73,200
Subtotal\$266,231Building and equipment511,665Equipment purchase, maintenance, and rentals471Subtotal\$12,136Miscellaneous5117Office supplies86Postage, telephone, and other20,120Printing3,678Tachnological support125,255Subtotal149,256Travel and education for board members6	Consulting		2,281
Building and equipment Building rentals Guipment purchase, maintenance, and rentals Guipment purchase, maintenance, and rentals Guipment purchase, maintenance, and rentals Guibtotal Subtotal Subtotal Travel and board meetings (excluding travel and education for board members) Guifice supplies Postage, telephone, and other Postage, telephone, and other Cuitting Subtotal Cuitting Subtotal Cuitting Subtotal Cuitting Subtotal Cuitting Subtotal	Medical		4,931
Building rentals\$11,665Equipment purchase, maintenance, and rentals471Subtotal\$12,136Subtotal\$12,136Miscellaneous\$117Office supplies\$117Postage, telephone, and other\$20,120Printing\$3,678Technological support\$125,255Subtotal\$149,256	Subtotal	\$	266,231
Equipment purchase, maintenance, and rentals 471 Subtotal \$ Subtotal \$ Miscellaneous 117 Office supplies 86 Postage, telephone, and other 20,120 Printing 3,678 Technological support 125,255 Subtotal 149,256	Building and equipment		
Subtotal\$12,136Hiscellaneous117Travel and board meetings (excluding travel and education for board members)\$117Office supplies86Postage, telephone, and other20,120Printing3,678Technological support125,255Subtotal149,256	Building rentals	\$	11,665
Hiscellaneous Travel and board meetings (excluding travel and education for board members) Office supplies Postage, telephone, and other Printing Technological support Subtotal Travel and education for board members	Equipment purchase, maintenance, and rentals		471
Travel and board meetings (excluding travel and education for board members)\$117Office supplies86Postage, telephone, and other20,120Printing3,678Technological support125,255Subtotal149,256	Subtotal	\$	12,136
Office supplies86Postage, telephone, and other20,120Printing3,678Technological support125,255Subtotal149,256Travel and education for board members-	Miscellaneous		
Postage, telephone, and other20,120Printing3,678Technological support125,255Subtotal149,256Travel and education for board members-	Travel and board meetings (excluding travel and education for board members)	\$	117
Printing3,678Technological support125,255Subtotal149,256Travel and education for board members-	Office supplies		86
Technological support 125,255 Subtotal 149,256 Travel and education for board members -	Postage, telephone, and other		20,120
Subtotal149,256Travel and education for board members-	Printing		3,678
Travel and education for board members -	Technological support		125,255
	Subtotal		149,256
Total administrative and other expenses\$748,970	Travel and education for board members		-
	Total administrative and other expenses	\$	748,970

2020 plan expenditures, continued

Health, dental, and vision expenses
These expenditures are for self-insurance of the health and dental plans a
Health fees
Dental fees
Vision fees
Total health, dental, and vision expenses
Investment expenses
These expenditures are related to the Treasury, Bureau of Investments (B
Real estate operating expenses
Securities lending expenses
Other investment expenses
ORS-investment expenses
Custody fees
Management fees
Research fees
Total investment expenses
Benefits paid to members
These were the retirement benefits paid to members of the System durin
Retirement benefits
Health benefits
Dental and vision benefits
Refunds of member contributions
Total payments to members
Total of all sections
1. DTMB, Financial Services report. The sum total of all the line items may

		Dollars
and are paid from the System's trust fund.		
	\$	745,789
		3,829
		89,378
	\$	838,996
		Dollars
BOI) for managing the System's assets and are pa	aid from the Sys	stem's trust fund.
	\$	40,930
		640,436
		420,694
		37,421
		4,618,101
		150,862
	\$	5,908,444
		Dollars
ng the FY.		
	\$	149,407,174
		28,855,744
		2,190,190
		10,619
	\$	180,463,727
	\$	187,960,137
ay not equal the total due to rounding.		

