MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM

ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2025

CONTRIBUTION RATE FOR FISCAL YEAR ENDING JUNE 30, 2027

SUBMITTED SEPTEMBER 10, 2025

CavMac
Actuarial Consulting Services

TABLE OF CONTENTS

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September 10, 2025

Board of Trustees
Missouri State Employees' Retirement System
907 Wildewood Drive
Jefferson City, MO 65102

Dear Members of the Board:

At your request, we performed an actuarial valuation of the Missouri State Employees' Retirement System (MOSERS) as of June 30, 2025 for the purpose of determining the employer required contribution rate for the fiscal year ending June 30, 2027. This report provides valuation results for the Missouri State Employees' Plan (MSEP). The major findings of the valuation are contained in this report, which reflects the benefit provisions in place on June 30, 2025. There have been no changes to the plan provisions or actuarial assumptions since the prior valuation. However, the minimum employer contribution rate in the Funding Policy increased, as scheduled, from 30.25% in last year's valuation to 32.00% in the current valuation.

During the 2022 Missouri General Assembly, legislation was passed and signed by the Governor that provided for an additional contribution to the System of $500 million. The funds were received by MOSERS on July 13, 2022. At the Board's direction, the accumulated balance of the additional contribution of $500 million is included in the determination of the funded ratio and unfunded actuarial accrued liability but is excluded from the valuation assets when calculating the actuarial required contribution rate.

In preparing our report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, statutory provisions, member data and financial information. We found this information to be reasonably consistent and comparable with the information received in the prior year. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different, and our calculations may need to be revised.

We further certify that all costs, liabilities, rates of interest and other factors for MSEP have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of each Plan and reasonable expectations); and which, in combination, offer the best estimate of anticipated experience affecting MSEP. Nevertheless, the

emerging costs will vary from those presented in this report to the extent actual experience differs from that projected by the actuarial assumptions. The MOSERS Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in Appendix D.

In order to prepare the results in this report, we have utilized actuarial models that were developed to measure liabilities and develop actuarial costs. These models include tools that we have produced and tested, along with commercially available valuation software that we have reviewed to confirm the appropriateness and accuracy of the output. In utilizing these models, we develop and use input parameters and assumptions about future contingent events along with recognized actuarial approaches to develop the needed results. 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; 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. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements.

The actuarial computations presented in this report are for purposes of determining the funding amounts for MSEP as set out in the Missouri state statutes. The calculations in the enclosed report have been made on a basis consistent with our understanding of MOSERS' funding policy. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes. For example, actuarial computations for purposes of fulfilling financial accounting requirements for the System under Governmental Accounting Standards No. 67 and No. 68 will be presented in separate reports.

The consultants who worked on this assignment are pension actuaries with substantive experience valuing public retirement systems. CavMac's advice is not intended to be a substitute for qualified legal or accounting counsel.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein. We are available to answer any questions on the material contained in the report or to provide explanations or further details as may be appropriate.

We respectfully submit the following report and look forward to discussing it with you.

Sincerely,

Patrice A. Beckham, FSA, EA, FCA, MAAA
Consulting Actuary

Bryan K. Hoge, FSA, EA, FCA, MAAA
Principal and Consulting Actuary

SECTION 1 – EXECUTIVE SUMMARY

This report presents the results of the June 30, 2025 actuarial valuation of the Missouri State Employees' Plan (MSEP). The primary purposes of performing the actuarial valuation are to:

- Determine the employer contribution rate in accordance with Missouri state statutes and the Board's funding policy for the fiscal year ending June 30, 2027;
- Disclose asset and liability measurements as well as the current funded status of MSEP on the valuation date;
- Compare the actual and expected experience of MSEP during the plan year ended June 30, 2025;
- Assess and disclose the key risks associated with funding the System; and
- Analyze and report on trends in MSEP contributions, assets and liabilities over the past several years.

There have been no changes to the benefit provisions or actuarial assumptions since the prior valuation. However, at their September 21, 2023 meeting, the Board voted to increase the minimum employer contribution rate from 16.97% of pay for all years to 28.75% of pay in FYE 2025, 30.25% of pay in FYE 2026, and 32.00% of pay thereafter. Under the current funding policy, the minimum contribution rate will expire once the System reaches a funded ratio of 80%. As a result of the minimum employer contribution rate, the required employer contribution rate for FYE 2027 is 32.00% of payroll and the estimated dollar amount of employer contribution for FYE 2027 is $875 million.

During the 2022 Missouri General Assembly, legislation was passed and signed by the Governor that provided for an additional contribution to the System of $500 million. The funds were received by MOSERS on July 13, 2022. In accordance with the Board's direction, the accumulated balance of the additional contribution of $500 million ($599.2 million as of June 30, 2025) is reflected in the valuation assets when determining the System's funded status but is excluded when calculating the unfunded actuarial accrued liability contribution rate, which then impacts the actuarial required contribution rate.

The actuarial valuation results provide a "snapshot" view of the System's financial condition on the measurement date of June 30, 2025. A summary of the key results, compared to the prior valuation, is shown in the following table.

