4.1

PLYMOUTH DISTRICT LIBRARY

TO:	Plymouth District Library Personnel Committee	**DATE:**	November 30, 2023
RE:	Recommendation on MERS Pension	**FROM:**	Shauna Anderson, Director

At the last Personnel Committee meeting, I presented five options to help move the library's closed pension account with MERS into a more sustainable place. Based on the attached actuarial valuation, I am recommending that we implement Option 1.

This option calls for the removal of the 2.5% Cost-Of-Living-Adjustment (COLA) benefit for service after January 1, 2024. This will immediately increase our actuarially-defined funding ratio, which is the primary reason for potential State intervention. Although the attached actuarial valuation does not include market-value funding ratios, the information provided is enough for me to conclude that the change would have enough of a positive impact in our future funding needs.

Municipal Employees' Retirement System of Michigan

Plymouth Dist Lib (8221) – Division 01
Retirement Plan Options

800.521.0498 | P: 248.799.9000 | www.grsconsulting.com

November 28, 2023

In care of:
Municipal Employees' Retirement System of Michigan
1134 Municipal Way
Lansing, Michigan 48917

The purpose of this report is to show the financial implications to the employer of different retirement plan design options for Plymouth Dist Lib (8221) – Division 01. This report is based on the annual actuarial valuation as of December 31, 2022 and consists of information that corresponds to the different plan options under consideration. The results of each option include the following additional detail:

- An executive summary that describes the plan provisions and provides a brief explanation of the results.
- An exhibit showing the short-term impact of the proposed benefit change – that is, the net impact on the applicable fiscal year's contribution.
- An exhibit showing the estimated 5-year contribution impact of the proposed benefit change (i.e., a projection of the Actuarial Accrued Liabilities, Valuation Assets, funded ratio, and employer contributions under both the current and proposed plans).
- A graph showing the projected funded ratio and employer contribution under both the current and proposed plans.

This report was prepared at the request of MERS on behalf of the municipality and is intended for use by the municipality and those designated or approved by the municipality. **The report may be provided to parties other than the municipality only in its entirety.** GRS is not responsible for unauthorized use of this report.

This valuation assumed the continuing ability of the plan sponsor to make the contributions necessary to fund this plan. A determination regarding whether or not the plan sponsor is actually able to do so is outside our scope of expertise and was not performed.

The valuation was based upon information furnished by MERS staff, concerning Retirement System benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal reasonability, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by the municipality and MERS staff.

One Towne Square | Suite 800 | Southfield, Michigan 48076-3723

This report reflects the impact of COVID-19 experience through December 31, 2022. At this time, no future assumptions have been adjusted as a result of COVID-19. Actual future experience will be reflected in each subsequent annual valuation, as experience emerges.

The Plan Document Article VI sec. 71 (1)(d), provides the MERS Board with the authority to set actuarial assumptions and methods after consultation with the actuary. This report was prepared using certain assumptions approved by the Board. The MERS Board adopted the actuarial assumptions based on the recommendations of the actuary. A description of these assumptions and methods can be found as follows:

- Plan Document, v12012022,
- Actuarial Policy, DOC 8062 (2022-06-23), and
- 2022 Appendix to the Annual Actuarial Valuation Report.

This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. To the best of our knowledge, the information contained in this report is accurate and fairly presents the actuarial position of the municipality as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices and in conformity with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

Shana M. Neeson and Kurt Dosson are Members of the American Academy of Actuaries (MAAA) and meet the Academy's Qualification Standards to render the actuarial opinions contained herein.

The signing actuaries are independent of the plan sponsor.

Sincerely,
Gabriel, Roeder, Smith & Company

Shana M Neeson

Shana M. Neeson, ASA, FCA, MAAA

Kurt Dosson, ASA, FCA, MAAA

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Executive Summary

The purpose of this report is to show the impact on the liabilities and contributions of the proposed benefit changes for Plymouth Dist Lib (8221) – Division 01. The following proposed benefit changes have been considered:

