



Maryland State Retirement and Pension System

Results of the June 30, 2022
Actuarial Valuation for Fiscal Year 2024

December 6, 2022 Meeting of the
Joint Committee on Pensions

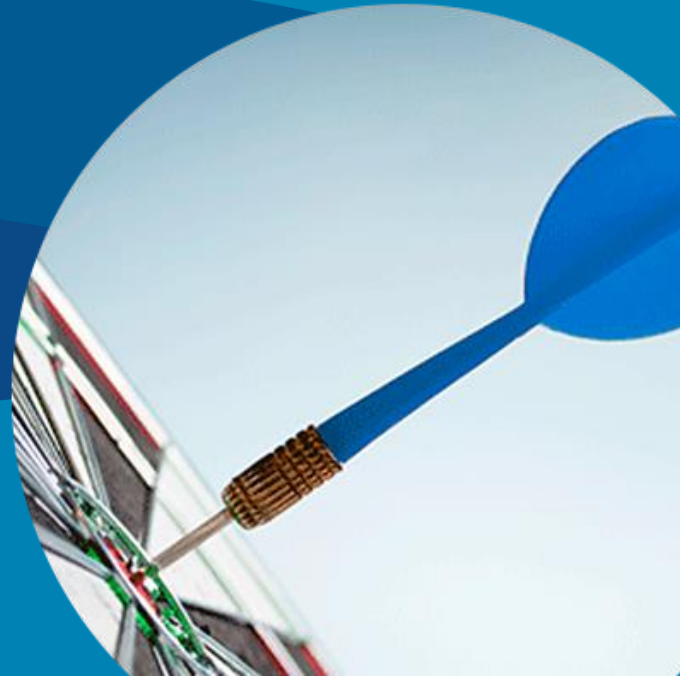


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BACKGROUND

Purposes of the Actuarial Valuation

- Measure the financial position of MSRPS
- Provide the Board with State and PGU contribution rates for certification
- Provide certain disclosure information for financial reporting
 - Included in separate GASB 67/68 report
- Analyze aggregate experience over the last year

Funding Objectives

- Benefit security
 - Plan sponsor commitment, strong governance, effective administration, and accommodated by sources of revenue.
- Stable pattern of contribution rates
 - Average State Actuarial Contribution rate increased by 0.33% of payroll this year.
- Intergenerational equity with respect to plan costs
 - This is a long term goal. We will only know in hindsight if it is achieved. The break with corridor funding was a step in the right direction.
- Stable or increasing ratio of assets to liabilities
 - Funded ratio improved this year on an actuarial value of assets basis only.

Primary Assumptions (No changes for 2022)

- Economic assumptions updated for 2021 valuation
 - Economic assumptions
 - 6.80% investment return; 2.75% payroll growth; 2.25% CPI
 - 1.96% COLA, 2.24% COLA, 2.25% COLA for service where COLA is capped at 3%, 5% or not capped, respectively
 - 1.30% COLA for service earned after July 1, 2011 where COLA is capped at 2.5% in years when the System earns at least the investment assumption or capped at 1% in years when the System earns less than the investment assumption
- Valuation asset method adjusted in 2021 valuation
 - 40% of FY 2021 investment gains recognized in initial year (rather than 20%)
 - 15% recognized in each following 4 years; 2022 recognizes 20% in all 5 years
- Demographic actuarial assumptions based on the 2014-2018 experience study (first used in 2019 Valuation)
 - Demographic Assumptions
 - Public Sector mortality tables with generational mortality projection using scale MP-2018
 - Calibrated to MSRPS experience
 - Retirement, termination, disability and seniority and merit salary increase rates based on plan experience

Variables Affecting Valuation Results

- Benefits (Retirement, Disability, Survivor)
- Actual past experience
- Legislative changes
 - 2020 General Assembly passed HB 588
 - Member contributions cease upon reaching maximum benefit for State Police (28 yrs.) and LEOPS (32.5 yrs.)
 - 2018 General Assembly passed HB 1042 and 1049
 - Increased LEOPs maximum benefit and extended State Police DROP participation
 - 2017 General Assembly passed HB 28
 - Amended provisions of HB 72, below
 - Beginning in FY 2021 and continuing until the System is 85% funded, 25% of the budget surplus in excess of \$10 million, up to a maximum of \$25 million, would be made as an additional contribution to SRPS
 - 2016 General Assembly changed amortization policy for Municipal ECS
 - 2015 General Assembly passed HB 72
 - For FY 2017-2020, 50% of the budget surplus in excess of \$10 million, up to a maximum of \$50 million, would be made as an additional contribution to SRPS
 - \$50 million was received in FY 2017
 - These excess funds were eliminated in the FY 2018 and FY 2019 budgets
 - 2011 General Assembly reforms result in a gradually decreasing normal cost rate, also increased participant contribution rates for most people

