



June 1, 2023

Mr. Anthony Estell  
Director, Office of Retirement Services  
530 W. Allegan  
Lansing, Michigan 48909

**Re: Separate Actuarial Valuation as of September 30, 2022 for  
University Members of MPSERS (Pension Benefits Only)**

Dear Mr. Estell:

We have completed a separate actuarial valuation for current and former employees of the seven Michigan Universities that have withdrawn from the Michigan Public School Employees' Retirement System (for their employees hired on or after January 1, 1996) due to the enactment of Act No. 272 of the Public Acts of 1995. This actuarial valuation was prepared as of September 30, 2022, and utilized the same actuarial assumptions and methods used for the 2022 valuation of MPSERS, except that:

- (1) The unfunded actuarial accrued liability for University members is expected to be completely amortized by September 30, 2036; and
- (2) The payroll growth assumption for amortization purposes is 2.75%.

The purpose of the valuation is to provide the required contribution rates for the fiscal year beginning October 1, 2024 and to evaluate the liabilities and funded status of the System for the affected members in total. This report should not be relied upon for any other purpose. Please see the September 30, 2022 MPSERS annual actuarial valuation report dated March 3, 2023 for additional discussion of the nature of actuarial calculations, additional disclosures required by Actuarial Standards of Practice, and more information related to economic and demographic assumptions and benefit provisions.

Select valuation results are presented in the following tables:

- Table 1 - Demographic Characteristics - Comparison of University and Non-University MPSERS Members as of September 30, 2022 and September 30, 2021
- Table 2 - Contribution Rates for the Indicated Fiscal Years Expressed as a Percentage of Payroll
- Table 3 - University Contribution Rates as of September 30, 2022 for the Fiscal Year Beginning October 1, 2024 – Expressed as a Percentage of Payroll and Estimated Dollars
- Table 4 - Actuarial Valuation Results as of September 30, 2022
- Table 5 - Active University MPSERS Members as of September 30, 2022 by Age and Years of Service
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Table 7 - University MPSERS Pensions in Force on September 30, 2022 by Type of Pension, Selected Option, and Pension Amount

Table 8 - Summary of MPSERS Liability Transfers Between Non-University and University from October 1, 2021 through September 30, 2022

Table 9 - Allocation of September 30, 2022 MPSERS Assets Between University and Non-University Members

Table 10 - Unfunded Actuarial Accrued Liability and Actuarial Gain (Loss)

Section 41a of Act 300 of the Public Acts of 1980, as amended, provides for "... the payment schedule for universities being based on and applied to the combined payrolls of the universities' employees who are members and who were hired before January 1, 1996 and the universities' employees who would have been members on or after January 1, 1996, but for the enactment of 1995 PA 272." The total additional payroll for University employees hired since January 1, 1996 was reported to be \$98.9 million for the year ending September 30, 2022. Table 3 converts the employer percentage of payroll contribution rate that is based on payroll *only* for University MPSERS members with future benefit accruals in the defined benefit plan (129.18% for the fiscal year beginning October 1, 2024) into a contribution rate (26.49% for the fiscal year beginning October 1, 2024) based on that payroll plus a percentage (17.79% for the fiscal year beginning October 1, 2024) based on the combined payroll of University employees hired since January 1, 1996 who are not members of MPSERS and of University MPSERS members who elected not to continue future benefit accruals in the defined benefit plan. Therefore, the 2024/2025 employer contribution should be the sum of:

- a) 26.49% of University MPSERS member payroll for those continuing in the defined benefit plan; plus
- b) 17.79% of University non-MPSERS member payroll and University MPSERS member payroll for those who elected the defined contribution plan.

Please note, the amortization component of the employer contribution as a percentage of payroll has been calculated consistently with previously issued University reports. This report does **NOT** reflect the following:

- The payroll floor associated with the enactment of Public Act 136 of 2016;
- The normal cost or UAAL "floor" provisions of Public Act 92 of 2017 or Public Act 181 of 2018; or
- Any reconciliation payments as required by subsection 41(9) of MPSERS statute (for Non-University members).

