



June 27, 2024

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

**Re: Separate Actuarial Valuation as of September 30, 2023 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completed a separate actuarial valuation for current and former employees of the seven Michigan Universities that have withdrawn from the Michigan Public School Employees' Retirement System (for their employees hired on or after January 1, 1996) due to the enactment of Act No. 272 of the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, 2023, and utilized the same actuarial assumptions and methods used for the 2023 valuation of MPSERS, except that the payroll growth assumption for amortization purposes is 2.75%.

The purpose of the valuation is to determine the required employer contribution for the fiscal year beginning October 1, 2025 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, 2023 MPSERS annual actuarial valuation report dated March 4, 2024 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, 2023 and September 30, 2022
- Table 2 - Actuarial Valuation Results as of September 30, 2023
- Table 3 - University Layered Amortization Schedule
- Table 4 - Active University MPSERS Members as of September 30, 2023 by Age and Years of Service
- Table 5 - Active University MPSERS Member Statistics by Plan Type
- Table 6 - University MPSERS Pensions in Force on September 30, 2023 by Type of Pension, Selected Option, and Pension Amount

Table 7 - Summary of MPSERS Liability Transfers Between Non-University and University from October 1, 2022 through September 30, 2023

Table 8 - Allocation of September 30, 2023 MPSERS Assets Between University and Non-University Members

Table 9 - Unfunded Actuarial Accrued Liability and Actuarial Gain (Loss)

Table 10 - Low-Default-Risk Obligation Measure

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, 2023 actuarial valuation of MPSERS, unless otherwise noted. We believe that the assumptions and methods used in this report are reasonable and appropriate. The combined effect of the assumptions, excluding prescribed assumptions set by law, is expected to have no significant bias (i.e., not significantly optimistic or pessimistic). 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.

Please note, 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).

It was reported to the actuary that the Retirement Board adopted a Funding Policy for use in the September 30, 2023 and later valuations. The Office of Retirement Services (ORS) confirmed the applicability of the Funding Policy for the University group. In accordance with the Funding Policy, there is no reduction to the computed employer normal cost (i.e., amortization credit) until all subplans of the MPSERS pension plan reach the 120% funding target.



The fiscal year 2026 University employer contribution shown in Table 2 of \$2,266,377 is the sum of:

- a) An employer normal cost (excluding an administrative expense load) of \$1,883,818 based on an employer normal cost rate of 9.75% expressed as a percentage of University MPSERS member payroll for those continuing in the defined benefit plan; plus
- b) An amortization payment of \$0; plus
- c) An administrative expense dollar load of \$382,559.

The amortization payment portion of the employer contribution in dollars for fiscal year 2026 (without regard for “floor” minimums) is \$0 as the Universities are projected to be over 100% funded as of the beginning of fiscal year 2026. The source of this payment, if applicable, either from the Universities or from the State, does not impact valuation results.

Beginning with the September 30, 2023 valuation, a dollar contribution for administrative expenses (separate from the employer normal cost) of \$382,559 is required. Given the closed nature of the University MPSERS defined benefit active member population, we have not expressed the administrative expense as a percentage of payroll.

Historically, amortization payments in the University pension valuation report have been expressed as a percentage of total University payroll (i.e., including both University MPSERS and non-MPSERS active member payroll). To convert the amortization payment to a percentage of total University payroll, divide the amortization dollar payment by the sum of the projected fiscal year 2026 payroll for: University members with future defined benefit accruals, University members with future defined contribution accruals, and University non-MPSERS members hired since January 1, 1996. The projected fiscal year 2026 total University payroll is \$141.2 million.

Assumptions were changed based on the adoption of the findings of the experience study covering the period October 1, 2017 through September 30, 2022. These changes resulted in a decrease in total computed liabilities by approximately \$57.8 million and in a decrease of employer contribution requirements by approximately \$4.6 million attributable to University members.