Funding Policy

- Entry age actuarial cost method
- 5-year asset smoothing/20% market value collar
 - The 2021 valuation recognized 40% of the investment gain from FY 2021
 - The remaining 60% will be recognized in the 2023-2025 valuations (15% was already recognized in 2022)
- Amortization policy (how and when the unfunded liability is paid off)
 - State Systems
 - Single period closed amortization ending in FY 2039 (16 years remaining in 2022 valuation)
 - Municipal Systems
 - ECS: Single period closed amortization period ending in FY 2043. Phased-in at 20 years in 2022 valuation (FY 2024) and will decrease by 1 year going forward
 - LEOPS: Single period closed amortization period ending in FY 2040 (17 years remaining)
 - CORS: Single period closed amortization period ending in FY 2047 (24 years remaining)
 - Needs to be reconsidered to control volatility once remaining period falls below about 10-15 years
 - See Amortization Policy section for recommendations

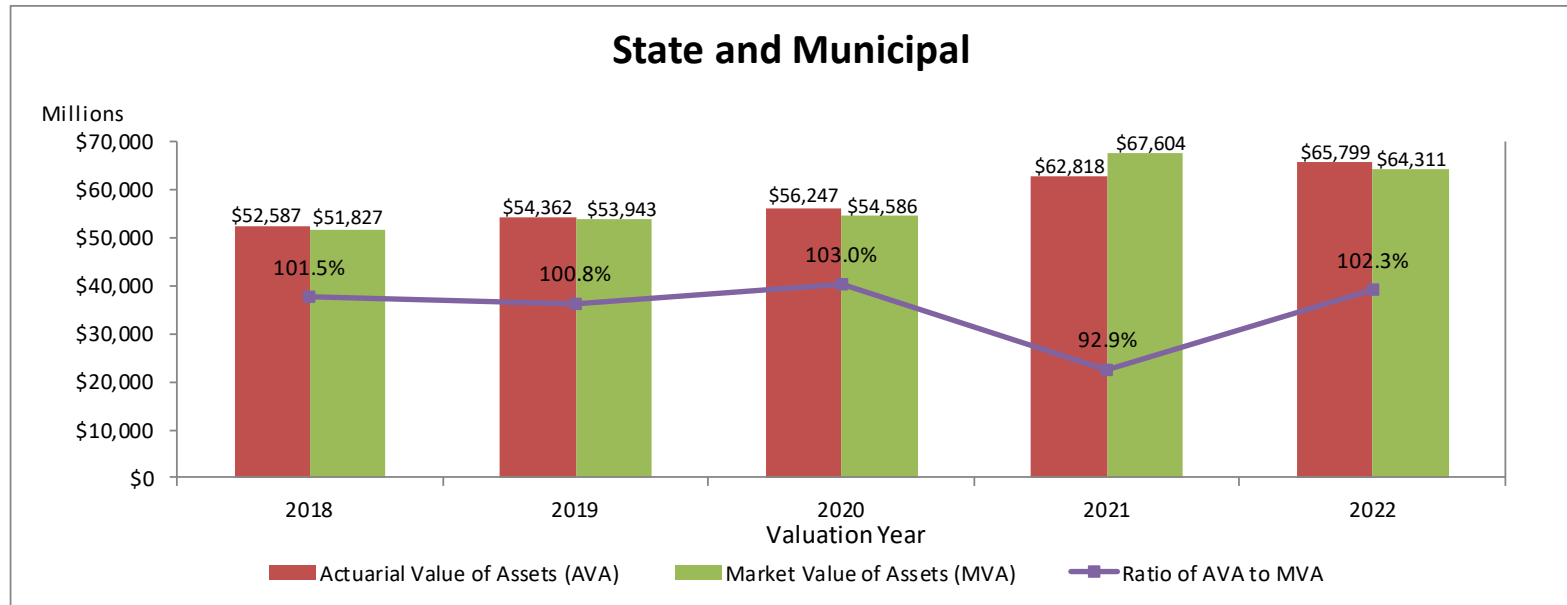
PARTICIPANT DATA

Demographic Data

	Statistics as of June 30				
	2022			2021	% Chg
	State	PGU	Total	Total	
Number Counts					
Active Members	168,797	25,413	194,210	194,311	-0.1%
Vested Former Members	41,340	6,163	47,503	48,051	-1.1%
Retired Members	151,978	20,257	172,235	169,368	1.7%
Total Members	362,115	51,833	413,948	411,730	0.5%
Total Valuation Payroll (\$ in Millions)	\$11,801.3	\$1,400.5	\$13,201.8	\$12,749.2	3.5%
Active Member Averages					
Age	46.1	49.0	46.5	46.4	0.1%
Service	12.5	11.3	12.3	12.4	-0.8%
Pay	\$ 69,914	\$ 55,111	\$ 67,977	\$ 65,613	3.6%
Total Retiree Benefits (\$ in Millions)	\$4,169.2	\$347.5	\$ 4,516.8	\$ 4,263.8	5.9%
Average Retiree Benefit	\$ 27,433	\$ 17,157	\$ 26,225	\$ 25,175	4.2%

ASSET DATA

Actuarial Value of Assets - (\$ Millions)



The actuarial valuation is not based directly upon market value, but rather uses a smoothed value of assets that phases in each year's gain or loss above/below the investment return assumption over 5 years.

The 2022 \$1.5B difference between the MVA and the AVA will be recognized over the next 4 valuations.

STATE RESULTS

Aggregate Experience Net Increase in State Rates



Downward Forces

- More Investment Return (6.97% actuarial, -2.90% market¹) than 6.80% assumed
- Payroll increase of 3.4% vs. 2.75% assumed (affects UAAL rate)
- More Members in Reformed Systems