	June 30, 2025	June 30, 2024
Unfunded Actuarial Accrued Liability ($M)	$7,751	$7,559
Funded Ratio (Actuarial Assets)	55.4%	55.3%
Normal Cost Rate	8.69%	8.67%
UAAL Amortization Rate	21.30%	20.95%
Total Actuarial Required Contribution Rate	29.99%	29.62%
Member Contribution Rate	(2.55%)	(2.43%)
Actuarial Employer Contribution Rate	27.44%	27.19%
Required Employer Contribution Rate*	32.00%	30.25%
Employer Contribution Amount ($M)	$875.2	$804.2

* The minimum employer contribution rate in the Funding Policy is 30.25% of pay for FYE 2026 and 32.00% of pay thereafter. The minimum contribution rate will be in effect until the System reaches an 80% funded ratio.

Experience Impacting the June 30, 2025 Valuation

The key factors impacting the 2025 valuation results include:

- The net rate of return on the market value of assets for fiscal year 2025 was 9.8%, as reported by MOSERS. However, due to the use of an asset smoothing method and the scheduled recognition of the deferred investment loss from prior years, the rate of return on the actuarial value of assets was 6.2%. This is lower than the assumed return of 6.95%, so there was an actuarial loss on assets of $74 million. This increased the unfunded actuarial accrued liability as well as the actuarial required contribution rate (by 0.19%).

- There was a net liability loss of $220 million during fiscal year 2025, i.e., the actuarial accrued liability was higher than expected. The most significant sources of loss were larger salary increases and higher cost-of-living adjustments (COLAs) for retirees and beneficiaries than expected based on actuarial assumptions. The net liability loss increased the UAAL and increased the actuarial required contribution rate (by 0.58%).

- Because the benefit structure is different for MSEP 2011 members, including an employee contribution rate of 4.0%, the ongoing cost of the System (normal cost) declines as a larger percentage of active members are covered by MSEP 2011. The number of active members covered by the MSEP 2011 Plan increased from 29,331 in the 2024 valuation to 30,745 in the 2025 valuation, and the percentage of total active members in MSEP 2011 increased from 66% to 69%. As a result, the actuarial employer contribution rate decreased by 0.10% of pay.

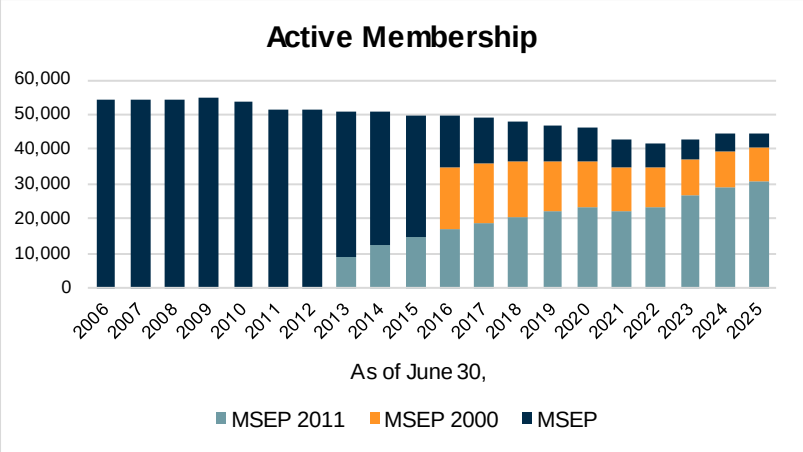
Further detail on the changes and actuarial experience affecting the valuation results can be found in the following sections of this Executive Summary.

Actual Experience for the Last Plan Year

Numerous factors contributed to the change in the MSEP assets, liabilities, and actuarial required contribution rate between June 30, 2024 and June 30, 2025. The components are examined in the following discussion.

Membership

There was a small decrease in the number of active members in the current valuation (44,673 compared to 44,680 in the prior valuation). As shown in the following graph, the longer-term trend in the active membership shows it has declined about 20% over the last 20 years from 54,493 active members in the 2006 valuation to 44,673 in the current valuation. A decline in the size of the active membership puts pressure on the system's actuarial contribution rate because covered payroll generally does not increase as assumed and, consequently, the UAAL amortization payment is higher as a percent of covered payroll. Note that while the UAAL amortization contribution rate is higher when covered payroll does not increase as assumed, the dollar amount of the UAAL amortization payment is the same.



Note: Split between MSEP and MSEP 2000 is not available prior to June 30, 2016. MSEP 2011 active counts are not available for June 30, 2011 or June 30, 2012.

The percentage of active members covered by the MSEP 2011 Plan has increased each year as active members covered by the MSEP or MSEP 2000 Plan leave covered employment and are replaced by new hires. The number of active members covered by the MSEP 2011 Plan increased from 29,331 in the 2024 valuation to 30,745 in the 2025 valuation, and the percentage of the overall active population grew from 66% to 69%. Because the benefit structure is different for MSEP 2011 members, the ongoing cost of the System (normal cost) declines as a larger percentage of active members are covered by MSEP 2011. In addition, MSEP 2011 includes an

employee contribution rate of 4.0% which then lowers the employer portion of the normal cost rate.

As is expected in a mature retirement system, the number of members receiving benefits increased from 55,579 last year to 56,494 in the current valuation. In addition, the average benefit amount for this group increased by 2.4%. While the increase to average benefit amounts is higher than assumed due to recent high inflation, it is still expected that the average benefit amounts will increase over time due to COLA increases and higher benefit amounts for recent retirees.