Option	Division	Proposed Change in Benefit	
1	Gnrl (01)	Bridged Benefit:	
		COLA for Future Retirees To Bridge Date:	2.50% (Non-Compound)
		COLA for Future Retirees On/After Bridge Date:	0.00%
		COLA Bridge Date:	January 1, 2024
2	Gnrl (01)	Bridged Benefit:	
		Benefit Multiplier To Bridge Date:	2.00% Multiplier (no max)
		Benefit Multiplier On/After Bridge Date:	1.75% Multiplier (no max)
		Bridge Date:	January 1, 2024
		FAC Type:	Frozen FAC
		Bridge Benefit Max:	80% of FAC at Termination of Employment
3	Gnrl (01)	Bridged Benefit:	
		Benefit Multiplier To Bridge Date:	2.00% Multiplier (no max)
		Benefit Multiplier On/After Bridge Date:	1.50% Multiplier (no max)
		Bridge Date:	January 1, 2024
		FAC Type:	Frozen FAC
		Bridge Benefit Max:	80% of FAC at Termination of Employment

The results of our calculations are shown as follows:

- The exhibits on pages 6, 7, and 8 show the short-term impact of the proposed benefit change (i.e., the change in the Actuarial Accrued Liability [AAL] as of December 31, 2022 and the change in the employer contribution for the fiscal year beginning January 1, 2024).
- In order to illustrate the long-term impact of the proposed benefit change, we are also showing projections under both the current and the proposed benefits. The projection results are illustrated both in tabular and graphical form.

Please note the following regarding these calculations:

- Under each option, there is an immediate impact (reduction) on the Unfunded Accrued Liability (UAL) because the Cost of Living Adjustment (COLA) or the Final Average Compensation (FAC) for current active members is frozen.
- The proposed change may affect the risk profile of the Plan. At this time, we do not believe additional risk assessment is necessary.

Short Term Impact – Option 1
Plymouth Dist Lib (8221) - Gnrl (Division 01)
Employer Computed Contributions
Based on the 12/31/2022 Annual Actuarial Valuation

	Current Benefits		Proposed Option 1		Difference	
Benefits						
a) Benefit Multiplier	2.00% Multiplier (no max)		2.00% Multiplier (no max)			
b) Normal Retirement Age	60		60			
c) Vesting	8 years		8 years			
d) Early Retirement (Unreduced)	55/25		55/25			
e) Early Retirement (Unreduced)	-		-			
f) Early Retirement (Reduced)	50/25		50/25			
g) Early Retirement (Reduced)	55/15		55/15			
h) Final Average Compensation	5 years		5 years			
i) COLA for Future Retirees	2.50% (Non-Compound)		Bridged Benefit (See below)		Bridged Benefit (See below)	
j) COLA for Current Retirees	-		-			
k) Normal Form of Payment	-		-			
l) Death and Disability (D-2)	-		-			
m) Member Contribution Rate	0.00%		0.00%			
n) Other	-		-			
o) Census Change	-		-			
Participant Summary						
a) Active		13		13		0
b) Vested Former Members		3		3		0
c) Retired		17		17		0
d) Refunds		0		0		0
e) Total		33		33		0
f) Annual Payroll		$881,681		$881,681		$0
Results						
1. Determination of Unfunded Accrued Liabilities and Funded Percent						
a. Present Value of Future Benefits (Active)[1]		$2,480,009		$2,188,551		($291,458)
b. Present Value of Future Normal Costs (Active)[2]		$897,174		$722,122		(175,052)
c. Accrued Liability[3]						
i. Active Employees [1.a. - 1.b.]		$1,582,835		$1,466,429		($116,406)
ii. Vested Former Employees		203,657		203,657		0
iii. Retirees and Beneficiaries		4,835,085		4,835,085		0
iv. Pending Refunds		0		0		0
v. Total		$6,621,577		$6,505,171		($116,406)
d. Actuarial Value of Assets		$4,286,446		$4,286,446		$0
e. Unfunded Accrued Liability (UAL) [1.c.v. - 1.d.]		$2,335,131		$2,218,725		($116,406)
f. Division Percent Funded [1.d. / 1.c.v.]		64.7%		65.9%		1.2%
2. Employer Contribution Development[4]	As an Annual $	As a % of payroll	As an Annual $	As a % of payroll	As an Annual $	As a % of payroll
a. Total Normal Cost[5]	$106,404	12.66%	$85,812	10.21%	($20,592)	(2.45%)
b. Employee Contribution Rate	0	0.00%	0	0.00%	0	0.00%
c. Employer Normal Cost [2.a - 2.b.]	106,404	12.66%	85,812	10.21%	(20,592)	(2.45%)
d. Amortization of UAL[6]	197,244	-	186,696	-	(10,548)	-
e. Employer Contribution[7] [2.c. + 2.d., not less than 0]	$303,648	-	$272,508	-	($31,140)	-
Miscellaneous and Technical Assumptions						
1. Increase in Final Compensation	1.00 %		1.00 %			