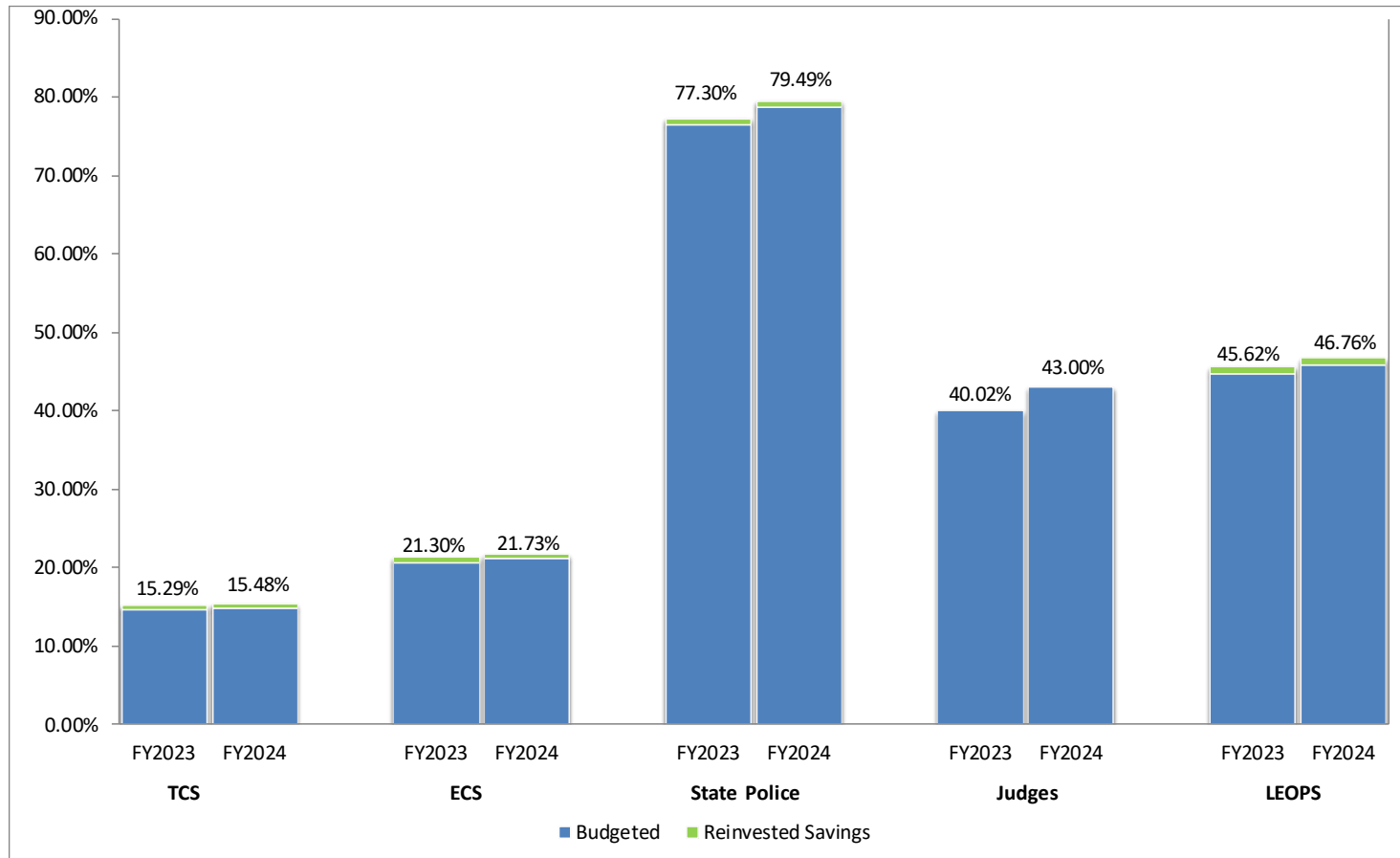
Upward forces

- Individual Pay Increases above assumptions
- FY 2023 COLA above assumption (4.698% vs. 2.25% for unlimited, 3% vs. 1.96% for 3% Cap, and 2.5% vs. 1.30% for Reformed)



¹ Rate shown is based on actuarial estimation method and differs modestly from figures reported by State Street.

Actuarially Determined Contribution Rates (% of Pay)



Year to Year Comparison of Results: STATE Systems

(STATE ONLY except as noted, \$ in Millions)

	Teachers' Combined System	Employees' Combined System	State Police	Judges	LEOPS	Total
FY 2024 Contr. Rate (w. Reinv. Savings) ¹	15.48%	21.73%	79.49%	43.00%	46.76%	18.52%
FY 2023 Contr. Rate (w. Reinv. Savings) ¹	15.29%	21.30%	77.30%	40.02%	45.62%	18.21%
<i>Increase/(Decrease) from Prior Year</i>	<i>0.19%</i>	<i>0.43%</i>	<i>2.19%</i>	<i>2.98%</i>	<i>1.14%</i>	<i>0.31%</i>
FY 2024 Actuarial Contribution Rate ²	14.86%	21.13%	78.68%	43.00%	45.89%	17.88%
FY 2023 Actuarial Contribution Rate ³	14.65%	20.68%	76.45%	40.02%	44.73%	17.55%
<i>Increase/(Decrease) from Prior Year</i>	<i>0.21%</i>	<i>0.45%</i>	<i>2.23%</i>	<i>2.98%</i>	<i>1.16%</i>	<i>0.33%</i>
2022 Actuarial Value of Assets	\$ 40,034	\$ 16,593	\$ 1,863	\$ 596	\$ 933	\$ 60,020
2022 Unfunded Actuarial Liability	9,634	7,395	796	70	438	18,333
2021 Unfunded Actuarial Liability	9,419	7,245	756	52	424	17,896
<i>Increase/(Decrease) from Prior Year</i>	<i>215</i>	<i>150</i>	<i>41</i>	<i>18</i>	<i>14</i>	<i>437</i>
Funded Ratios						
2022	80.6%	69.2%	70.1%	89.5%	68.1%	76.6%
(Including Municipal) ⁴		72.5%			68.9%	77.2%
2021	80.2%	68.7%	70.1%	91.6%	67.4%	76.2%
(Including Municipal)		72.1%			68.7%	76.9%
<i>Increase/(Decrease) from Prior Year</i>	<i>0.4%</i>	<i>0.5%</i>	<i>(0.0%)</i>	<i>(2.1%)</i>	<i>0.7%</i>	<i>0.4%</i>
<i>(Including Municipal)</i>		<i>0.4%</i>			<i>0.2%</i>	<i>0.3%</i>

¹Contribution rates with Reinvested Savings are illustrative only and are shown to facilitate comparison when including the \$75M as a percent of payroll.

²FY 2024 Actuarial Contribution Rate assumes Reinvested Savings of \$75 will be contributed in FY 2023.

³FY 2023 Actuarial Contribution Rate assumes Reinvested Savings of \$75 will be contributed in FY 2022.

⁴Municipal Actuarial Value of Assets of \$5,779 Million and Municipal Unfunded Actuarial Liability of \$1,116 Million are also included in the development of the Total Funded Ratio of 77.2%. Contribution rates are percent of pay.