As noted in the September 30, 2023 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. In the September 30, 2023 valuation, the service purchase loads are attributable entirely to the Non-University members.

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.



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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/LG:cs



Table 1

Demographic Characteristics Comparison of University and Non-University MPSERS Members as of September 30, 2023 and September 30, 2022

2023	Total	University MPSERS Members	Non-University MPSERS Members
<u>Active Members</u>			
Number	152,236	452	151,784
Average age	47.7	58.8	47.7
Average service	14.2	27.5	14.2
Reported payroll	\$ 8,560,582,140	\$ 27,181,282	\$ 8,533,400,858
Average annual payroll	\$ 56,232	\$ 60,136	\$ 56,221
<u>Inactive Vested Members</u>			
Number	17,699	191	17,508
<u>Retirees & Beneficiaries</u>			
Number	226,087	4,878	221,209
Annual pension	\$ 5,548,627,333	\$ 93,811,048	\$ 5,454,816,285
Average annual pension	\$ 24,542	\$ 19,231	\$ 24,659
2022	Total	University MPSERS Members	Non-University MPSERS Members
<u>Active Members</u>			
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
<u>Inactive Vested Members</u>			
Number	18,144	216	17,928
<u>Retirees & Beneficiaries</u>			
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

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, 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.

The September 30, 2023 inactive counts include 2,452 people (including 13 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

Actuarial Valuation Results as of September 30, 2023

	Total All MPSERS Members	University MPSERS Members	Non-University MPSERS Members
(1) Fiscal Year Ending September 30,	2026	2026	2026
(2) Total Normal Cost of Benefits (as a % of member pay) ⁵	14.45%	13.21%	14.45%
(3) Member Contribution % (weighted average)	<u>5.18%</u>	<u>3.46%</u>	<u>5.18%</u>
(4) Employer Normal Cost % = (2) - (3)	9.27%	9.75%	9.27%
(5) Projected Active Member Payroll for Fiscal Year - Normal Cost \$	\$ 8,656,503,027	\$ 19,321,206	\$ 8,637,181,821
(6) Employer Normal Cost \$ = (4) x (5) ¹	802,333,885	1,883,818	800,067,508
(7) Administrative Expenses (University only) ⁵	N/A	382,559	N/A
(8) Actuarial Accrued Liability - Total	95,804,069,521	1,161,361,940	94,642,707,581
Active employees	30,353,092,478	143,768,261	30,209,324,217
Inactive vested members ²	2,790,026,913	18,621,177	2,771,405,736
Other inactive members ³	105,205,716	1,346,617	103,859,099
Retirees and surviving beneficiaries	62,555,744,414	997,625,885	61,558,118,529
(9) Funding Value of Assets	65,903,917,134	1,167,043,865	64,736,873,269
(10) Unfunded Actuarial Accrued Liabilities (UAAL) = (8) - (9)	29,900,152,387	(5,681,925)	29,905,834,312
(11) Initial Amortization Payment \$ ⁴	\$ 2,968,319,241	\$ (1,095,729)	N/A
(12) Funded Ratio	68.8%	100.5%	68.4%
(13) Final Amortization Payment \$ (in accordance with Funding Policy)	\$ 2,971,822,894	\$ - ⁶	\$ 2,971,822,894
(14) Total Computed Employer Contribution \$ = (6) + (7) + (13)	\$ 3,774,156,779	\$ 2,266,377	\$ 3,771,890,402

¹ 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.

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

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

⁴ See Table 3 for documentation of the University layered amortization schedule.

⁵ The load for administrative expenses is included in the total normal cost row for the Total and Non-University columns. The load for administrative expenses is a separate row for the University column.

⁶ To convert the final amortization payment \$ to a percentage of payroll, the amount in row (13) would be divided by the sum of the projected fiscal year 2026 payroll for: University members with future defined benefit accruals, University members with future defined contribution accruals, and University non-MPSERS members hired since January 1, 1996. The projected fiscal year 2026 payroll for amortization purposes for the University group is \$141.2 million.