2021 budget for plan expenditures

Pension plan administrative and other expenses		Dollars
These expenditures are the administrative costs of running the System and are paid by DTMB, ORS and DTMB, Financial Se annual appropriation.	ervices through	1 an
Personnel services		
Staff salaries	\$	192,843
Retirement and Social Security		110,325
Other fringe benefits		40,885
Subtotal	\$	344,054
Professional services		
Accounting	\$	29,917
Actuarial		81,345
Attorney general		73,636
Audit		74,665
Consulting		1,500
Medical		11,680
Subtotal	\$	272,744
Building and equipment		
Building rentals	\$	12,616
Equipment purchase, maintenance, and rentals		623
Subtotal	\$	13,239
Miscellaneous		
Travel and board meetings (excluding travel and education for board members)	\$	-
Office supplies		244
Postage, telephone, and other		18,590
Printing		2,880
Technological support		141,627
Subtotal		163,34 1
Travel and education for board members		-
Total administrative and other expenses	\$	793,377

2021 budget, continued

Health, dental, and vision expenses
These expenditures are for self-insurance of the health and dental plans a
Health fees
Dental fees
Vision fees
Total health, dental, and vision expenses
Investment expenses
These expenditures are related to the Treasury, BOI for managing the Sys
Real estate operating expenses
Securities lending expenses
Other investment expenses
ORS-investment expenses
Custody fees
Management fees
Research fees
Total investment expenses
Benefits paid to members
These are the projected retirement benefits paid to members of the Syste
Retirement benefits
Health benefits
Dental and vision benefits
Refunds of member contributions
Total payments to members
Total of all sections
1. DTMB, Financial Services report. The sum total of all the line items may

DTMB, Financial Services report. The sum total of all the line items m
 Treasury, BOI report.

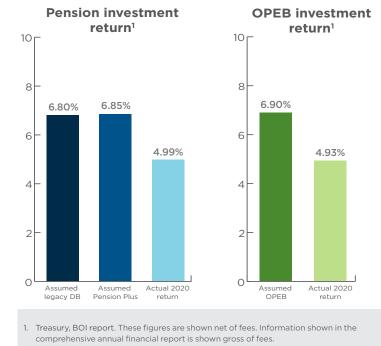
		Dollars
and are paid from the System's trust fund.		
	\$	760,705
		4,020
		87,590
	\$	852,316
		Dollars
stem's assets and are paid from the System's trust fur	nd.	
	\$	31,107
		659,649
		437,522
		35,924
		4,756,644
		205,172
	\$	6,126,018
		Dollars
tem.		
	\$	155,383,461
		26,547,284
		1,861,662
		9,982
	\$	183,802,389
	\$	191,574,100
ay not equal the total due to rounding.		

Assumed and actual investment returns

The Michigan Department of Treasury, BOI administers all the System's investments in accordance with the Public Employee Retirement System Investment Act, PA 314 of 1965. The main objective is maximizing the rate of return while meeting the actuarial assumptions through maintaining a diverse portfolio, eliminating unnecessary risks, and investing prudently.

The assumed rate of return (AROR) is a key assumption used by the plan actuary in determining the employer contribution rates each year. When investments do not meet the AROR, this results in an actuarial loss for the System. The AROR for the pension and Pension Plus plans was 6.80% and 6.85% respectively. The actual rate of investment return for the plans in FY 2020 was 4.99%.

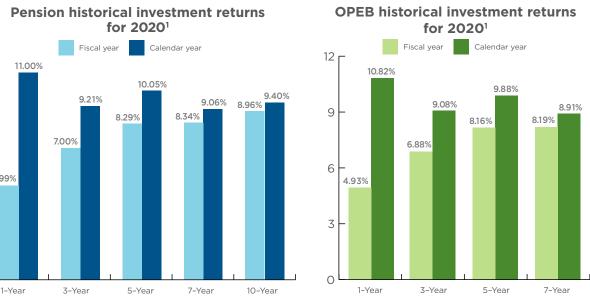
The AROR for OPEB was 6,90%. The actual rate of investment

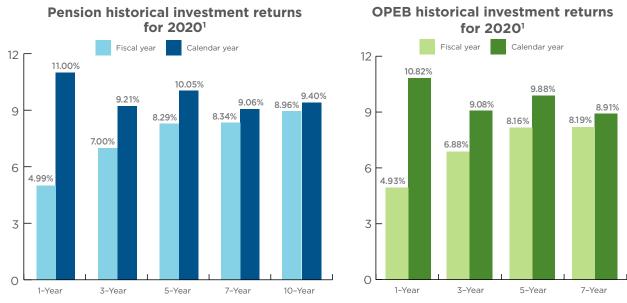


return for OPEB was 4.99%. All changes to the AROR are reflected in the Sept. 30, 2020, actuarial valuations, but for comparison with current year investment results, the prior-year assumptions are presented in the chart.