The amortization payment portion of the employer contribution in dollars for the fiscal year beginning October 1, 2024 (without regard for "floor" minimums) is \$24,777,920. The source of this payment, either from the Universities or from the State, does not impact valuation results.

The valuation was based upon information furnished by the Office of Retirement Services, concerning Retirement System benefits, financial transactions, and active members, terminated members, retirees and beneficiaries. Data was checked for internal and year-to-year consistency, but was not audited by us. This report may be provided to parties other than the Office of Retirement Services only in its entirety and only with the permission of the Office of Retirement Services. GRS is not responsible for unauthorized use of this report.



The valuation summarized in this report involves actuarial calculations that require making assumptions about future events. The assumptions and methods are disclosed fully in the September 30, 2022 actuarial valuation of MPSERS, unless otherwise noted. We believe that the assumptions and methods used in this report are reasonable and appropriate. However, other assumptions and methods could also be reasonable and could result in materially different results. Some of the numbers in this report are rounded. There may be cases where schedules do not add, or where they do not exactly balance to other related schedules due to rounding. The use of rounded numbers for plan liabilities should not imply a lack of precision. In addition, because it is not possible or practical to consider every possible contingency, we may use summary information, estimates or simplifications of calculations to facilitate the modeling of future events. We may also exclude factors or data that we deem to be immaterial.

As noted in the September 30, 2022 actuarial valuation report of MPSERS, we continue to include two service purchase loads in the MPSERS accrued liability for purchased service – (1) a load for purchased service that has been paid for but not reported and (2) a load for amounts included in the plan’s reported assets for purchased service that has not yet been paid for by the members. The portion of the service purchase loads attributable to University members in the September 30, 2022 valuation is \$0 and \$4,700, respectively.

There have been no revisions in benefits or changes in assumptions since the last annual actuarial valuation that impact University members.

Employer contribution rates shown in Table 2 of this report for fiscal years 2023 and 2024 reflect the provisions of Public Act 220 of 2022 applicable to the University group. A brief summary of the provisions impacting the University group resulting from Public Act 220 of 2022 follows:

- (1) For fiscal year 2023, the UAAL contribution dollar floor is being reset to the actuarially determined UAAL contribution for University reporting units only; and
- (2) For purposes of determining the UAAL actuarially determined contribution for University reporting units for fiscal years 2023 and 2024, the calculations should recognize an additional \$300 million employer contribution made in fiscal year 2022 as appropriated in Public Act 144 of 2022 to reduce University UAAL.

The provisions of Public Act 220 of 2022 were not known at the time of the preparation of the September 30, 2020 and 2021 University pension valuation reports. In addition, a lump sum additional contribution of \$84.7 million payable as of December 2021 was not known at the time of the preparation of the September 30, 2020 University pension valuation report. In accordance with directions from the Office of Retirement Services (ORS), GRS re-stated the University employer contribution requirements for fiscal years 2023 and 2024 (as determined by the September 30, 2020 and 2021 University pension valuations respectively) for the additional reported \$84.7 million and \$300 million employer contributions in a letter dated July 22, 2022. Please reference this letter for additional discussion on the re-statement of the University fiscal year 2023 and 2024 employer contribution requirements. University employer contribution requirements shown on Table 2 of this report reflect the re-statement of the University fiscal years 2023 and 2024 employer contribution requirements.



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This report was prepared using our proprietary valuation model and related software which, in our professional judgment, has the capability to provide results that are consistent with the purposes of the valuation and has no material limitations or known weaknesses. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

To the best of our knowledge, this report is complete and accurate and the valuation was conducted in accordance with standards of practice prescribed by the Actuarial Standards Board and in compliance with the applicable State statutes. Mita D. Drazilov and Louise Gates are Members of the American Academy of Actuaries (MAAA), are independent of the plan sponsor, and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. It is our opinion that the actuarial assumptions used for the valuation produce results which are reasonable.