1 *The total value, in today's dollars, of benefits expected to be earned by the current active population and paid in the future.*
2 *The portion of the present value of future benefits for current active members, expected to be earned after the valuation date.*
3 *The portion of the present value of future benefits earned through the valuation date.*
4 *Percentages of pay are not developed for a closed division.*
5 *The total normal cost is the ongoing cost of the plan under the applicable benefit structure.*
6 *Refer to the valuation Appendix, on the MERS website, for a description of the amortization policy.*
7 *Note that the results shown are based on the December 31, 2022 assumptions without any phase-in.*

Bridged Benefit Description:

COLA for Future Retirees To Bridge Date:	2.50% (Non-Compound)
COLA for Future Retirees On/After Bridge Date:	0.00%
COLA Bridge Date:	January 1, 2024

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Short Term Impact – Option 2
Plymouth Dist Lib (8221) - Gnrl (Division 01)
Employer Computed Contributions
Based on the 12/31/2022 Annual Actuarial Valuation

	Current Benefits		Proposed Option 2		Difference	
Benefits						
a) Benefit Multiplier	2.00% Multiplier (no max)		Bridged Benefit (See below)		Bridged Benefit (See below)	
b) Normal Retirement Age	60		60			
c) Vesting	8 years		8 years			
d) Early Retirement (Unreduced)	55/25		55/25			
e) Early Retirement (Unreduced)	-		-			
f) Early Retirement (Reduced)	50/25		50/25			
g) Early Retirement (Reduced)	55/15		55/15			
h) Final Average Compensation	5 years		5 years			
i) COLA for Future Retirees	2.50% (Non-Compound)		2.50% (Non-Compound)			
j) COLA for Current Retirees	-		-			
k) Normal Form of Payment	-		-			
l) Death and Disability (D-2)	-		-			
m) Member Contribution Rate	0.00%		0.00%			
n) Other	-		-			
o) Census Change	-		-			
Participant Summary						
a) Active		13		13		0
b) Vested Former Members		3		3		0
c) Retired		17		17		0
d) Refunds		0		0		0
e) Total		33		33		0
f) Annual Payroll		$881,681		$881,681		$0
Results						
1. Determination of Unfunded Accrued Liabilities and Funded Percent						
a. Present Value of Future Benefits (Active)[1]		$2,480,009		$1,981,214		($498,795)
b. Present Value of Future Normal Costs (Active)[2]		$897,174		$792,663		(104,511)
c. Accrued Liability[3]						
i. Active Employees [1.a. - 1.b.]		$1,582,835		$1,188,551		($394,284)
ii. Vested Former Employees		203,657		203,657		0
iii. Retirees and Beneficiaries		4,835,085		4,835,085		0
iv. Pending Refunds		0		0		0
v. Total		$6,621,577		$6,227,293		($394,284)
d. Actuarial Value of Assets		$4,286,446		$4,286,446		$0
e. Unfunded Accrued Liability (UAL) [1.c.v. - 1.d.]		$2,335,131		$1,940,847		($394,284)
f. Division Percent Funded [1.d. / 1.c.v.]		64.7%		68.8%		4.1%
2. Employer Contribution Development[4]	As an Annual $	As a % of payroll	As an Annual $	As a % of payroll	As an Annual $	As a % of payroll
a. Total Normal Cost[5]	$106,404	12.66%	$92,712	11.03%	($13,692)	(1.63%)
b. Employee Contribution Rate	0	0.00%	0	0.00%	0	0.00%
c. Employer Normal Cost [2.a - 2.b.]	106,404	12.66%	92,712	11.03%	(13,692)	(1.63%)
d. Amortization of UAL[6]	197,244	-	161,508	-	(35,736)	-
e. Employer Contribution[7] [2.c. + 2.d., not less than 0]	$303,648	-	$254,220	-	($49,428)	-
Miscellaneous and Technical Assumptions						
1. Increase in Final Compensation	1.00 %		1.00 %			