Historical investment returns

Historical investment returns for both pension and OPEB are presented in the following charts. Because SPRS OPEB is in the early stages of pre-funding, longer-term investment results are not available. Over time, as the plan gains more experience, longer-term investment returns will be reported.





1. Treasury, BOI report. These figures are shown net of fees. Information shown in the comprehensive annual financial report is shown gross of fees.

Investments and earnings

A key function of the investment fiduciary is to ensure the System's investment portfolio is diversified. Having a diverse portfolio helps to maximize investment income responsibly while minimizing risk. Even though market performance may fluctuate, the long-term performance of the System's portfolio is stable.

Investments and earnings ¹					
		Market value		nvestment and nterest income	
Fixed income pools	\$	218,218,922	\$	9,698,497	
Domestic equity pools		381,289,934		38,207,242	
Real estate and infrastructure pools		142,493,611		(9,658,221)	
Private equity pools		351,548,845		21,108,078	
International equity pools		284,589,845		16,619,688	
Absolute return pools		85,279,295		1,612,146	
Real return and opportunistic pools		218,389,633		14,195,032	
Short-term investment pools		95,641,506		908,874	
Market value and net investment gain	\$	1,777,451,592	\$	92,691,336	



Fixed income pools - 12.3% **Domestic equity pools - 21.4% Real estate and infrastructure pools - 8.0% Private equity pools - 19.8%** International equity pools - 16.0% Absolute return pools - 4.8% **Real return and opportunistic pools - 12.3%** Short-term investment pools - 5.4%

1. Comprehensive annual financial report for the FY ended Sept. 30, 2020, Page 74.

Market and actuarial funding ratios

Pension

The market funding ratio is based on the market value of assets at FY end. The actuarial funding ratio is the best practice used by all pension plans nationwide. It incorporates a five-year smoothing period, which minimizes volatility in a pension system's funding requirements.

OPEB

Starting in FY 2013, the System began pre-funding OPEB costs. Pre-funding is a best practice that invests assets and allows investment returns to help fund the plan. Many states do not pre-fund OPEB costs. This reform put Michigan on the leading edge of OPEB funding practices.

Prior to FY 2018, the market funding ratio was equal to the actuarial funding ratio. Five-year smoothing was adopted for the OPEB plan with the 2018 valuation so separate actuarial and market funding ratios will be calculated. The market value of assets as of Sept. 30, 2020, was \$275 million, while the actuarial value of assets was \$281 million.



100

90

80

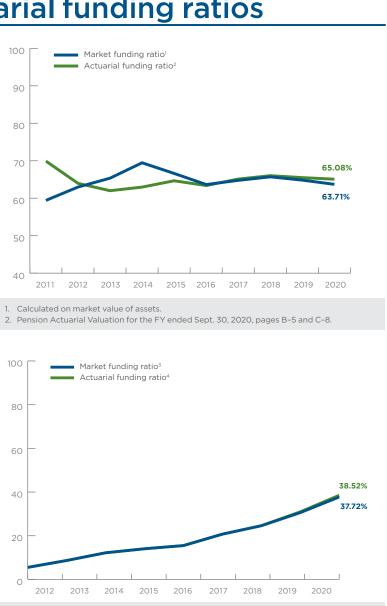
70

60

50

40

100



3. Calculated on market value of assets.

4. OPEB Actuarial Valuation for the FY ended Sept. 30, 2020, pages A-2 and D-2.

Member and employer contributions

Employer contributions

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 percent of payroll funding principles so the contribution rates remain stable.

Definition of normal cost

Normal cost is the cost of the retirement benefit a member earns each year and is set using the AROR in addition to other actuarial assumptions. After member contributions are accounted for, the employer pays the remainder of the normal cost as shown below.

Member and employer pension contributions ¹		
Member contributions		
Weighted average		
Defined Benefit	1.58%	
Pension Plus	4.00%	
Employer contributions		
Normal cost of benefits expressed as a percentage of valuation payroll		
Defined Benefit	23.13%	
Pension Plus	13.24%	
UAAL contribution rate expressed as a percentage of valuation payroll		
Defined Benefit	49.30%	
Pension Plus	49.30%	
Valuation payroll	\$150,160,577	
 Pension Actuarial Valuation for the FY ended Sept. 30, 2020, Page A-1. This is the DB component of Pension Plus. There is an additional 1% employer match for the DC component. 		