System Assets

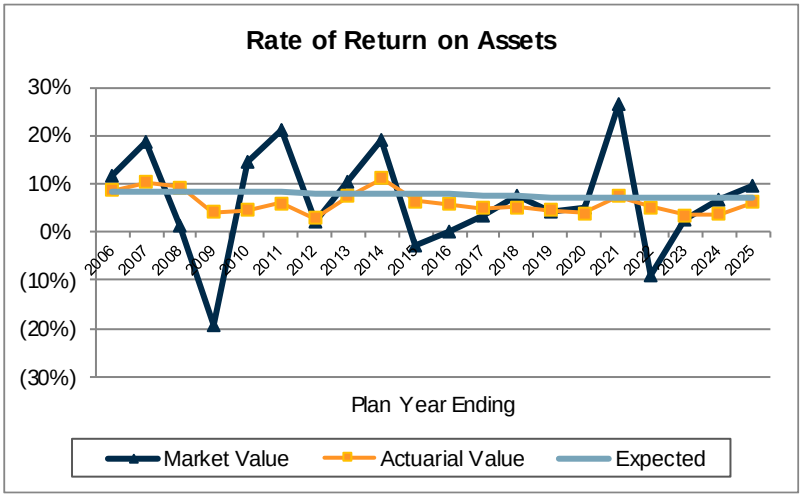
As of June 30, 2025, MSEP had net assets of $9.354 billion, when measured on a market value basis, an increase of $555 million from the value of $8.799 billion in the prior valuation. However, the market value of assets is not used directly in the calculation of the unfunded actuarial accrued liability or the employer actuarial contribution rate. An asset valuation method, which smoothes the effect of market fluctuations, is applied to determine the value of assets used in the valuation, called the "actuarial value of assets". The current asset valuation method was implemented in the June 30, 2018 valuation. Under this method, the difference between the dollar amount of the actual and assumed investment return on the market value of assets is recognized evenly over a closed five-year period.

In the current valuation, the actuarial value of assets for MSEP is $9.643 billion, an increase of $287 million from the prior year. The components of the change in the asset values are shown in the following table.

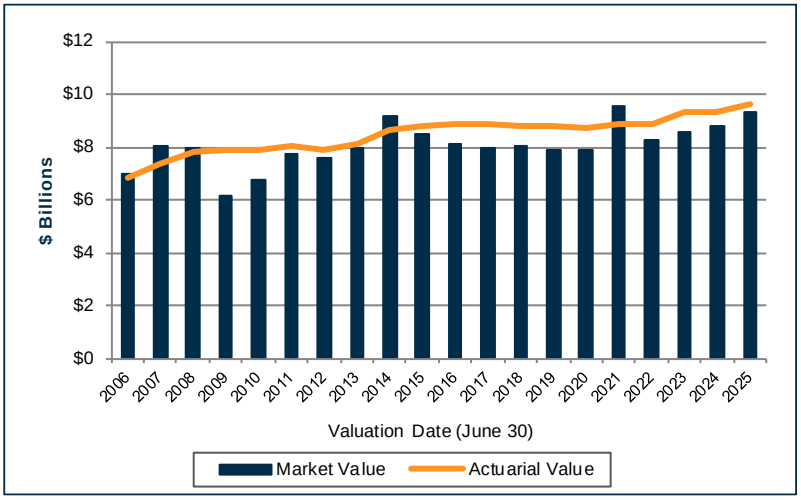
	Market Value ($M)		Actuarial Value ($M)	
Net Assets, June 30, 2024	$	8,798.65	$	9,355.76
- Employer and Member Contributions	+	820.46	+	820.46
- Miscellaneous Income	+	0.00	+	0.00
- Benefit Payments	-	1,087.24	-	1,087.24
- Net Investment Income	+	835.48	+	566.95
- Administrative Expenses	-	13.31	-	13.31
Net Assets, June 30, 2025	$	9,354.04	$	9,642.62
Estimated Net Rate of Return		9.8%		6.2%

The investment return on the market value of assets for the year ending June 30, 2025 of 9.8%, as reported by MOSERS, was greater than the assumed rate of return. As a result, it produced excess investment income for the year ended June 30, 2025 of $234 million. Due to the scheduled recognition of the current and prior investment experience in the asset smoothing method, the estimated rate of return on the actuarial value of assets for fiscal year 2025 was 6.2%, which is

lower than the assumed investment return of 6.95%. As a result, there was an actuarial loss on the smoothed value of assets of $74 million. There is currently a net deferred investment loss of $289 million (actuarial value of assets exceeds market value). Please see Section 3 of this report for more detailed information on the market and actuarial value of assets.



The rate of return of the actuarial value of assets has been less volatile than the market value return, illustrating the benefit of using an asset smoothing method. However, during this time period, the rate of return on actuarial assets has been at or below the assumed rate of return for most years, resulting in actuarial losses.



An asset smoothing method is used to mitigate the volatility in the market value of assets. By using a smoothing method, the actuarial (or smoothed) value can be, and actually should be, both above or below the pure market value at different times.

Note the asset smoothing method changed with the 2018 valuation.