Table 3

University Layered Amortization Schedule

The table below documents the layered amortization schedule used in the development of the fiscal year 2026 UAAL contribution requirements for the University group.

The UAAL as of September 30, 2023 is projected to the beginning of the fiscal year for which the contributions are being calculated for each of the MPSERS structures (e.g., Non-Hybrid including University, PPP, and PPP2), in this case October 1, 2025. This allows the September 30, 2023 valuation to account for expected future contributions that are based on prior valuations. The UAAL as of the beginning of the fiscal year for which contributions are being calculated is then amortized according to the schedules presented below.

University

Type of UAAL	Valuation Established	Amounts for Fiscal Year Beginning October 1, 2025			
		Outstanding UAAL Balance as of October 1, 2025	Remaining Amortization Period (years)	Amortization Factor	Annual Amortization Payment
Initial	9/30/2023	\$ (16,093,199)	20	14.68720316	\$ (1,095,729)
Subtotal		\$ (16,093,199)			\$ (1,095,729)

Consistent with the Funding Policy, as the University is projected to be over 100% funded as of the start of fiscal year 2026, all layers have been eliminated and a 20-year open amortization period has been used.

Table 4**Active University MPSERS Members as of September 30, 2023
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	1							1	\$ 30,161	\$ 30,161
45 - 49	3	3	1	4	4	7		22	1,266,523	57,569
50 - 54	5	7	5	15	9	30	22	93	5,554,337	59,724
55 - 59	3	5	3	2	9	34	85	141	8,966,096	63,589
60 - 64	10	6	2	7	8	23	62	118	6,748,515	57,191
65 - 69	2	5	1	1	2	6	36	53	3,318,608	62,615
70 & Over	4	1	2	2		3	12	24	1,297,042	54,043
Total	28	27	14	31	32	103	217	452	\$ 27,181,282	\$ 60,136

The September 30, 2023 active statistics exclude 13 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, 2023, the total University payroll (MPSERS members and Non-MPSERS members) was reported to be \$130.2 million for valuation purposes.

Table 5

Active University MPSERS Member Statistics by Plan Type

	September 30, 2022	September 30, 2023
Basic Members		
Number	193	162
Average Age	59.3 years	60.1 years
Average Service	30.8 years	31.6 years
Reported Payroll	\$ 11,470,956	\$ 10,539,589
Average Annual Pay	\$ 59,435	\$ 65,059
MIP Members		
Number	318	290
Average Age	57.4 years	58.2 years
Average Service	25.3 years	25.2 years
Reported Payroll	\$ 17,354,797	\$ 16,641,693
Average Annual Pay	\$ 54,575	\$ 57,385
Total		
Number	511	452
Average Age	58.1 years	58.8 years
Average Service	27.4 years	27.5 years
Reported Payroll	\$ 28,825,753	\$ 27,181,282
Average Annual Pay	\$ 56,410	\$ 60,136

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 September 30, 2023 total active count excludes 13 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, 2023, the total University payroll (MPSERS members and Non-MPSERS members) was reported to be \$130.2 million for valuation purposes.

Table 6

University MPSERS Pensions in Force on September 30, 2023 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	678	521	118	2	27	0	10	310	211	100	18	39
401 - 800	858	662	112	9	52	0	23	392	229	130	30	77
801 - 1,200	734	604	65	6	47	0	12	327	167	125	40	75
1,201 - 1,600	720	614	75	2	18	0	11	294	197	126	64	39
1,601 - 2,000	562	516	36	0	7	0	3	236	138	107	49	32
2,001 - 2,400	387	355	27	0	2	0	3	149	96	84	36	22
2,401 - 2,800	241	216	23	0	1	0	1	90	72	51	18	10
2,801 - 3,200	182	166	15	0	1	0	0	76	54	29	20	3
3,201 - 3,600	128	112	13	0	1	0	2	51	27	33	8	9
3,601 - 4,000	82	73	9	0	0	0	0	29	30	14	5	4
Over 4,000	306	270	34	0	1	0	1	120	87	58	34	7
Totals	4,878	4,109	527	19	157	0	66	2,074	1,308	857	322	317