Sincerely,

Gabriel, Roeder, Smith & Company



Mita D. Drazilov, ASA, FCA, MAAA



Louise Gates, ASA, FCA, MAAA

MDD:cs



**Table 1**

**Demographic Characteristics  
Comparison of University and Non-University MPSERS Members  
as of September 30, 2022 and September 30, 2021**

<b>2022</b>	<b>Total</b>	<b>University MPSERS Members</b>	<b>Non-University MPSERS Members</b>
<b><u>Active Members</u></b>			
Number	155,229	511	154,718
Average age	47.5	58.1	47.5
Average service	14.2	27.4	14.2
Reported payroll	\$ 8,431,711,559	\$ 28,825,753	\$ 8,402,885,806
Average annual payroll	\$ 54,318	\$ 56,410	\$ 54,311
<b><u>Inactive Vested Members</u></b>			
Number	18,144	216	17,928
<b><u>Retirees &amp; Beneficiaries</u></b>			
Number	225,215	4,941	220,274
Annual pension	\$ 5,447,652,298	\$ 94,137,503	\$ 5,353,514,795
Average annual pension	\$ 24,189	\$ 19,052	\$ 24,304
<b>2021</b>	<b>Total</b>	<b>University MPSERS Members</b>	<b>Non-University MPSERS Members</b>
<b><u>Active Members</u></b>			
Number	157,021	576	156,445
Average age	47.4	57.7	47.4
Average service	14.3	27.2	14.3
Reported payroll	\$ 8,032,377,247	\$ 31,435,644	\$ 8,000,941,603
Average annual payroll	\$ 51,155	\$ 54,576	\$ 51,142
<b><u>Inactive Vested Members</u></b>			
Number	18,994	258	18,736
<b><u>Retirees &amp; Beneficiaries</u></b>			
Number	223,767	5,031	218,736
Annual pension	\$ 5,334,628,343	\$ 93,958,935	\$ 5,240,669,408
Average annual pension	\$ 23,840	\$ 18,676	\$ 23,959

*The above statistics include only those members entitled to some type of defined benefit from the Retirement System. Active members hired after PA 300 of 2012 who elected the pure defined contribution plan are excluded from the statistics above.*

*The September 30, 2021 inactive counts include 2,842 people (including 20 University people) who elected not to continue future accruals (after the transition date of February 1, 2013) in the defined benefit plan as a result of PA 300.*

*The September 30, 2022 inactive counts include 2,664 people (including 16 University people) who elected not to continue future accruals (after the transition date of February 1, 2013) in the defined benefit plan as a result of PA 300.*



## Table 2

### Contribution Rates for the Indicated Fiscal Years Expressed as a Percentage of Payroll

<b>Total - All MPSERS Members</b>			
<b>Valuation Date</b>	<b>September 30, 2022</b>	<b>September 30, 2021</b>	<b>September 30, 2020</b>
<b>Fiscal Year Beginning</b>	<b>October 1, 2024</b>	<b>October 1, 2023</b>	<b>October 1, 2022</b>
Total Normal Cost	13.26 %	13.27 %	10.93 %
Member Contributions	<u>5.16</u>	<u>5.09</u>	<u>5.00</u>
Employer Normal Cost	8.10 %	8.18 %	5.93 %
Amortization Payment	<u>30.62</u>	<u>30.56</u>	<u>30.14</u>
Total Employer Contribution	N/A	N/A	N/A
Projected Active Member Payroll			
For Fiscal Year (in millions)			
Normal Cost \$	\$8,506.1	\$8,078.8	\$7,963.8
Amortization \$	\$10,410.9	\$9,644.7	\$9,441.7
<b>University MPSERS Members</b>			
<b>Valuation Date</b>	<b>September 30, 2022</b>	<b>September 30, 2021</b>	<b>September 30, 2020</b>
<b>Fiscal Year Beginning</b>	<b>October 1, 2024</b>	<b>October 1, 2023</b>	<b>October 1, 2022</b>
Total Normal Cost	12.16 %	12.10 %	9.73 %
Member Contributions	<u>3.46</u>	<u>3.43</u>	<u>3.31</u>
Employer Normal Cost	8.70 %	8.67 %	6.42 %
Amortization Payment	<u>120.48</u>	<u>105.93</u>	<u>82.77</u>
Total Employer Contribution	129.18 %	114.60 %	89.19 %
Projected Active Member Payroll <sup>(1)</sup>			
For Fiscal Year (in millions)			
Normal Cost \$	\$20.6	\$22.9	\$27.8
Amortization \$	\$20.6	\$22.9	\$27.8
<b>Non-University MPSERS Members</b>			
<b>Valuation Date</b>	<b>September 30, 2022</b>	<b>September 30, 2021</b>	<b>September 30, 2020</b>
<b>Fiscal Year Beginning</b>	<b>October 1, 2024</b>	<b>October 1, 2023</b>	<b>October 1, 2022</b>
Total Normal Cost	13.26 %	13.27 %	10.93 %
Member Contributions	<u>5.16</u>	<u>5.09</u>	<u>5.01</u>
Employer Normal Cost	8.10 %	8.18 %	5.92 %
Amortization Payment	<u>30.44</u>	<u>30.38</u>	<u>29.98</u>
Total Employer Contribution	N/A	N/A	N/A
Projected Active Member Payroll <sup>(2)</sup>			
For Fiscal Year (in millions)			
Normal Cost \$	\$8,485.5	\$8,055.9	\$7,936.0
Amortization \$	\$10,390.3	\$9,621.8	\$9,413.9