System Liabilities

The actuarial accrued liability is that portion of the present value of future benefits that will not be paid by future normal costs. The difference between this liability and the actuarial value of assets as of the valuation date is called the unfunded actuarial accrued liability (UAAL). The dollar amount of the UAAL is reduced if the contributions to the System exceed the normal cost for the year plus interest on the prior year's UAAL.

The UAAL, using both the actuarial and market value of assets, is shown as of June 30, 2025 in the following table:

	Actuarial Value of Assets	Market Value of Assets
Actuarial Accrued Liability	$17,393,412,163	$17,393,412,163
Value of Assets	9,642,618,591	9,354,041,911
Unfunded Actuarial Accrued Liability	$7,750,793,572	$8,039,370,252
Funded Ratio	55.4%	53.8%

See Section 4 of the report for the detailed development of the UAAL.

The net change in the UAAL from June 30, 2024 to June 30, 2025 was an increase of $191.5 million. The components of this net change are shown in the following table:

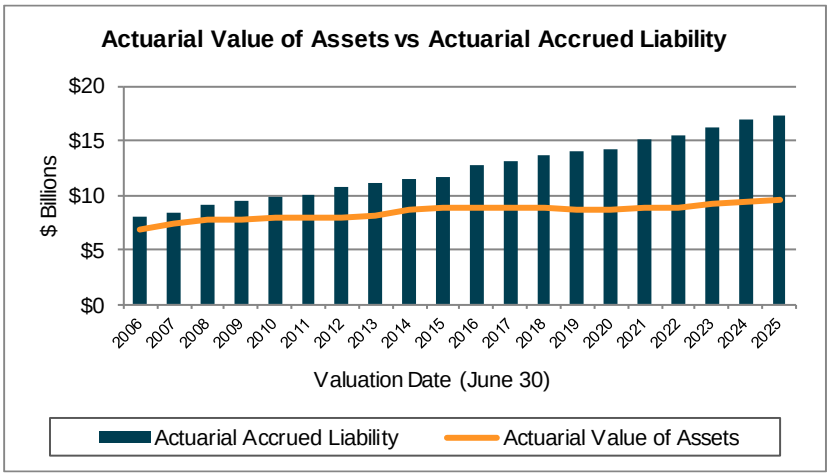
	($ Millions)
Unfunded Actuarial Accrued Liability, June 30, 2024	$7,559.3
- Expected decrease	(38.0)
- Contributions above the actuarial rate	(37.8)
- Investment experience	73.7
- Liability experience	219.7
- Other experience	(26.1)
Unfunded Actuarial Accrued Liability, June 30, 2025	$7,750.8

As shown above, various components impacted the dollar amount of the UAAL. The UAAL is amortized as a level-percent of payroll. This methodology results in dollar amounts of payment that are lower in the early part of the amortization period but increase each year in the future with the assumed payroll growth assumption (currently 2.25%). Given the amortization period and the actuarial assumptions, the amortization payment during FYE 2025 was greater than the interest on the UAAL, resulting in a decrease in the UAAL (see first row in the table above).

Actuarial gains (losses), which result from actual experience that is more (less) favorable than anticipated based on the actuarial assumptions in place in the prior valuation, are reflected in the UAAL and are measured as the difference between the expected UAAL and the actual UAAL, reflecting any changes due to actuarial assumptions and methods, or benefit provision changes. Overall, MSEP experienced a total actuarial loss of $293.4 million, the combined result of an actuarial loss of $219.7 million on System liabilities and a $73.7 million actuarial loss on actuarial assets. The liability loss was the net result of various components of actuarial gains and losses for the year ending June 30, 2025. The most significant sources of loss were larger-than-expected

salary increases and higher-than-expected cost-of-living adjustments (COLAs) for retirees and beneficiaries, based on actuarial assumptions.

As the following graph of historical actuarial assets and liabilities shows, the System's liabilities have grown faster than the System's assets since the 2009 valuation. Some of the growth is due to significant changes in the actuarial assumptions during this timeframe, including lowering the investment return assumption from 8.50% to 6.95% in multiple increments. As a result, the unfunded portion of the actuarial accrued liability has increased.

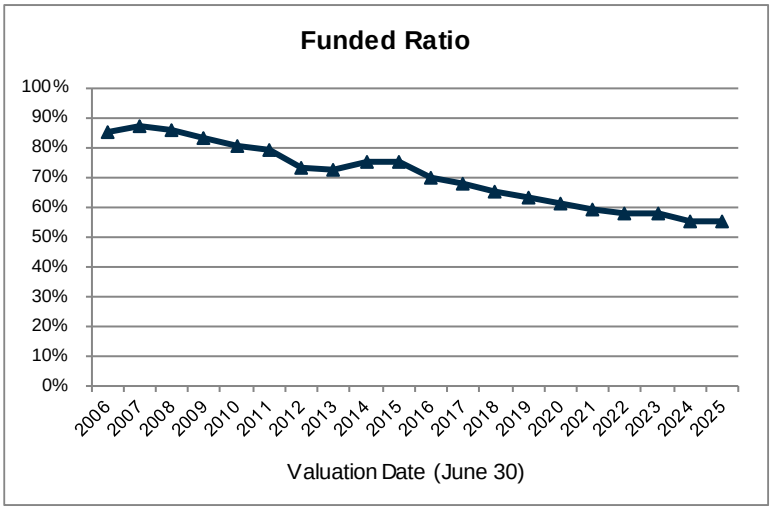


An evaluation of the UAAL on a pure dollar basis may not provide a complete analysis since only the difference between the assets and liabilities (which are both very large numbers) is reflected. Another way to evaluate the UAAL and the progress made in its funding is to track the funded ratio, the ratio of the actuarial value of assets to the actuarial accrued liability. The funded status information, using both the actuarial value of assets and the market value of assets, is shown below (in millions).