* 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 7

Summary of MPSERS Liability Transfers Between Non-University and University from October 1, 2022 through September 30, 2023

Transfers Between Segments	
Transfers to University	
a) 0 Non-University actives as of 10/1/2022 who transferred to University actives by 10/1/2023	\$ 0
b) 0 Non-University terminated vested as of 10/1/2022 who transferred to University actives by 10/1/2023	0
c) 0 Non-University pensioners as of 10/1/2022 who transferred to University actives by 10/1/2023	0
d) 0 Non-University actives as of 10/1/2022 who transferred to University terminated vesteds by 10/1/2023	0
e) 0 Non-University terminated vesteds as of 10/1/2022 who transferred to University terminated vesteds by 10/1/2023	0
f) 0 Non-University pensioners as of 10/1/2022 who transferred to University terminated vesteds by 10/1/2023	0
g) 0 Non-University actives as of 10/1/2022 who transferred to University pensioners by 10/1/2023	0
h) 0 Non-University terminated vested as of 10/1/2022 who transferred to University pensioners by 10/1/2023	0
i) 8 Non-University pensioners as of 10/1/2022 who transferred to University pensioners by 10/1/2023	1,275,939
j) Total Transfers into University	\$ 1,275,939
Transfers from University	
k) 1 University actives as of 10/1/2022 who transferred to Non-University actives by 10/1/2023	\$ 172,535
l) 1 University terminated vesteds as of 10/1/2022 who transferred to Non-University actives by 10/1/2023	208,362
m) 0 University pensioners as of 10/1/2022 who transferred to Non-University actives by 10/1/2023	0
n) 0 University actives as of 10/1/2022 who transferred to Non-University terminated vesteds by 10/1/2023	0
o) 0 University terminated vested as of 10/1/2022 who transferred to Non-University terminated vesteds by 10/1/2023	0
p) 0 University pensioners as of 10/1/2022 who transferred to Non-University terminated vesteds by 10/1/2023	0
q) 0 University actives as of 10/1/2022 who transferred to Non-University pensioners by 10/1/2023	0
r) 0 University terminated vested as of 10/1/2022 who transferred to Non-University pensioners by 10/1/2023	0
s) 0 University pensioners as of 10/1/2022 who transferred to Non-University pensioners by 10/1/2023	0
t) Total Transfers from University	\$ 380,897
u) Total Net Transfers (j - t)	\$ 895,042

Table 8

Allocation of September 30, 2023 MPSERS Assets Between University and Non-University Members