Reconciliation of Employer Contribution Rates (% of Pay)

(STATE ONLY)

	Teachers' Combined System	Employees' Combined System	State Police	Judges	LEOPS	Total
FY 2023 Actuarial Contribution Rate	14.65%	20.68%	76.45%	40.02%	44.73%	17.55%
Change due to Investment Return	-0.06%	-0.07%	-0.21%	-0.15%	-0.04%	-0.07%
Change due to Demographic and Non-Inv. Exp.	0.48%	0.71%	3.77%	3.17%	1.38%	0.60%
Change due to Total Payroll Experience	-0.07%	-0.08%	-0.86%	-0.09%	0.13%	-0.08%
Change due to Other	<u>-0.13%</u>	<u>-0.11%</u>	<u>-0.47%</u>	<u>0.05%</u>	<u>-0.31%</u>	<u>-0.12%</u>
FY 2024 Actuarial Contribution Rate	14.86%	21.13%	78.68%	43.00%	45.89%	17.88%
Reinvested Savings Rate	<u>0.62%</u>	<u>0.60%</u>	<u>0.81%</u>	<u>0.00%</u>	<u>0.87%</u>	<u>0.64%</u>
Final FY 2024 Total Budgeted Contr. Rate	15.48%	21.73%	79.49%	43.00%	46.76%	18.52%
Investment Gain/Loss as % of Payroll	0.8%	0.8%	2.5%	1.5%	2.3%	0.8%
Non-Investment Gain/Loss as % of Payroll	-5.7%	-8.5%	-45.0%	-37.8%	-16.5%	-7.2%
Total Payroll Increase from Prior Year	3.5%	3.2%	4.5%	3.6%	2.3%	3.4%

Contributions for FY 2023 were based upon the June 30, 2021 valuation.

Allocation of Contribution to Local Employers (Boards of Education)

Teachers Combined System

	FY2024 Contribution (\$ in Millions)			
	<u>% of Pay</u>	<u>Total</u>	<u>Local</u>	
			<u>Employers</u>	<u>State</u>
Employer Normal Cost	5.04%	\$ 412.1	\$ 380.2	\$ 31.9
UAAL Amortization	9.82%	802.9	-	802.9
Reinvested Savings	<u>0.62%</u>	<u>50.8</u>	<u>-</u>	<u>50.8</u>
Total	15.48%	\$ 1,265.8	\$ 380.2	\$ 885.6

	FY2023 Contribution (\$ in Millions)			
	<u>% of Pay</u>	<u>Total</u>	<u>Local</u>	
			<u>Employers</u>	<u>State</u>
Employer Normal Cost	5.12%	\$ 404.6	\$ 373.0	\$ 31.6
UAAL Amortization	9.53%	752.8	-	752.8
Reinvested Savings	<u>0.64%</u>	<u>50.8</u>	<u>-</u>	<u>50.8</u>
Total	15.29%	\$ 1,208.2	\$ 373.0	\$ 835.2

MUNICIPAL RESULTS

Year-to-Year Comparison of Results: MUNICIPAL Systems

(MUNICIPAL ONLY, \$ in Millions)

	Employees' Combined System			
	LEOPS	CORS	Total	
FY 2024 Basic (Pooled) Contribution Rate	7.79%	36.91%	11.87%	9.58%
FY 2023 Basic (Pooled) Contribution Rate	7.40%	36.20%	12.19%	9.02%
<i>Increase/(Decrease) from Prior Year</i>	<i>0.39%</i>	<i>0.71%</i>	<i>(0.32%)</i>	<i>0.56%</i>
2022 Actuarial Value of Assets	\$ 5,284	\$ 454	\$ 41	\$ 5,779
2022 Unfunded Actuarial Liability	923	188	5	1,116
2021 Unfunded Actuarial Liability	856	162	6	1,024
<i>Increase/(Decrease) from Prior Year</i>	<i>67</i>	<i>25</i>	<i>(0)</i>	<i>92</i>
Funded Ratios				
2022	85.1%	70.8%	88.7%	83.8%
2021	85.5%	71.8%	87.2%	84.3%
<i>Increase/(Decrease) from Prior Year</i>	<i>(0.4%)</i>	<i>(1.1%)</i>	<i>1.4%</i>	<i>(0.5%)</i>

ECS and LEOPS experienced actuarial losses overall, comprised mostly of higher than assumed COLAs and individual salary increases, offset slightly by an investment gain on the actuarial value of assets. ECS and LEOPS both saw total payroll increases that exceeded the assumption (which reduced the contribution rate slightly), however LEOPS saw payroll increase to a much greater degree, in part due to PGUs transferring members to LEOPS. CORS experienced a small actuarial gain (the only System to experience a gain overall).

Contribution rates are percent of pay.

CONCLUSION

Recommended Budgeted Contributions

Fiscal Year 2024: STATE

System	Fiscal 2024		Prior Year	
	Budgeted Rate	Illustrated Dollars (Millions)	Budgeted Rate	Illustrated Dollars (Millions)
TCS	14.86%	\$1,215	14.65%	\$1,157
ECS	21.13%	778	20.68%	738
State Police	78.68%	102	76.45%	95
Judges	43.00%	24	40.02%	22
LEOPS	45.89%	61	44.73%	58
Total	17.88%	\$2,181	17.55%	\$2,070
TCS Local Employer Portion		380		373
Total State Only Portion		\$1,801		\$1,697

Reinvested savings of \$75 Million are to be added to the amounts above. The final Illustrated State Total for FY 2024 is therefore \$1,876 Million plus any amounts resulting from the sweeper amendment. Contribution rates are percent of pay.