	6/30/2020	6/30/2021	6/30/2022	6/30/2023	6/30/2024	6/30/2025
Using Actuarial Value of Assets:						
- Funded Ratio	61.1%	59.0%	57.7%	57.6%	55.3%	55.4%
- UAAL ($M)	$5,547	$6,201	$6,515	$6,860	$7,559	$7,751
Using Market Value of Assets:						
- Funded Ratio	55.5%	63.0%	53.5%	52.9%	52.0%	53.8%
- UAAL ($M)	$6,348	$5,591	$7,161	$7,633	$8,116	$8,039

Note that the funded ratio does not indicate whether or not the System assets are sufficient to settle benefits earned to date. The funded ratio, by itself, also may not be indicative of future funding requirements. As shown in the table above, the funded ratios differ using the market value of assets.

The funded ratio over a longer timeframe is shown in the following graph:



As the graph above shows, the System's funded ratio has declined over the past 20 years. It is important to note that historical trends are not simply a reflection of past investment performance and other actuarial experience. Changes to actuarial assumptions and methods, benefit provisions and the System's funding policy have also had a significant impact on valuation results over time. The Board adopted new assumptions several times during this period which had the general impact of decreasing the funded ratio.

Required Employer Contribution Rate

The System is funded by contributions from employers (actuarially required) and from employees hired after December 31, 2010 (4.00% of pay). Under the Entry Age Normal cost method, the actuarial required contribution rate consists of two components:

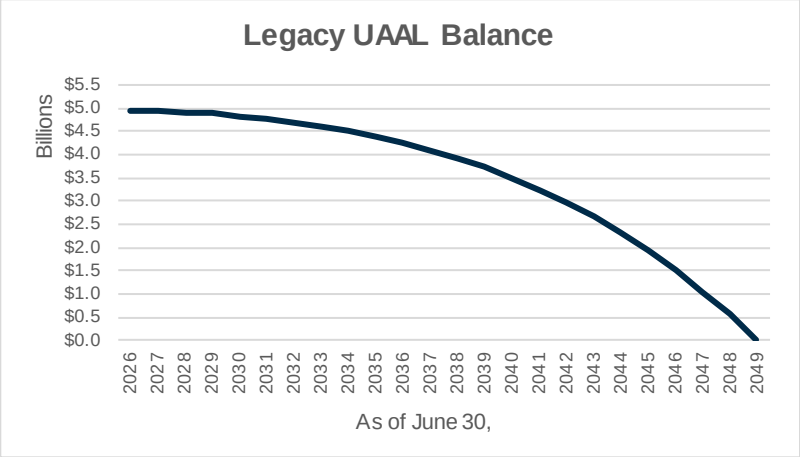
- A "normal cost" for the portion of projected liabilities allocated by the actuarial cost method to service of members during the year following the valuation date, which includes a component for administrative expenses.
- An "unfunded actuarial accrued liability contribution" for the excess of the portion of projected liabilities allocated to service to date over the actuarial value of assets.

Under the System's current funding policy, the UAAL contribution rate is determined by amortizing the UAAL using the layered amortization method. To implement this method, the projected UAAL developed in the June 30, 2018 valuation was amortized as a level-percent of payroll over a closed, 30-year period and subsequent changes in the UAAL due to actuarial gains/losses or assumption changes were separately financed by establishing amortization bases and payments, as a level percentage of payroll, over closed 30-year periods. Effective with the June 30, 2021 valuation, the amortization period for new bases changed to a closed 25-year period. However, the bases established prior to June 30, 2021 continue to be amortized on their original schedule. As required by statute, any change in the UAAL due to modification of the System's benefit

structure is amortized over a closed period of 20 years. The total UAAL amortization payment is the sum of the payment amounts for each of the amortization bases (layers). On July 13, 2022, the State of Missouri made an additional contribution of $500 million. While the current value of this contribution is reflected in the calculation of the System's funded ratio and UAAL, it is not reflected in the assets when calculating the UAAL contribution rate.

At their September 21, 2023 meeting, the Board voted to increase the minimum employer contribution rate from 16.97% of pay for all years to 28.75% of pay in FYE 2025, 30.25% of pay in FYE 2026, and 32.00% of pay thereafter. Employers are required to make contributions based on the greater of the applicable minimum contribution rate and the employer share of the total actuarial required contribution rate. The minimum contribution rate will no longer affect the calculation of the required employer contribution rate once the System reaches an 80% funded ratio.