Actuarial assumptions

Actuarial valuations for both the pension and OPEB plans involve estimates of the value of reported amounts and assumptions about the probability of occurrence of events far into the future. Examples include assumptions about future employment, investment performance, and the healthcare cost trend.

Actuarial assumptions for FY	ended Se
Pension and OPEB	
Actuarial cost method	
Amortization method	
Payroll growth assumption ²	2.2
Amortization period ³	
Asset valuation method	
Wage inflation rate	
OPEB	
Healthcare cost trend rate	
Pre-65	7.50% year 1 gra
Post-65	6.25% year 1 gra
Dental and vision premiums	
AROR—closed plan ^{4,5}	
Pension—AROR	
Legacy DB—closed plan	
Pension Plus—open plan	
 SPRS Pension and OPEB Actuarial Valuation for th PA 674 of 2018 enacted a gradual phase-in reducti increments beginning with the Sept. 30, 2019, valu in, the amortization method for both pension and i PA 674 of 2018 extended the amortization period fc The OPEB plan closed to new troopers and sergea These employees participate in the Personal Healt of \$2,000 into a Health Reimbursement Account u 	on to the payroll gro ations. Once the 0% OPEB will be level-d or the UAAL in the Sy nts first hired on or hcare Fund and may upon their first termi

termination.

pt. 30, 2020¹

Entry age, normal Level percent of payroll 25% reduced to 0% by Sept. 30, 2024 Closed period, ending Sept. 30, 2038 5-year smoothed 2.75%

aded to 3.50% year 15, 3.00% year 120 raded to 3.50% year 15, 3.00% year 120 3.50% each year, 3.00% year 120 6.90%

> 6.80% 6.85%

0, 2020.

owth assumption to 0% in 50 basis point % payroll growth assumption is fully phaseddollar.

ystem from 2036 to 2038.

after June 10, 2012.

y become eligible for a lump-sum payment ination from employment (with at least 10 years of service). These employees have the option of enrolling in System's retiree healthcare at full cost at

Investment service providers

A service provider is any individual, third-party agent or consultant, or other entity that receives direct or indirect compensation for consulting, investment management, brokerage, or custody services related to the System's assets.

Accel Partners Acorn Bioventures Advent International Corp. AEW Capital Management LP Affinity Equity Partners American Industrial Partners Ancora Advisors LLC Angelo Gordon Aon Hewitt Apax Partners Worldwide LLP Apollo Global Management Inc. Arboretum Ventures ArcLight Capital Partners LLC Ardian Ares Management LLC Ark Investment Management LLC Asana Partners Attucks Asset Management LLC Avanath Capital Management LLC Axiom Asia Private Capital Bank of America Merrill Lynch Bank of Montreal **Barclays** Capital Barings Alternative Investments Basalt Infrastructure Partners LLP BB&T Capital Markets BentallGreenOak Beringea Berkshire Partners LLC **BGC** Partners Bivium Capital Partners LLC BlackRock BlackRock Financial Management BlackRock Institutional Trust Company Blackstone Alternative Asset Management LP Blackstone Credit The Blackstone Group Inc. Bluescape/Carlson **BNP** Paribas **BNP** Paribas Finance BNY Convergex G.

Bridgepoint Capital BroadRiver Asset Management LP Brookfield Asset Management Inc. **BTIG Brokers** Cantor Fitzgerald Capital Institutional Services Inc. Capri Capital Partners LLC The Carlyle Group LP Carlyle Investment Management LLC Centerbridge Capital Cerberus Capital Management LP Charlesbank Capital Partners CIE Management-BC Partners CIM Investment Advisors CircleUp Network Inc. Citigroup Citigroup Global Markets Inc. **Clarion Partners** Clarkston Capital Partners LLC **Coller** Capital Columbia Management Investment Advisors CoStar Realty Information Inc. Cowen & Co. LLC Credit Suisse Credit Suisse Securities Crescent Capital Group CVC Capital Partners Czech Asset Management LP D.A. Davidson Companies DAIWA Dalmore Capital Limited Deutsche Bank Deutsche Bank Securities Inc. Domain Capital Advisors LLC Drexel Hamilton Effissimo Capital Management eFront (Via Domain) EnCap Investments LP Fidelity Institutional Asset Management FIMI Opportunity Funds FirstMark Capital