<sup>(1)</sup> Payroll for University members of MPSERS with future defined benefit accruals.

<sup>(2)</sup> Payroll for Non-University members of MPSERS and University members of MPSERS with future defined contribution accruals.

**Table 3**

**University Contribution Rates as of September 30, 2022  
for the Fiscal Year Beginning October 1, 2024  
Expressed as a Percentage of Payroll and Estimated Dollars**

	Using Only Payroll of University Members of MPSERS with Future Defined Benefit Accruals		Also Using Payroll of University Non-Members Hired Since January 1, 1996 and University Members of MPSERS with Future Defined Contribution Accruals for Amortization Payment	
	Percentage of Pay	Dollar Amount (In Millions)	Percentage of Pay	Dollar Amount (In Millions)
Normal Cost	12.16 %	\$ 2.501	12.16 %	\$ 2.501
Member Contributions	<u>3.46</u>	<u>0.712</u>	<u>3.46</u>	<u>0.712</u>
Employer Normal Cost	8.70 %	\$ 1.789	8.70 %	\$ 1.789
Amortization Payment	<u>120.48</u>	<u>24.778</u>	<u>17.79</u>	<u>24.778</u>
Total Employer Contribution	129.18 %	\$ 26.567	26.49 %	\$ 26.567
Projected Payroll (In Millions)				
For Normal Cost		\$ 20.566		\$ 20.566
For Amortization Payment		\$ 20.566		\$ 139.303

*This exhibit does not reflect the payroll floor associated with Public Act 136 of 2016 or the "floor" minimum provisions associated with Public Act 92 of 2017 or Public Act 181 of 2018 (see page 2). The results above may not add due to rounding.*