1 *The total value, in today's dollars, of benefits expected to be earned by the current active population and paid in the future.*
2 *The portion of the present value of future benefits for current active members, expected to be earned after the valuation date.*
3 *The portion of the present value of future benefits earned through the valuation date.*
4 *Percentages of pay are not developed for a closed division.*
5 *The total normal cost is the ongoing cost of the plan under the applicable benefit structure.*
6 *Refer to the valuation Appendix, on the MERS website, for a description of the amortization policy.*
7 *Note that the results shown are based on the December 31, 2022 assumptions without any phase-in.*

Bridged Benefit Description:

Benefit Multiplier To Bridge Date:	2.00% Multiplier (no max)
Benefit Multiplier On/After Bridge Date:	1.75% Multiplier (no max)
Bridge Date:	January 1, 2024
FAC Type:	Frozen FAC
Bridge Benefit Max:	80% of FAC at Termination of Employment

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Short Term Impact – Option 3
Plymouth Dist Lib (8221) - Gnrl (Division 01)
Employer Computed Contributions
Based on the 12/31/2022 Annual Actuarial Valuation

	Current Benefits		Proposed Option 3		Difference	
Benefits						
a) Benefit Multiplier	2.00% Multiplier (no max)		Bridged Benefit (See below)		Bridged Benefit (See below)	
b) Normal Retirement Age	60		60			
c) Vesting	8 years		8 years			
d) Early Retirement (Unreduced)	55/25		55/25			
e) Early Retirement (Unreduced)	-		-			
f) Early Retirement (Reduced)	50/25		50/25			
g) Early Retirement (Reduced)	55/15		55/15			
h) Final Average Compensation	5 years		5 years			
i) COLA for Future Retirees	2.50% (Non-Compound)		2.50% (Non-Compound)			
j) COLA for Current Retirees	-		-			
k) Normal Form of Payment	-		-			
l) Death and Disability (D-2)	-		-			
m) Member Contribution Rate	0.00%		0.00%			
n) Other	-		-			
o) Census Change	-		-			
Participant Summary						
a) Active		13		13		0
b) Vested Former Members		3		3		0
c) Retired		17		17		0
d) Refunds		0		0		0
e) Total		33		33		0
f) Annual Payroll		$881,681		$881,681		$0
Results						
1. Determination of Unfunded Accrued Liabilities and Funded Percent						
a. Present Value of Future Benefits (Active)[1]		$2,480,009		$1,834,366		($645,643)
b. Present Value of Future Normal Costs (Active)[2]		$897,174		$680,404		(216,770)
c. Accrued Liability[3]						
i. Active Employees [1.a. - 1.b.]		$1,582,835		$1,153,962		($428,873)
ii. Vested Former Employees		203,657		203,657		0
iii. Retirees and Beneficiaries		4,835,085		4,835,085		0
iv. Pending Refunds		0		0		0
v. Total		$6,621,577		$6,192,704		($428,873)
d. Actuarial Value of Assets		$4,286,446		$4,286,446		$0
e. Unfunded Accrued Liability (UAL) [1.c.v. - 1.d.]		$2,335,131		$1,906,258		($428,873)
f. Division Percent Funded [1.d. / 1.c.v.]		64.7%		69.2%		4.5%
2. Employer Contribution Development[4]	As an Annual $	As a % of payroll	As an Annual $	As a % of payroll	As an Annual $	As a % of payroll
a. Total Normal Cost[5]	$106,404	12.66%	$79,260	9.43%	($27,144)	(3.23%)
b. Employee Contribution Rate	0	0.00%	0	0.00%	0	0.00%
c. Employer Normal Cost [2.a - 2.b.]	106,404	12.66%	79,260	9.43%	(27,144)	(3.23%)
d. Amortization of UAL[6]	197,244	-	158,376	-	(38,868)	-
e. Employer Contribution[7] [2.c. + 2.d., not less than 0]	$303,648	-	$237,636	-	($66,012)	-
Miscellaneous and Technical Assumptions						
1. Increase in Final Compensation	1.00 %		1.00 %			