Year Ended September 30, 2023	Total MPSERS	MPSERS University	MPSERS Non-University
A. Funding Value Beginning of Year	\$ 63,074,990,603	\$ 981,327,126	\$ 62,093,663,477
B. Market Value			
B1. Market Value End of Year	63,722,816,796	1,141,051,558	62,581,765,238
B2. Market Value Beginning of Year	59,196,554,883	928,478,539	58,268,076,344
B3. Audit Adjustment ⁴	-	-	-
C. Non-Investment Net Cash Flow			
C1. Member Contributions	449,906,364	985,294	448,921,070
C2. Employer Contributions	4,842,555,721	224,926,494	4,617,629,227
C3. Benefit Payments	(5,534,949,342)	(94,847,266)	(5,440,102,076)
C4. Contribution Refunds / Transfers	(34,082,873)	(284,044)	(33,798,829)
C5. Administrative Expenses ¹	(26,940,693)	(383,102)	(26,557,591)
C6. University Employer Contribution Refund	-	-	-
C7. Other	37,120	-	37,120
C8. University/Non-University Participant Transfer	-	895,042	(895,042)
C9. Total Net Cash Flow: C1 + C2 + C3 + C4 + C5 + C6 + C7 + C8	(303,473,703)	131,292,418	(434,766,121)
D. Investment Return			
D1. Market Return Total: B1 - B2 - B3 - C9 ²	4,829,735,616	81,280,601	4,748,455,015
D2. Assumed Rate of Return ³	6.00%	6.00%	6.00%
D3. Market Rate of Return	8.18%	8.18%	8.18%
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)	3,775,395,224	62,791,549	3,712,603,675
D7. Amount Subject to Phase-In: D1 - D5 - D6	1,054,340,392	18,489,052	1,035,851,340
E. Phased-In Recognition of Investment Return			
E1. Current Year: 0.20 x D7	210,868,078	3,697,810	207,170,268
E2. First Prior Year	(1,316,939,479)	(16,653,471)	(1,300,286,008)
E3. Second Prior Year	463,152,187	4,588,433	458,563,754
E4. Third Prior Year	(58,587)	-	(58,587)
E5. Fourth Prior Year	(17,189)	-	(17,189)
E6. Total Phase-Ins	(642,994,990)	(8,367,228)	(634,627,762)
F. Funding Value End of Year			
F1. Preliminary Funding Value End of Year: A + B3 + C9 + D5 + D6 + E6	\$ 65,903,917,134	\$ 1,167,043,865	\$ 64,736,873,269
F2. Corridor Percent	30%	30%	30%
F3. Upper Corridor Limit: (100% + F2) x B1	82,839,661,835	1,483,367,025	81,356,294,810
F4. Lower Corridor Limit: (100% - F2) x B1	44,605,971,757	798,736,091	43,807,235,666
F5. Funding Value End of Year	\$ 65,903,917,134	\$ 1,167,043,865	\$ 64,736,873,269
G. Difference Between Market and Funding Value	(2,181,100,338)	(25,992,307)	(2,155,108,031)
H. Recognized Rate of Return	4.98 %	5.20 %	4.97 %
I. Market Rate of Return	8.18 %	8.18 %	8.18 %
J. Ratio of Funding Value to Market Value	1.0342	1.0228	1.0344

¹ 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 (5,668 University members and 398,588 total MPSERS members).

² Allocated in proportion to average market value.

³ Discount rate was 6.00% for all groups (Non-Hybrid, Pension Plus Plan, and Pension Plus 2 Plan) for the September 30, 2022 valuation.

⁴ 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 9

Unfunded Actuarial Accrued Liability and Actuarial Gain (Loss)