Recommended Basic Contributions

Fiscal Year 2024: MUNICIPAL

System	FY 2024	FY 2023
ECS	7.79%	7.40%
LEOPS	36.91%	36.20%
CORS	11.87%	12.19%

PGU Contributions consist of the basic pooled rate shown above, certain surcharges, deficits or credits related to pre-2001 ECS liability, and new entrant and withdrawal payments and credits, all of which are shown in the full report. Contribution rates are percent of pay.

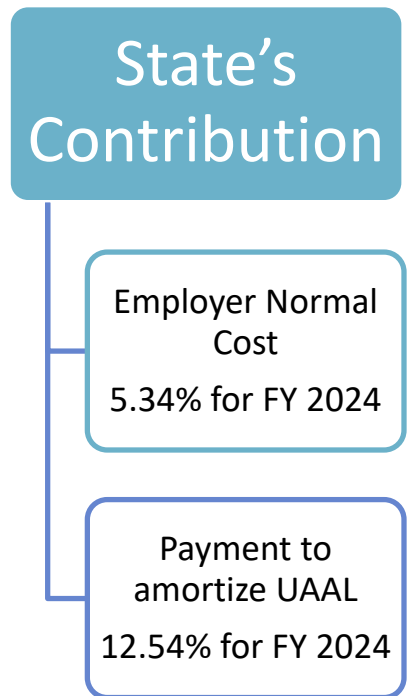
Concluding Comments

- Experience in total was unfavorable during FY 2022 leading to an increase in aggregate State employer contribution rates.
- Upward pressure on contribution rates expected through FY 2028 due to deferred asset losses.
- State Systems on a path to reach a 100% funded ratio by 2039.
- The current funding policy will need modification to avoid volatility associated with short amortization periods.

AMORTIZATION POLICY

Amortization Policy Primer

- The State's contribution is comprised of two components:
 - Employer Normal Cost
 - The cost assigned to the current year to fund active members benefits less employee contributions
 - Payment to amortize the Unfunded Actuarial Accrued Liability (UAAL)
 - The UAAL is the liability assigned to the past that is not funded by current assets
 - Paid off gradually over time