1 *The total value, in today's dollars, of benefits expected to be earned by the current active population and paid in the future.*
2 *The portion of the present value of future benefits for current active members, expected to be earned after the valuation date.*
3 *The portion of the present value of future benefits earned through the valuation date.*
4 *Percentages of pay are not developed for a closed division.*
5 *The total normal cost is the ongoing cost of the plan under the applicable benefit structure.*
6 *Refer to the valuation Appendix, on the MERS website, for a description of the amortization policy.*
7 *Note that the results shown are based on the December 31, 2022 assumptions without any phase-in.*

Bridged Benefit Description:

Benefit Multiplier To Bridge Date:	2.00% Multiplier (no max)
Benefit Multiplier On/After Bridge Date:	1.50% Multiplier (no max)
Bridge Date:	January 1, 2024
FAC Type:	Frozen FAC
Bridge Benefit Max:	80% of FAC at Termination of Employment

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Long Term Impact –Options 1, 2, and 3
Plymouth Dist Lib (8221) - Gnrl (Division 01)
Summary of Proposed Change(s), 5-Year Projections of Employer Contributions and Funded Ratios

Option	Description	
Baseline	Current Benefit Provisions	
1	Bridged Benefits:	
	COLA for Future Retirees To Bridge Date:	2.50% (Non-Compound)
	COLA for Future Retirees On/After Bridge Date:	0.00%
	COLA Bridge Date:	January 1, 2024
2	Bridged Benefits:	
	Benefit Multiplier To Bridge Date:	2.00% Multiplier (no max)
	Benefit Multiplier On/After Bridge Date:	1.75% Multiplier (no max)
	Bridge Date:	January 1, 2024
	FAC Type:	Frozen FAC
	Bridge Benefit Max:	80% of FAC at Termination of Employment
3	Bridged Benefits:	
	Benefit Multiplier To Bridge Date:	2.00% Multiplier (no max)
	Benefit Multiplier On/After Bridge Date:	1.50% Multiplier (no max)
	Bridge Date:	January 1, 2024
	FAC Type:	Frozen FAC
	Bridge Benefit Max:	80% of FAC at Termination of Employment

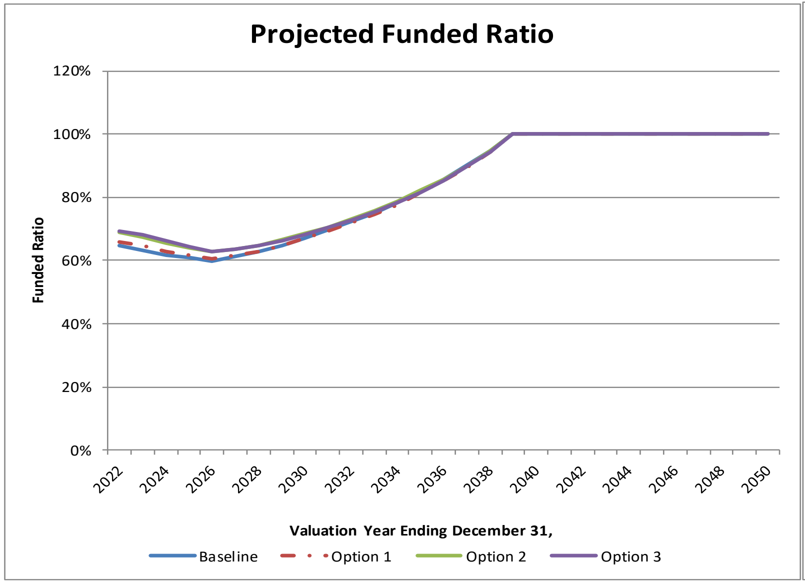
	Baseline			Option 1			Option 2			Option 3		
Valuation Year Ending December 31,	Actuarial Accrued Liability	Valuation Assets	Funded Ratio	Actuarial Accrued Liability	Valuation Assets	Funded Ratio	Actuarial Accrued Liability	Valuation Assets	Funded Ratio	Actuarial Accrued Liability	Valuation Assets	Funded Ratio
2022	$6,620,000	$4,290,000	65%	$6,510,000	$4,290,000	66%	$6,230,000	$4,290,000	69%	$6,190,000	$4,290,000	69%
2023	6,740,000	4,260,000	63%	6,590,000	4,260,000	65%	6,300,000	4,260,000	68%	6,250,000	4,260,000	68%
2024	6,850,000	4,240,000	62%	6,680,000	4,210,000	63%	6,370,000	4,190,000	66%	6,300,000	4,170,000	66%
2025	6,970,000	4,230,000	61%	6,750,000	4,160,000	62%	6,440,000	4,120,000	64%	6,350,000	4,080,000	64%
2026	7,070,000	4,240,000	60%	6,830,000	4,130,000	61%	6,500,000	4,070,000	63%	6,390,000	4,010,000	63%
2027	7,180,000	4,400,000	61%	6,900,000	4,250,000	62%	6,550,000	4,160,000	64%	6,420,000	4,090,000	64%