The level-percent of payroll methodology for UAAL payments results in dollar payment amounts that are lower than the level-dollar payment method in the early portion of the amortization period but increase each year in the future with the assumed payroll growth assumption (currently 2.25%). Because the UAAL contribution rate is determined as a level-percent of payroll, the dollar amount of the UAAL contribution is scheduled to increase 2.25% each year in the future, even if all actuarial assumptions are met. If covered payroll increases as expected based on the assumption, the UAAL contribution rate will remain stable. However, if actual payroll increases are higher/lower than 2.25%, the UAAL contribution rate will decrease/increase. Note that with this payment methodology, the dollar amount of the legacy UAAL base is expected to hold steady for about three years before starting to noticeably decline as illustrated in the following graph:



Given the use of closed amortization periods and the State contributing at least the actuarial employer contribution each year, the System is expected to be fully funded by the end of the amortization period, if all actuarial assumptions are met. Based on the current valuation and funding policy, the full funded date is expected to occur during the June 30, 2043 valuation, which reflects the additional $500 million contribution made on July 13, 2022. In our opinion, the

amortization policy meets the requirements of Actuarial Standard of Practice Number 4. We would also note that the contributions during FY 2026 (calculated in the June 30, 2024 valuation) are expected to be greater than the normal cost plus interest on the UAAL during that period.

In our professional judgement, the funding policy adopted by the Board of Trustees produces a reasonable actuarial determined contribution as defined in Actuarial Standard of Practice Number 4. Furthermore, the funding policy is intended to promote stable contributions, balance cost among generations of members, and ensure adequate advance funding of benefits.

See Section 5 of the report for the detailed development of the total actuarial required contribution rate as well as the required employer contribution rate, which is summarized in the following table:

Employer Contribution Rates	June 30 Valuation 2025	2024
1. Normal Cost Rate	8.69%	8.67%
2. UAAL Contribution Rate	21.30%	20.95%
3. Total Actuarial Required Contribution Rate	29.99%	29.62%
4. Member Contribution Rate	(2.55%)	(2.43%)
5. Actuarial Employer Contribution Rate	27.44%	27.19%
6. Required Employer Contribution Rate*	32.00%	30.25%

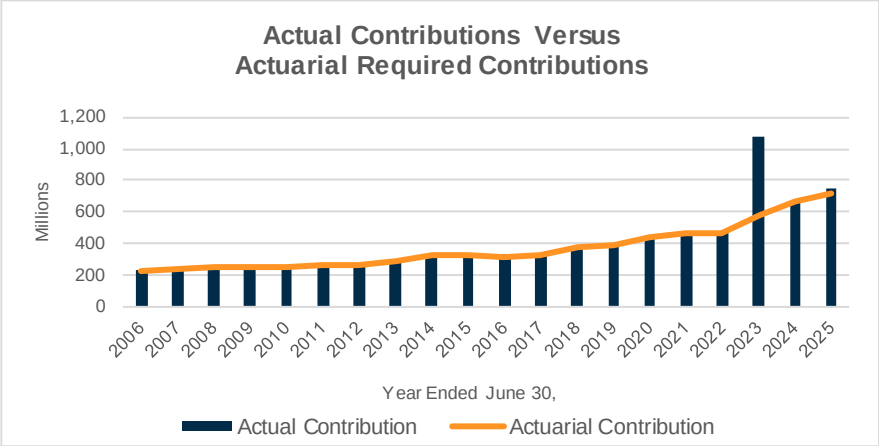
* The minimum employer contribution rate in the Funding Policy is 30.25% of pay in FYE 2026 and 32.00% of pay thereafter.

The total actuarial required contribution rate in the June 30, 2025 valuation is 29.99%. The member contribution rate (as a percentage of total covered payroll) is anticipated to be 2.55%, resulting in an actuarial employer contribution rate for FYE 2027 of 27.44%. Because this is below the applicable minimum required employer contribution rate for FYE 2027 of 32.00%, the required employer contribution rate for FYE 2027 is 32.00% of pay. The 4.56% of pay difference between the required employer contribution rate and the actuarial employer contribution rate will serve to increase the funded ratio and fund the UAAL more rapidly.

The following table shows the reconciliation of the actuarial employer contribution rate from the June 30, 2024 to the June 30, 2025 valuation:

	% of Payroll
6/30/2024 Actuarial Employer Contribution Rate For FY 2026	**27.19%**
Asset (Gain)/Loss	0.19%
Liability (Gain)/Loss	0.58%
Projected Payroll Higher than Expected	(0.14%)
Contributions During FY 2026 Above the Actuarial Rate	(0.21%)
Change in Normal Cost Rate	0.02%
Change in Effective Member Contribution Rate	(0.12%)
Other Experience	(0.07%)
6/30/2025 Actuarial Employer Contribution Rate For FY 2027	**27.44%**

Historically, MOSERS employers have contributed at least the full actuarial employer contribution as shown in the graph below, which compares the actuarial contribution to the actual contribution amounts for employers:



The actuarial employer contribution rate, which is determined based on the snapshot of the System taken on each valuation date, is anticipated to increase in the following valuation as the deferred investment experience is recognized through the asset smoothing method before steadily declining. Required employer contribution rates above the actuarial employer contribution rates, as well as anticipated increases in member contributions, as a percentage of total payroll, are expected to decrease the actuarial employer contribution rate in the future. Future experience (both investment and demographic), which is not modeled here, will also have an impact on the ultimate level of MSEP contributions.