**Table 4**  
**Actuarial Valuation Results**  
**as of September 30, 2022**

	Total All MPSERS Members	University MPSERS Members	Non-University MPSERS Members
(1) Fiscal Year Ending September 30,	2025	2025	2025
(2) Total Normal Cost of Benefits (as a % of member pay)	13.26%	12.16%	13.26%
(3) Member Contribution % (weighted average)	<u>5.16%</u>	<u>3.46%</u>	<u>5.16%</u>
(4) Employer Normal Cost % = (2) - (3)	8.10%	8.70%	8.10%
(5) Projected Active Member Payroll for Fiscal Year - Normal Cost \$	\$ 8,506,117,816	\$ 20,565,751	\$ 8,485,552,065
(6) Employer Normal Cost \$ = (4) x (5) <sup>1</sup>	688,755,256	1,789,220	686,966,036
(7) Actuarial Accrued Liability - Total	98,142,074,408	1,243,228,501	96,898,845,907
Active employees	30,217,977,456	155,102,559	30,062,874,897
Inactive vested members <sup>2</sup>	2,743,394,282	20,376,203	2,723,018,079
Other inactive members <sup>3</sup>	110,470,494	1,373,356	109,097,138
Retirees and surviving beneficiaries	65,070,232,176	1,066,376,383	64,003,855,793
(8) Funding Value of Assets	63,074,990,603	981,327,126	62,093,663,477
(9) Unfunded Actuarial Accrued Liabilities (UAAL) = (7) - (8)	35,067,083,805	261,901,375	34,805,182,430
(10) Amortization Period (years)	N/A	12	N/A
(11) Amortization Factor (level percent of payroll payments)	N/A	9.87902146	N/A
(12) Amortization Payment %	30.62%	120.48%	30.44%
(13) Projected Active Member Payroll for Fiscal Year - Amortization \$	\$ 10,410,910,798	\$ 20,565,751	\$ 10,390,345,047
(14) Amortization Payment \$	3,186,975,563	24,777,920	3,162,197,643
(15) Total Computed Employer Contribution % = (4) + (12)	N/A	129.18%	N/A
(16) Total Computed Employer Contribution \$ = (6) + (14)	\$ 3,875,730,819	\$ 26,567,140	\$ 3,849,163,679

<sup>1</sup> The formula in line (6) only applies to the University column. This is because of the effect of the Pension Plus Plan and the Pension Plus 2 Plan provisions on the Total and Non-University columns.

<sup>2</sup> Includes pending refunds of employee contributions for former employees who terminated without a vested benefit.

<sup>3</sup> Includes liabilities for employees who transferred to the DC pension plan in connection with PA 300.



**Table 5****Active University MPSERS Members as of September 30, 2022  
by Age and Years of Service**

Age	Years of Service							Total Count	Total Pay	Average Pay
	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 & up			
40 - 44	2							2	\$ 30,497	\$ 15,249
45 - 49	6	2	3	5	10	12		38	1,942,473	51,118
50 - 54	3	8	5	16	12	35	32	111	6,167,618	55,564
55 - 59	4	5	2	8	12	42	89	162	9,727,883	60,049
60 - 64	5	6	3	7	9	21	68	119	6,560,103	55,127
65 - 69	2	2	2		5	9	37	57	3,376,939	59,245
70 & Over	6	1	2	2		2	9	22	1,020,240	46,375
Total	28	24	17	38	48	121	235	511	\$ 28,825,753	\$ 56,410

*The September 30, 2022 active statistics exclude 16 University people who elected not to continue future accruals (after the transition date of February 1, 2013) in the defined benefit plan as a result of PA 300. The payroll for this group was reported to be \$0.7 million for valuation purposes.*

*As of September 30, 2022, the total University payroll (MPSERS members and Non-MPSERS members) was reported to be \$128.4 million for valuation purposes.*

## Table 6

### Active University MPSERS Member Statistics by Plan Type

	September 30, 2021	September 30, 2022
<b>Basic Members</b>		
Number	221	193
Average Age	58.8 years	59.3 years
Average Service	31.2 years	30.8 years
Reported Payroll	\$ 12,811,176	\$ 11,470,956
Average Annual Pay	\$ 57,969	\$ 59,435
<b>MIP Members</b>		
Number	355	318
Average Age	56.9 years	57.4 years
Average Service	24.8 years	25.3 years
Reported Payroll	\$ 18,624,468	\$ 17,354,797
Average Annual Pay	\$ 52,463	\$ 54,575
<b>Total</b>		
Number	576	511
Average Age	57.7 years	58.1 years
Average Service	27.2 years	27.4 years
Reported Payroll	\$ 31,435,644	\$ 28,825,753
Average Annual Pay	\$ 54,576	\$ 56,410

*The September 30, 2021 total active count excludes 20 University people who elected not to continue future accruals (after the transition date of February 1, 2013) in the defined benefit plan as a result of PA 300.*

*The September 30, 2022 total active count excludes 16 University people who elected not to continue future accruals (after the transition date of February 1, 2013) in the defined benefit plan as a result of PA 300. The payroll for this group was reported to be \$0.7 million for valuation purposes.*