Flagship Ventures Fortress Investment Group LLC Fox Paine & Company LLC Freeman Spogli & Co. **FTN** Financial Gaw Capital Genstart Capital LLC Glen Eagle Wealth Glencoe Capital Goldman Sachs Group Inc. Great Mountain Partners Greenspring Associates Grosvenor Capital Management HarbourVest Partners LLC Harvest Partners LLC Heitman Capital Management LLC Highbridge Principal Strategies Hilltop Securities Inc. Hopen Life Sciences Ventures HPS Investment Partners III LLC Huron Capital Partners LLC ICG Advisors LLC InSight Venture Partners Invesco Ltd. Investors Diversified Realty Jefferies J.P. Morgan J.P. Morgan Asset Management J.P. Morgan Securities LLC Kayne Anderson Kayne Anderson Capital Advisors LP **KBS** Realty Advisors Kelso & Company Kensington Realty Advisors Khosla Ventures Kohlberg, Kravis, Roberts & Co. L&B Realty Advisors LLP Landmark Realty Advisors LaSalle Investment Management Lazard Asset Management Lead Edge Capital Leonard Green & Partners LP LGT Capital Partners

Investment service providers, continued

Rhone Capital

Rialto Capital

Riverside

Silver Lake

T. Rowe Price

TPG Inc

Sixth Street Partners

Lightspeed Venture Partners Lombard International Life Assurance Company Lonestar Loomis Sayles & Company Los Angeles Capital Management Lubert-Adler Management Company Marathon Asset Management MarketAxess Corporation Martin Currie Mellon Capital Management Menlo Management Partners Merill Lynch (Bank of America) Merill Lynch Pierce Fenner & Smith LLC Merit Energy Company Meritech Capital Partners Mesirow Financial Metropolitan West Asset Management MFR Securities MI Growth Capital Partners SBIC Mischler Financial Group MKM Holdings LLC MKM Partners Morgan Stanley MUFG Multi-Bank Securities Inc. Napier Park Global Advisors Napier Park Global Capital Natural Gas Partners New Leaf Venture Partners Nordic Capital NorthPointe Capital Oak Investment Partners Oaktree Capital Management LLC Odyssey Investment Partners Orion Resource Partners Pacific Investment Management LLC Paladin Realty Partners LLC Parthenon Capital Inc. Peninsula Capital Partners LLC Permira PGIM Inc. PIMCO Mortgage Fund **Piper Jaffray** PPC Partners Inc. Principal Financial Group Principal Real Estate Advisors

Proprium Capital Partners LP Prudential Investment Management Public Pension Capital Putnam Advisory Company Raymond James & Associates Inc RBC Capital Markets LLC Renaissance Venture Capital

Ridgewood Capital Management LLC Ridgewood Energy

Robert W. Baird & Co. Inc. Roberts & Rvan The Rohatyn Group R.W. Pressprich & Co. Science Media LLC Scotia Capital Inc. Seizert Capital Partners Shamrock Capital Advisors LLC

SK Capital Partners LP Societe Generale Sprott Resource State Street Bank State Street Global Advisors Stifel Nicolaus & Co. Inc. Stockbridge Capital Group Stonepeak Advisors LLC Summit Partners SunTrust Robinson Humphrey Susquehanna International Group LLP Sycamore Partners The John Buck Company The Riverside Company The TCW Group Inc. Thomas Bravo **TICP SMA Management** TPG Real Estate Advisors Transwestern Investment Group Trilantic Capital Management LLC Trophy Property True North Management Group Trusted Insight Inc.

TSG Consumer Partners Turnbridge Capital Management LLC Turning Rock Partners U.S. Bancorp Investments Inc. Veritas Capital Fund Management LLC Vida Capital Inc. Vista Equity Partners Warburg Pincus LLC Warwick Energy Group Wayne Co. Wellington Trust Company Wells Fargo Securities LLC WestLB Asset Management LLC



Office of Retirement Services

Department of Technology, Management and Budget Anthony Estell, director

Our purpose

ORS is an innovative retirement organization driven to empower our customers for a successful today and a secure tomorrow.

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