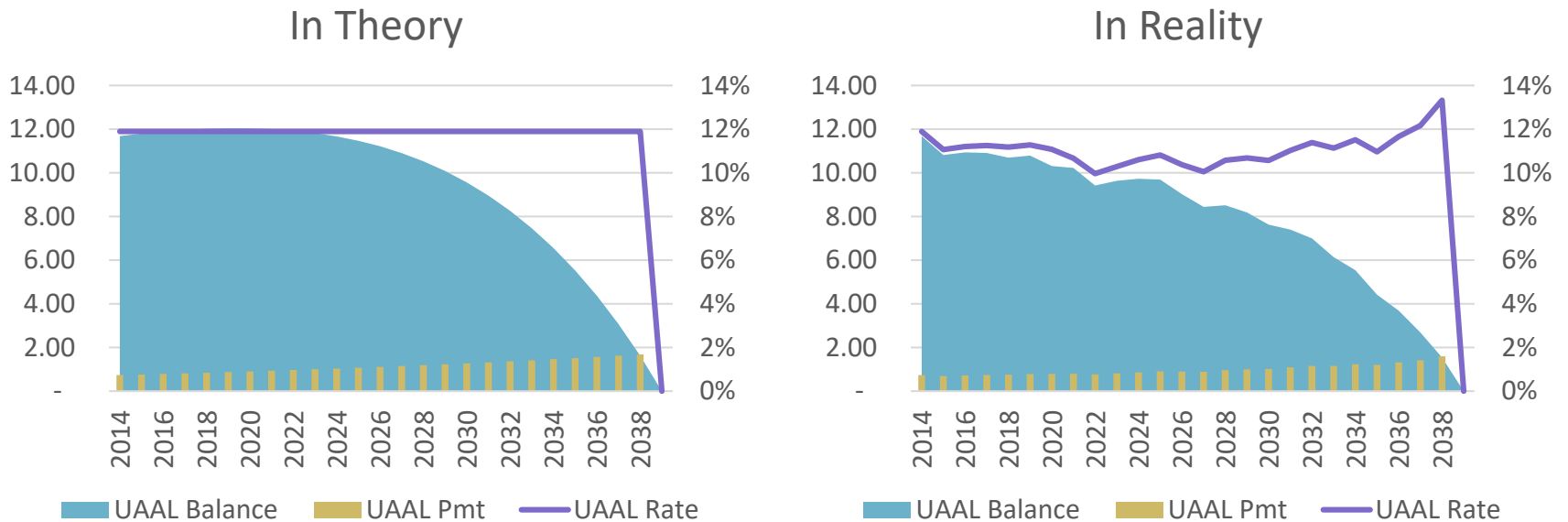


Amortization Policy Primer

- The UAAL is amortized, or paid off gradually over time
 - Analogous to a mortgage on a home
 - Requires paying principal and interest until the balance is paid off
- Unlike a mortgage
 - The UAAL (principal) changes with each valuation for various reasons
 - Actuarial gains and losses
 - Assumption or method changes
 - Benefit changes
 - The payment is usually calculated as a percent of payroll, rather than a fixed dollar amount
 - The actual payment dollars grow as the payroll grows

Amortization Policy Primer

Due to fluctuations in the UAAL caused by experience, assumptions changes, etc., the payment to amortize the UAAL