*As of September 30, 2022, the total University payroll (MPSERS members and Non-MPSERS members) was reported to be \$128.4 million for valuation purposes.*

## Table 7

# University MPSERS Pensions in Force on September 30, 2022 by Type of Pension, Selected Option, and Pension Amount

Amount of Monthly Benefit	Number of Retirees	Type of Retirement*						Selected Option**				Opt 1E 2E,3E,4E
		1	2	3	4	5	6	Opt. 1	Opt. 2	Opt. 3	Opt. 4	
\$ 1 - 400	696	542	114	3	29	0	8	329	208	100	17	42
401 - 800	870	672	109	9	55	0	25	394	234	133	32	77
801 - 1,200	781	646	67	6	49	0	13	351	177	136	41	76
1,201 - 1,600	730	633	67	2	16	0	12	289	196	137	66	42
1,601 - 2,000	542	496	36	0	7	0	3	228	132	102	48	32
2,001 - 2,400	400	366	29	0	2	0	3	159	95	86	40	20
2,401 - 2,800	229	203	21	0	1	0	4	82	74	50	14	9
2,801 - 3,200	171	151	19	0	1	0	0	64	54	29	21	3
3,201 - 3,600	131	116	12	0	1	0	2	54	30	32	7	8
3,601 - 4,000	89	82	7	0	0	0	0	33	28	17	5	6
Over 4,000	302	269	31	0	1	0	1	119	87	54	34	8
Totals	4,941	4,176	512	20	162	0	71	2,102	1,315	876	325	323

\* Type of Retirement

- 1 – Normal retirement for age & service
- 2 – Survivor payment – normal retirement
- 3 – Duty disability retirement (including survivors)
- 4 – Non-duty disability retirement (including survivors)
- 5 – Survivor payment – duty death in service
- 6 – Survivor payment – non-duty death in service

\*\* Selected Option

- Opt. 1 – Straight life allowance
- Opt. 2 – 100% survivor option
- Opt. 3 – 50% survivor option
- Opt. 4 – 75% survivor option
- Opt. 1E, 2E, 3E, 4E – Equated retirement options



## Table 8

### Summary of MPSERS Liability Transfers Between Non-University and University from October 1, 2021 through September 30, 2022

<b>Transfers Between Segments</b>	
<b>Transfers to University</b>	
a) 1 Non-University actives as of 10/1/2021 who transferred to University actives by 10/1/2022	\$ 3,393
b) 0 Non-University terminated vested as of 10/1/2021 who transferred to University actives by 10/1/2022	0
c) 0 Non-University pensioners as of 10/1/2021 who transferred to University actives by 10/1/2022	0
d) 0 Non-University actives as of 10/1/2021 who transferred to University terminated vesteds by 10/1/2022	0
e) 0 Non-University terminated vesteds as of 10/1/2021 who transferred to University terminated vesteds by 10/1/2022	0
f) 0 Non-University pensioners as of 10/1/2021 who transferred to University terminated vesteds by 10/1/2022	0
g) 0 Non-University actives as of 10/1/2021 who transferred to University pensioners by 10/1/2022	0
h) 0 Non-University terminated vested as of 10/1/2021 who transferred to University pensioners by 10/1/2022	0
i) 0 Non-University pensioners as of 10/1/2021 who transferred to University pensioners by 10/1/2022	0
<b>j) Total Transfers into University</b>	<b>\$ 3,393</b>
<b>Transfers from University</b>	
k) 4 University actives as of 10/1/2021 who transferred to Non-University actives by 10/1/2022	\$ 166,724
l) 2 University terminated vesteds as of 10/1/2021 who transferred to Non-University actives by 10/1/2022	143,144
m) 0 University pensioners as of 10/1/2021 who transferred to Non-University actives by 10/1/2022	0
n) 0 University actives as of 10/1/2021 who transferred to Non-University terminated vesteds by 10/1/2022	0
o) 0 University terminated vested as of 10/1/2021 who transferred to Non-University terminated vesteds by 10/1/2022	0
p) 0 University pensioners as of 10/1/2021 who transferred to Non-University terminated vesteds by 10/1/2022	0
q) 0 University actives as of 10/1/2021 who transferred to Non-University pensioners by 10/1/2022	0
r) 0 University terminated vested as of 10/1/2021 who transferred to Non-University pensioners by 10/1/2022	0
s) 0 University pensioners as of 10/1/2021 who transferred to Non-University pensioners by 10/1/2022	0
<b>t) Total Transfers from University</b>	<b>\$ 309,868</b>
<b>u) Total Net Transfers ( j - t )</b>	<b>\$ (306,475)</b>