The minimum employer contribution rate adopted by the Board is expected to impact required employer contribution rates over the next decade. The minimum employer contribution rate is projected to remain at 32.00% and continue to impact employer contributions until the System reaches an 80% funded ratio in the 2037 valuation, assuming all actuarial assumptions are met.

The net deferred investment loss (actuarial value of assets minus the market value) is $289 million as of June 30, 2025. The deferred investment experience will be reflected in the actuarial value of assets in the next four years. While the use of an asset smoothing method is a common procedure for public retirement systems, it is important to recognize the potential impact of the deferred investment experience. This is accomplished by comparing the key valuation results from the June 30, 2025 actuarial valuation using both the actuarial and market value of assets (see the following table):

	Using Actuarial Value of Assets	Using Market Value of Assets
Actuarial Accrued Liability	$17,393,412,163	$17,393,412,163
Asset Value	(9,642,618,591)	(9,354,041,911)
Unfunded Actuarial Accrued Liability	$7,750,793,572	$8,039,370,252
Funded Ratio	55.4%	53.8%
Normal Cost Rate	8.69%	8.69%
UAAL Contribution Rate	21.30%	22.07%
Total Actuarial Required Contribution Rate	29.99%	30.76%
Member Contribution Rate	(2.55%)	(2.55%)
Actuarial Employer Contribution Rate	27.44%	28.21%

A typical retirement plan faces many different risks. The term “risk” is most commonly associated with an outcome with undesirable results. However, in the actuarial world risk can be translated as uncertainty. The actuarial valuation process uses many actuarial assumptions to project how future contributions and investment returns will meet the cash flow needs for future benefit payments. Of course, we know that actual experience will not unfold exactly as anticipated by the assumptions and that uncertainty, whether favorable or unfavorable, creates risk. Actuarial Standard of Practice Number 51 defines risk as the potential of actual future measurements to deviate from expected results due to actual experience that is different than the actuarial assumptions. Risk evaluation is an important part of managing a defined benefit plan. Please see Section 7 of this report for an in-depth discussion of the specific risks facing MOSERS.

The next page contains a comprehensive summary of valuation results for the current and prior year. Detailed exhibits deriving the results can be found in the following sections.

SUMMARY OF PRINCIPAL RESULTS
($ in millions)

Valuation Date Contribution for Fiscal Year Ending	June 30, 2025 June 30, 2027	June 30, 2024 June 30, 2026	% Change
Employer Contribution			
Annual Amount (Estimated)	$875.2	$804.2	8.8%
Percentage of Covered Payroll	32.00%	30.25%	5.8%
Projected Payroll for FYE 2027 and 2026	$2,735	$2,659	2.9%
Benefit Payments During Prior Year	$1,087	$1,038	4.7%
Membership			
Number of			
- Active Members	44,673	44,680	(0.0%)
- Retirees and Beneficiaries	56,494	55,579	1.6%
- Terminated Vested Members	17,207	17,341	(0.8%)
- Leave-of-Absence Members	280	130	115.4%
- Long Term Disability Members	456	491	(7.1%)
- Terminated Nonvested Members	38,869	34,969	11.2%
- Total	157,979	153,190	3.1%
- Reported Payroll	$2,547	$2,472	3.0%
Assets			
Market Value (MVA)	$9,354	$8,799	6.3%
Actuarial Value (AVA)	$9,643	$9,356	3.1%
Ratio - Actuarial Value to Market Value	103.09%	106.33%	
Return on Market Value*	9.8%	6.6%	
Return on Actuarial Value	6.2%	3.7%	
Actuarial Information			
Actuarial Accrued Liability (AAL)	$17,393	$16,915	2.8%
Unfunded Actuarial Accrued Liability (UAAL)	$7,751	$7,559	2.5%
Funded Ratio (Actuarial Value of Assets)	55.4%	55.3%	0.2%
Ratio of AVA to Reported Payroll	3.8	3.8	
Ratio of AAL to Reported Payroll	6.8	6.8	
Normal Cost Rate	8.69%	8.67%	0.2%
UAAL Contribution Rate	21.30%	20.95%	1.7%
Total Actuarial Required Contribution Rate	29.99%	29.62%	1.2%
Member Contribution Rate	(2.55%)	(2.43%)	4.9%
Actuarial Employer Contribution Rate	27.44%	27.19%	0.9%
Required Employer Contribution Rate**	32.00%	30.25%	5.8%

* As reported by MOSERS.

** The minimum employer contribution rate in the Funding Policy is 30.25% of pay for FYE 2026 and 32.00% of pay thereafter. The minimum contribution rate will be in effect until the System reaches an 80% funded ratio.

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SECTION 2 – SCOPE OF THE REPORT

This report presents the actuarial valuation results of the Missouri State Employees' Retirement System as of June 30, 2025. This valuation was prepared at the request of the MOSERS Board.

Please pay particular attention to our actuarial certification letter, where the guidelines employed in the preparation of this report are outlined. We also comment on the sources and reliability of both the data and the actuarial assumptions upon which our findings are based. Those comments are the basis for our certification that this report is complete and accurate to the best of our knowledge and belief.

A summary of the findings which result from this valuation is presented in the previous section. Section 3 describes the assets and investment experience of the System. Sections 4 and 5 describe how the obligations of the System are to be met under the System's funding policy. Section 6 contains projections of future valuation results, assuming all actuarial assumptions are met. Section 7 discloses key maturity measurements and discusses the key risks facing the funding of the System. Section 8 includes some historical funding information that was required by the Governmental Accounting Standards Board (GASB) in the past, as well as member information for the annual report.