will fluctuate at each valuation. The example below demonstrates a single 25-year closed amortization base.



Amortization Policy Primer

- How the UAAL is amortized is dictated by the System's funding policy and Maryland statutes.

Current Amortization Policy

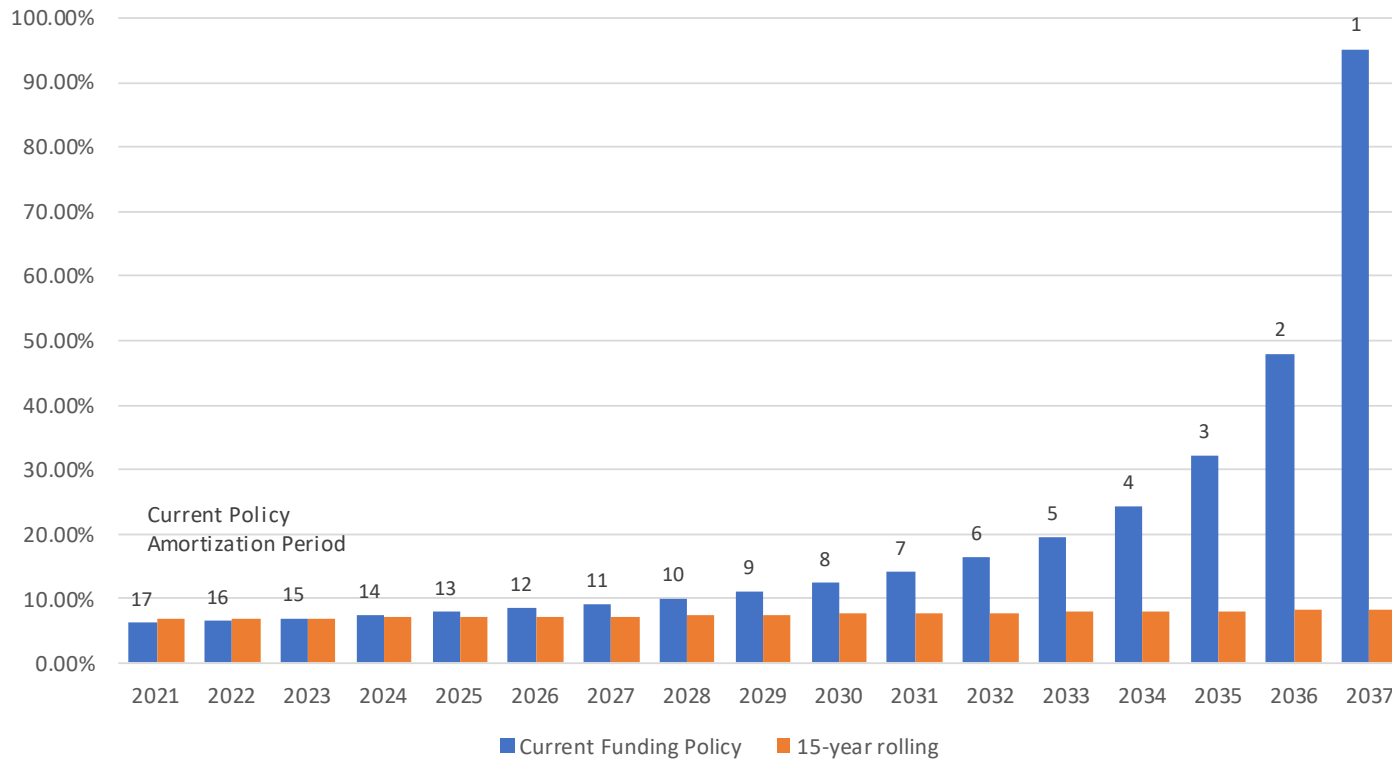
- State Plans
 - 25-year closed for State plans ending June 30, 2039
 - 16 years remaining as of June 30, 2022 actuarial valuation
 - Corridor funding method eliminated
- Municipal Plans
 - ECS Municipal phased down to 20-year closed (for the June 30, 2022 valuation) ending June 30, 2043
 - LEOPS Municipal 17-year closed ending June 30, 2040
 - CORS Municipal 24-year closed ending June 30, 2047