**Table 9**

**Allocation of September 30, 2022 MPSERS Assets  
Between University and Non-University Members**

<b>Year Ended September 30, 2022</b>	<b>Total MPSERS</b>	<b>MPSERS University</b>	<b>MPSERS Non-University</b>
A. Funding Value Beginning of Year	\$ 61,479,748,797	\$ 596,740,822	\$ 60,883,007,975
B. Market Value			
B1. Market Value End of Year	59,196,554,883	928,478,539	58,268,076,344
B2. Market Value Beginning of Year	63,332,155,473	615,094,553	62,717,060,920
B3. Audit Adjustment <sup>4</sup>	-	-	-
C. Non-Investment Net Cash Flow			
C1. Member Contributions	434,411,307	1,076,754	433,334,553
C2. Employer Contributions	3,843,216,331	445,275,264	3,397,941,067
C3. Benefit Payments	(5,424,330,791)	(94,893,184)	(5,329,437,607)
C4. Contribution Refunds / Transfers	(33,182,357)	(475,568)	(32,706,789)
C5. Administrative Expenses <sup>1</sup>	(23,784,361)	(348,928)	(23,435,433)
C6. University Employer Contribution Refund	-	-	-
C7. Other	89,169	-	89,169
C8. University/Non-University Participant Transfer	-	(306,475)	306,475
C9. Total Net Cash Flow: C1 + C2 + C3 + C4 + C5 + C6 + C7 + C8	(1,203,580,702)	350,327,863	(1,553,908,565)
D. Investment Return			
D1. Market Return Total: B1 - B2 - B3 - C9 <sup>2</sup>	(2,932,019,888)	(36,943,877)	(2,895,076,011)
D2. Assumed Rate of Return <sup>3</sup>	6.00%	6.00%	6.00%
D3. Market Rate of Return	(4.67)%	(4.67)%	(4.67)%
D4. Dedicated Gains Policy Trigger (Excess Return %)	0.00%	0.00%	0.00%
D5. Market Return for Immediate Recognition: D4 x (B2 + B3 + (C9 - C8)/2)	-	-	-
D6. Assumed Amount of Return: D2 x (A + B3 + (C9 - C8)/2)	3,652,677,507	46,323,479	3,606,354,028
D7. Amount Subject to Phase-In: D1 - D5 - D6	(6,584,697,395)	(83,267,356)	(6,501,430,039)
E. Phased-In Recognition of Investment Return			
E1. Current Year: 0.20 x D7	(1,316,939,479)	(16,653,471)	(1,300,286,008)
E2. First Prior Year	463,152,187	4,588,433	458,563,754
E3. Second Prior Year	(58,587)	-	(58,587)
E4. Third Prior Year	(17,189)	-	(17,189)
E5. Fourth Prior Year	8,069	-	8,069
E6. Total Phase-Ins	(853,854,999)	(12,065,038)	(841,789,961)
F. Funding Value End of Year			
F1. Preliminary Funding Value End of Year: A + B3 + C9 + D5 + D6 + E6	\$ 63,074,990,603	\$ 981,327,126	\$ 62,093,663,477
F2. Corridor Percent	30%	30%	30%
F3. Upper Corridor Limit: (100% + F2) x B1	76,955,521,348	1,207,022,101	75,748,499,247
F4. Lower Corridor Limit: (100% - F2) x B1	41,437,588,418	649,934,977	40,787,653,441
F5. Funding Value End of Year	\$ 63,074,990,603	\$ 981,327,126	\$ 62,093,663,477
G. Difference Between Market and Funding Value	(3,878,435,720)	(52,848,587)	(3,825,587,133)
H. Recognized Rate of Return	4.60 %	4.44 %	4.60 %
I. Market Rate of Return	(4.67)%	(4.67)%	(4.67)%
J. Ratio of Funding Value to Market Value	1.0655	1.0569	1.0657