	Unfunded Actuarial Accrued Liability as of September 30, 2023		
	All MPSERS Members	University MPSERS Members	Non-University MPSERS Members
1. Actuarial accrued liability	\$95,804,069,521	\$1,161,361,940	\$94,642,707,581
2. Valuation assets	<u>65,903,917,134</u>	<u>1,167,043,865</u>	<u>64,736,873,269</u>
3. Unfunded (overfunded) actuarial accrued liability = (1) - (2)	29,900,152,387	(5,681,925)	29,905,834,312
4. Funded ratio = (2) / (1)	68.79%	100.49%	68.40%
	Derivation of Actuarial Gain (Loss)		
	All MPSERS Members	University MPSERS Members	Non-University MPSERS Members
5. Unfunded Actuarial Accrued Liability (UAAL) - Previous Valuation	\$35,067,083,805	\$ 261,901,375	\$34,805,182,430
6. Total Normal Cost (employer plus member) for Year Ending 9/30/2023	1,171,798,336	3,566,340	1,168,231,996
7. Total Contributions (employer plus member) for Year Ending 9/30/2023	5,292,462,085	225,911,788	5,066,550,297
8. Interest on:			
a. UAAL: Discount Rate ¹ x (5)	2,104,025,029	15,714,083	2,088,310,946
b. Normal Cost and Contributions: Discount Rate ¹ / 2 x [(6) - (7)]	<u>(123,619,913)</u>	<u>(6,670,363)</u>	<u>(116,949,550)</u>
c. Net Total: (a) + (b)	1,980,405,116	9,043,720	1,971,361,396
9. Change in UAAL due to Benefit Changes	0	0	0
10. Change in UAAL due to Assumption Changes	(3,454,585,985)	(57,837,997)	(3,396,747,988)
11. Expected UAAL Current Year:			
(5) + (6) - (7) + (8c) + (9) + (10)	29,472,239,187	(9,238,350)	29,481,477,537
12. Actual UAAL Current Year	29,900,152,387	(5,681,925)	29,905,834,312
13. Experience Gain/(Loss): (11) - (12)	(427,913,200)	(3,556,425)	(424,356,775)
14. Actuarial accrued liability at start of year	98,142,074,408	1,243,228,501	96,898,845,907
15. Gain (loss) as percent of pension actuarial accrued liabilities at start of year	(0.44)%	(0.29)%	(0.44)%
16. Portion of gain (loss) due to investment performance	(642,994,990) ²	(8,367,228) ²	(634,627,762)
17. Portion of gain (loss) due to investment performance: (13) - (16)	215,081,790	4,810,803	210,270,987

¹ Discount rate was 6.00% for all groups (Non-Hybrid, Pension Plus Plan, and Pension Plus 2 Plan) for the September 30, 2022 valuation.

² Please note that row 16 above includes the accelerated recognition of investment gains associated with the Dedicated Gains Policy, if applicable.

Table 10

Low-Default-Risk Obligation Measure

INTRODUCTION

In December 2021, the Actuarial Standards Board (ASB) adopted a revision to Actuarial Standard of Practice (ASOP) No. 4, *Measuring Pension Obligations and Determining Pension Plan Costs or Contributions*. The revised ASOP No. 4 requires the calculation and disclosure of a liability referred to by the ASOP as the “Low-Default-Risk Obligation Measure” (LDROM). The rationale that the ASB cited for the calculation and disclosure of the LDROM was included in the Transmittal Memorandum of ASOP No. 4 and is presented below (emphasis added):

“The ASB believes that the calculation and disclosure of this measure provides **appropriate, useful information for the intended user regarding the funded status of a pension plan**. The calculation and disclosure of this additional measure is **not intended to suggest that this is the “right” liability measure** for a pension plan. However, the ASB does believe that **this additional disclosure provides a more complete assessment of a plan’s funded status and provides additional information regarding the security of benefits that members have earned as of the measurement date.**”

Presented below are the actuarial accrued liability and the LDROM as of September 30, 2023 for MPSERS.

Type of Member	Valuation Accrued Liabilities	LDROM
Total - All MPSERS Members		
Retirees	\$ 62,555,744,414	\$ 71,368,590,474
Deferreds	2,895,232,629	3,434,940,372
Actives	<u>30,353,092,478</u>	<u>37,915,416,298</u>
Totals	\$ 95,804,069,521	\$ 112,718,947,144
University MPSERS Members		
Retirees	\$ 997,625,885	\$ 1,131,802,442
Deferreds	19,967,794	24,140,543
Actives	<u>143,768,261</u>	<u>172,495,238</u>
Totals	\$ 1,161,361,940	\$ 1,328,438,223
Non-University MPSERS Members		
Retirees	\$ 61,558,118,529	\$ 70,236,788,032
Deferreds	2,875,264,835	3,410,799,829
Actives	<u>30,209,324,217</u>	<u>37,742,921,060</u>
Totals	\$ 94,642,707,581	\$ 111,390,508,921

Table 10 (Continued)

Low-Default-Risk Obligation Measure

COMPARING THE ACCRUED LIABILITIES AND THE LDROM

One of the fundamental financial objectives of MPSERS is to finance each member's retirement benefits over the period from the member's date of hire until the member's projected date of retirement (entry age actuarial cost method) as a level percentage of payroll. To fulfill this objective, the discount rate that is used to value the accrued liabilities of MPSERS is set equal to the expected return on the System's diversified portfolio of assets (referred to sometimes as the investment return assumption). For MPSERS, the investment return assumption is 6.00%.