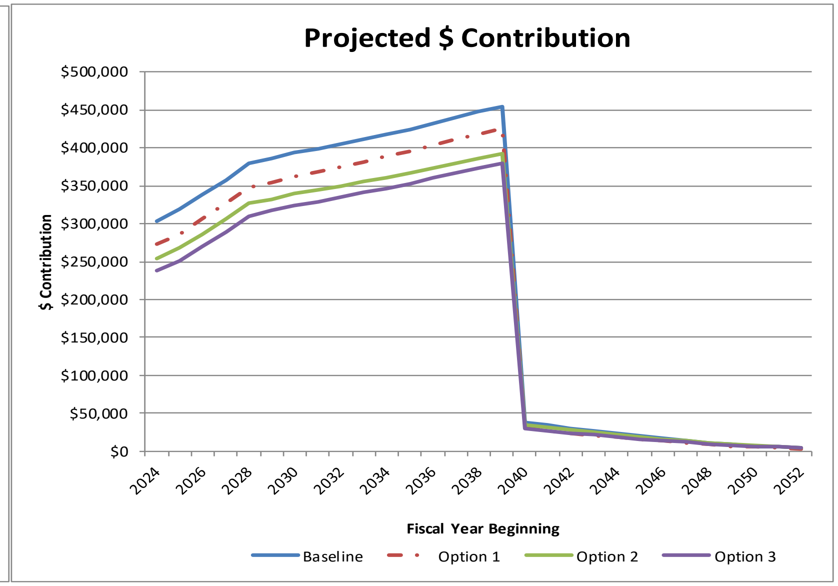
	Baseline	Option 1	Option 2	Option 3
Fiscal Year Beginning January 1,	Total Employer Contribution	Total Employer Contribution	Total Employer Contribution	Total Employer Contribution
2024	$304,000	$273,000	$254,000	$238,000
2025	319,000	286,000	268,000	250,000
2026	338,000	306,000	286,000	269,000
2027	358,000	326,000	306,000	290,000
2028	379,000	348,000	327,000	310,000
2029	386,000	355,000	332,000	317,000

Notes:
1) *The results shown in the Baseline and Options 1, 2, and 3 are based on the December 31, 2022 assumptions without any phase-in.*
2) *A projection is not a prediction. Future costs will be determined by future valuations and may change based on actual experience.*

This report may be provided to parties other than the municipality only in its entirety.

Long Term Impact –Options 1, 2, and 3
Plymouth Dist Lib (8221) - Gnrl (Division 01)
Projections of Employer Contributions and Funded Ratios





Comments:

- In the long run, the employer contribution will trend towards the employer long-term cost of the different benefit structures. The long-term cost of the various benefit structures expressed as a percent of pay is shown in the table below:

	Baseline	Option 1	Option 2	Option 3
Total Long-term Cost	12.66%	10.21%	11.03%	9.43%
Employee Contribution	0.00%	0.00%	0.00%	0.00%
Employer Long-term Cost	12.66%	10.21%	11.03%	9.43%

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Important Comments

1. The liabilities were calculated using the actuarial assumptions and methods adopted by the MERS Retirement Board and do not assume 100% retirement when first eligible. Actuarial assumptions and methods do not determine the cost of the benefits provided; they only impact the pattern of employer contributions. If future experience is unfavorable compared to the assumptions used, employer contribution rates will increase in future years, and vice versa. For example, if members retire when first eligible, the actual liabilities would be higher than calculated resulting in higher employer contributions.

2. The actuarial value of assets used to determine both the funded ratio and the required employer contribution is based on a smoothed value of assets. Only a portion of each year's investment market gain or loss is recognized in the current actuarial value of assets; the remaining portions of gains and losses will be reflected in future years' actuarial value of assets. This reduces the asset volatility impact on the determined required employer contribution and funded ratio. The smoothed actuarial rate of return for 2022 was 3.51%.