<sup>1</sup> The Administrative Expense attributable to University and Non-University members is derived from the total MPSERS values by allocating in proportion to the membership counts provided by ORS (5,865 University members and 399,782 total MPSERS members).

<sup>2</sup> Allocated in proportion to average market value.

<sup>3</sup> Discount rate was 6.00% for all groups (Non-Hybrid, Pension Plus Plan, and Pension Plus 2 Plan) for the September 30, 2021 valuation.

<sup>4</sup> Includes an adjustment for the difference between the amount submitted as Market Value Beginning of Year for the current report and the amount submitted as Market Value End of Year for the prior report. The adjustment was allocated between the University and Non-University groups in proportion to the prior year's end of year market values.



## Table 10

### Unfunded Actuarial Accrued Liability and Actuarial Gain (Loss)

	Unfunded Actuarial Accrued Liability as of September 30, 2022		
	All MPSERS Members	University MPSERS Members	Non-University MPSERS Members
1. Actuarial accrued liability	\$98,142,074,408	\$1,243,228,501	\$96,898,845,907
2. Valuation assets	<u>63,074,990,603</u>	<u>981,327,126</u>	<u>62,093,663,477</u>
3. Unfunded (overfunded) actuarial accrued liability = (1) - (2)	35,067,083,805	261,901,375	34,805,182,430
4. Funded ratio = (2) / (1)	64.27%	78.93%	64.08%
	Derivation of Actuarial Gain (Loss)		
	All MPSERS Members	University MPSERS Members	Non-University MPSERS Members
5. Unfunded Actuarial Accrued Liability (UAAL) - Previous Valuation	\$34,423,647,720	\$ 669,911,445	\$33,753,736,275
6. Total Normal Cost (employer plus member) for Year Ending 9/30/2022	1,165,280,210	3,924,225	1,161,355,985
7. Total Contributions (employer plus member) for Year Ending 9/30/2022	4,277,627,638	446,352,018	3,831,275,620
8. Interest on:			
a. UAAL: Discount Rate <sup>1</sup> x (5)	2,065,418,863	40,194,687	2,025,224,176
b. Normal Cost and Contributions: Discount Rate <sup>1</sup> / 2 x [(6) - (7)]	<u>(93,370,423)</u>	<u>(13,272,834)</u>	<u>(80,097,589)</u>
c. Net Total: (a) + (b)	1,972,048,440	26,921,853	1,945,126,587
9. Change in UAAL due to Benefit Changes	0	0	0
10. Change in UAAL due to Assumption Changes	0	0	0
11. Expected UAAL Current Year: (5) + (6) - (7) + (8c) + (9) + (10)	33,283,348,732	254,405,505	33,028,943,227
12. Actual UAAL Current Year	35,067,083,805	261,901,375	34,805,182,430
13. Experience Gain/(Loss): (11) - (12)	(1,783,735,073)	(7,495,870)	(1,776,239,203)
14. Actuarial accrued liability at start of year	95,903,396,517	1,266,652,267	94,636,744,250
15. Gain (loss) as percent of pension actuarial accrued liabilities at start of year	(1.86)%	(0.59)%	(1.88)%
16. Portion of gain (loss) due to investment performance	(853,854,999) <sup>2</sup>	(12,065,038) <sup>2</sup>	(841,789,961)

<sup>1</sup> Discount rate was 6.00% for all groups (Non-Hybrid, Pension Plus Plan, and Pension Plus 2 Plan) for the September 30, 2021 valuation.

<sup>2</sup> Please note that row 15 above includes the accelerated recognition of investment gains associated with the Dedicated Gains Policy, if applicable.