The LDROM is meant to approximately represent the lump sum cost to a plan to purchase low-default-risk fixed income securities whose resulting cash flows essentially replicate in timing and amount the benefits earned (or the costs accrued) as of the measurement date. The LDROM is very dependent upon market interest rates at the time of the LDROM measurement. The lower the market interest rates, the higher the LDROM, and vice versa. The LDROM results presented in this report are based on the projected unit credit actuarial cost method and discount rates based upon the September 2023 Treasury Yield Curve Spot Rates (monthly average). The 1-, 5-, 10-, and 30-year rates follow: 5.46%, 4.53%, 4.28%, and 4.42%.

COMMENTARY REGARDING THE LDROM

Some ways in which the LDROM can assist the MPSERS Board of Trustees in a decision-making process include:

- (1) It provides information to potentially allow for better risk management for MPSERS.
- (2) It places the appropriateness of potential employer contribution rate reductions or benefit enhancements in a better context.
- (3) It provides more complete information regarding the benefit security of the membership's benefits earned as of the measurement date.
- (4) It brings into consideration a potential value for a "withdrawal liability" for employers that may want to leave MPSERS.

Potentially Allows for Better Risk Management: A very useful risk metric to exhibit potential contribution rate volatility (or amortization period volatility for fixed rate plans) is the ratio of assets to payroll or AAL to payroll. How could we reduce that potential contribution rate volatility (or amortization period volatility for fixed rate plans)? The LDROM and liability driven investing (LDI) are closely related concepts.

Other than reducing benefits, all other things being equal, the only way to reduce that volatility is to immunize (i.e., LDI) a portion of the System's liability. This does not mean that the System needs to immunize all of the liability. For example, if they could immunize half of it, they could reduce the contribution rate volatility in half. This would require the actuary to use a cash flow matching method to value that portion of the liabilities. This means that the actuary would not use the System's investment return assumption for this portion of the liability, but the yield curve resulting from the fixed income portfolio that is being used to immunize the liability. The value of the assets (i.e., fixed income portfolio) and the value of the immunized liability would move in tandem with any changes (up or down) in future interest rates. The result being that the immunized portion of the System's liability would reduce the potential of producing new unfunded actuarial accrued liabilities. However, the fixed income portfolio would still have the minor potential for credit default risk.

Table 10 (Concluded)

Low-Default-Risk Obligation Measure

Places the Appropriateness of Potential Employer Contribution Rate Reductions or Benefit Enhancements in a Better Context: Many PERS have adopted a funding policy. Many funding policies already take into account the System's funded ratio (based upon the AAL) when considering whether to allow for benefit enhancements or contribution rate reductions. For example, a System may not allow for a benefit enhancement if the funded ratio does not exceed a certain threshold. Similarly, a System may not allow for an employer contribution rate reduction in some circumstances. For example, a reduction to the employer normal cost contribution may not be allowed until the System reaches a funded ratio of 120%. Given the fact that most criteria are based upon the expectation of earning the investment return assumption, a System may want to consider extending these criteria to a funded ratio based upon the LDRM in addition to the AAL.

Provides More Complete Information Regarding the Benefit Security of the Membership's Benefits Earned as of the Measurement Date: Too often a high funded ratio (e.g., 100% funded) on an AAL basis is interpreted as benefit security for the participants. The fact that this funded ratio is based upon an expected measure is many times overlooked. If the AAL and LDRM measures are relatively close, then the System at least has the opportunity to make benefits payable in the future more secure.