   As of December 31, 2022, the actuarial value of assets is 116% of market value due to asset smoothing. This means that there are deferred investment losses, which will put upward pressure on contributions in the short-term.

3. Unless otherwise indicated, a funded status measurement is based upon the actuarial accrued liability and the actuarial value of assets. The measurement is:

   a. Inappropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations.
   b. Inappropriate for assessing benefit security for the membership.
   c. Dependent upon the actuarial cost method which, in combination with the amortization policy and asset valuation method, affects the timing and amounts of future contributions. The amounts of future contributions will differ from those assumed in this report due to future actual experience differing from assumed.

   A funded status measurement of 100% is not synonymous with no required future contributions. If the funded status were 100%, the Plan would still require future normal cost contributions (i.e., the cost of the active membership accruing an additional year of service credit).

4. This report describes the financial effect of the proposed benefit plan. No statement contained within is a recommendation in favor of or in opposition to the proposed benefit plan.

5. The funded status shows the relationship of the assets to the amount needed to fund past service benefits, the actuarial accrued liability, under valuation assumptions.

Important Comments (Continued)

6. Contribution requirements take into consideration prior service with other MERS entities (for eligibility service only), reflected in the difference between benefit and vesting service. If members have service not reflected in the results (e.g., prior MERS or Act 88 service, if applicable), the unfunded liabilities and employer contributions may be understated.

7. The actuaries' understanding of the default invoicing procedure is that a percent of pay employer contribution is applied for open divisions and a dollar amount is applied for closed divisions.

8. Employer contributions are based on a percentage of members' reported pay for open divisions. If actual reported payroll is substantially lower than the payroll used in this report, the actuaries recommend a minimum contribution of the dollar developed in the "Results," item 2.e.

9. The results do not show the potential impact on other post-employment benefits (such as retiree health care insurance) or ancillary benefits (such as life insurance).

10. The results of separate actuarial valuations generally cannot be added together to produce a correct estimate of the employer contributions. The total can be considerably greater than the sum of the parts due to the interaction of various plan provisions and assumptions used.

11. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions due to changing conditions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period, or additional cost or contribution requirements based on the Plan's funded status); and changes in plan provisions or applicable law. The scope of this supplemental actuarial valuation does not include an analysis of the potential range of such future measurements.

12. Valuation results are developed through the use of multiple models.

    Valuation liabilities were prepared using ProVal's valuation model, a software product of Winklevoss Technologies. We are relying on the ProVal model. We performed tests of the ProVal model with this assignment and made a reasonable attempt to understand the developer's intended purpose of, general operation of, major sensitivities and dependencies within, and key strengths and limitations of the ProVal model. In our professional judgment, the ProVal valuation model has the capability to provide results that are consistent with the purposes of the valuation and has no material limitations or known weaknesses.

    Financial results were prepared using our financing and projection model 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.

Important Comments (Concluded)

13. The calculations are based upon assumptions regarding future events, which may or may not materialize and proposed plan provisions. The actual impact of the proposed plan change(s) will change over time as actual experience emerges. Contact your MERS representative at 800-767-MERS if you believe that:

    a. The assumptions are unreasonable,
    b. The plan provisions are missing or incorrectly described,
    c. Conditions have changed since the calculations were made,
    d. The information provided in this report is inaccurate or is in any way incomplete, or
    e. You need further information to make an informed decision.

14. The following information, assumptions and funding methods were used in the projections under the various options:

    a. Demographic, financial information and benefit provisions provided by MERS for the December 31, 2022 annual valuation, except where noted otherwise.
    b. The assumptions and methods used in the December 31, 2022 annual valuation, except where noted otherwise.
    c. All demographic assumptions will be met during the projection period.
    d. If new hires are included in the valuation, the active population is assumed to remain stable during the projection period.
    e. Demographic assumptions under the DC plan are unchanged from those of the DB plan, if applicable.
    f. The Market Value of Assets will earn the assumed investment return each year during the projection period.
    g. There will be no benefit changes during the projection period.
    h. The employer contributions through December 31, 2023 are not affected, and are based on previous annual actuarial valuations.