Current Amortization Policy

- The objective of the current funding policy (State Systems) is to be fully funded on June 30, 2039.
- The contribution rate is adjusted annually based on actual experience through the valuation date to ensure that the 2039 target is met.
- If contributions are made as required, and assumptions during Fiscal 2038 and 2039 are exactly realized, the objective will be met.
- **But, gains, losses, and other changes will be amortized over shorter and shorter periods as time passes, potentially producing extremely volatile contribution rates.**

Illustration of Potential Contribution Volatility

Increase in Employer Contribution Rate due to -10% Investment Return in any Given Year



Amortization Policy Considerations

- The ideal solution would include moving to a policy that is compatible with the guidelines of the Conference of Consulting Actuaries (CCA) and the Board/Staff would have flexibility to make periodic adjustments as needed to avoid unnecessary volatility
- Possible alternatives were discussed by an Ad Hoc Committee and recommended to the Board in 2021

Board Supported Amortization Policy

The Board supported the policy shown below at its September 2021 meeting. Legislation would be needed to enable this policy.

	Board Supported Amortization Policy
Policy Change Point	Current period reaches 15 years (2023 valuation)
Amortization of:	
Current UAAL	Continue closed schedule (16 years remaining in 2022)
Gains/Losses	15 years <i>pooled; rolling (open)</i>
Assumption Changes	25 years layered; closed
Plan Amendments	10-15 years layered depending on group affected; closed ERP: 5 years; closed
CCA Evaluation	<i>Acceptable with conditions</i>

Amortization Policy Considerations

- An open amortization period is not considered a model practice by the CCA (however, it is considered acceptable with conditions)
- Closed amortization periods (the alternative to open amortization) can result in significant volatility in contribution rates as amortization bases are fully recognized, if not actively managed
 - Amortizing gains and losses over separate closed periods is expected to result in much more volatility than amortizing over a rolling period (and is one reason why the Board supported open amortization for gains and losses)

Summary of Deliberations & Recommendation

- Current policy will lead to volatile contribution requirements
- In the near future the supported policy can moderate extreme contribution changes due to actuarial gains and losses
- We note the use of any open periods may result in a GASB crossover point
 - This could result in accounting liabilities being calculated at a lower rate than the funding valuation rate (6.8%), resulting in higher liabilities for accounting purposes

Other Recommendations

- Don't let contribution rate go below the Normal Cost
- Maintain flexibility to adjust policy as needed in order to avoid unnecessary scheduled volatility
- Reconsider portfolio risk as funding level increases
 - Ideal would be 100% funded at a relatively low level of risk
- Coordinate the Municipal funding policy with that for the State, but consider Municipal specific issues

Disclosures

- This presentation is intended to be used in conjunction with the June 30, 2022 actuarial valuation reports. This presentation should not be relied on for any purpose other than the purpose(s) described in the valuation reports.
- This presentation shall not be construed to provide tax advice, legal advice or investment advice.
- The actuaries submitting this presentation (Brian Murphy, Brad Armstrong, and Amy Williams) are Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.
- The purposes of the actuarial valuation are to measure the financial position of MSRPS, assist the Board in establishing employer contribution rates necessary to fund the benefits provided by MSRPS, and provide certain actuarial reporting and disclosure information for financial reporting. There is an additional report and documents with other actuarial reporting and disclosure information for financial reporting.

Disclosures

- Future actuarial measurements may differ significantly from the current and projected measurements presented in this presentation 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; 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.
- This presentation 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. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.
- This is one of multiple documents comprising the actuarial reports for the combined systems and the municipal corporations. Additional information regarding actuarial assumptions and methods, and important additional disclosures are provided in the Actuarial Valuations as of June 30, 2022.
- If you need additional information to make an informed decision about the contents of this presentation, or if anything appears to be missing or incomplete, please contact us before relying on this presentation.