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SECTION 3 – SYSTEM ASSETS

In many respects, an actuarial valuation can be thought of as an inventory process. The inventory is taken as of the actuarial valuation date, which for this valuation is June 30, 2025. On that date, the assets available for the payment of benefits are appraised. The assets are compared with the liabilities of the System, which are generally in excess of assets. The actuarial process then leads to a method of determining the contributions needed by members and the employer in the future to balance the System assets and liabilities.

Market Value of Assets

The current market value represents the "snapshot" or "cash-out" value of System assets as of the valuation date. In addition, the market value of assets provides a basis for measuring investment performance from time to time. Table 1 shows a summary of changes to both the market and the actuarial value assets for the year beginning June 30, 2024 and ending June 30, 2025.

Actuarial Value of Assets

Neither the market value of assets, representing a "cash-out" value of System assets, nor the book values of assets, representing the cost of investments, may be the best measure of the System's ongoing ability to meet its obligations.

To arrive at a suitable value of assets for the actuarial valuation, a technique for determining the actuarial value of assets is used which dampens swings in the market value while still indirectly recognizing market values.

Table 2 shows the development of the actuarial value of assets (AVA) as of the valuation date.

Table 3 shows the development of the actuarial value of assets (AVA) as of the valuation date, that will be used to calculate the employer contribution rate.

TABLE 1
ASSET SUMMARY

	Market Value	Actuarial Value
1. Assets at June 30, 2024	8,798,645,184	9,355,757,779
2. Contributions		
State Contributions	750,670,662	750,670,662
Employee Contributions	66,285,220	66,285,220
Member Purchases of Service Credit	1,243,103	1,243,103
Service Transfer Contributions	2,259,234	2,259,234
Total	820,458,219	820,458,219
3. Investment Income, Net of Investment Expenses	835,488,746	566,952,831
4. Miscellaneous Income	1,003	1,003
5. Benefit Payments and Transfers Out		
Monthly Benefit Payments	1,012,802,317	1,012,802,317
BackDROP and Lump Sum Payments	59,017,031	59,017,031
Inactive Vested Lump Sum Payments	96,503	96,503
Service Transfer Payments	5,310,354	5,310,354
Contribution Refunds	10,011,882	10,011,882
Total	1,087,238,087	1,087,238,087
6. Administrative and Misc. Expenses	13,313,154	13,313,154
7. Assets at June 30, 2025 (1) + (2) + (3) + (4) - (5) - (6)	9,354,041,911	9,642,618,591
8. Rate of Return, Net of Investment Expenses*	9.8%	6.2%

* Based on the approximation formula: (2 x I) / (A+B-I), where
I = Investment Increment
A = Beginning of year asset value
B = End of year asset value

Market Value return reported by MOSERS

TABLE 2
DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS

Under the current asset smoothing method, the difference between the dollar amount of actual and assumed investment return on the market value of assets will be recognized evenly over a closed five-year period. The method was first implemented with the June 30, 2018 valuation.

Fiscal Year End June 30,	2021	2022	2023	2024	2025
A. Market Value of Assets, Beginning of Year	$ 7,910,830,533	$ 9,519,930,080	$ 8,248,414,597	$ 8,557,793,248	$ 8,798,645,184
B. Required Contributions During Year	504,683,875	516,725,950	634,313,804	733,897,154	820,458,219
C. Additional Contributions	0	0	500,000,000	0	0
D. Miscellaneous Income	80,121	5,852	646	1,025	1,003
E. Benefit Payments and Expenses During Year	928,655,535	971,839,742	1,002,534,589	1,049,715,875	1,100,551,241
F. Expected Rate of Return	6.95%	6.95%	6.95%	6.95%	6.95%
G. Expected Net Investment Income	535,319,903	646,085,772	593,939,072	583,976,299	601,936,124
H. Expected Market Value of Assets, End of Year	8,022,258,897	9,710,907,912	8,974,133,530	8,825,951,851	9,120,489,289
I. Market Value of Assets, End of Year	9,519,930,080	8,248,414,597	8,557,793,248	8,798,645,184	9,354,041,911
J. Excess/(Shortfall) of Net Investment Income	$ 1,497,671,183	$ (1,462,493,315)	$ (416,340,282)	$ (27,306,667)	$ 233,552,622

TABLE 2
DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS

(continued)

The table below shows the development of gain/(loss) to be recognized in the current year:

Plan Year Ended	Asset Gain/(Loss)	Gain/(Loss) Recognized in Prior Years	Gain/(Loss) Recognized This Year	Gain/(Loss) Deferred to Future Years
6/30/2021	1,497,671,183	1,198,136,948	299,534,235	0
6/30/2022	(1,462,493,315)	(877,495,989)	(292,498,663)	(292,498,663)
6/30/2023	(416,340,282)	(166,536,112)	(83,268,056)	(166,536,114)
6/30/2024	(27,306,667)	(5,461,333)	(5,461,333)	(16,384,001)
6/30/2025	233,552,622	0	46,710,524	186,842,098
Total	(174,916,459)	148,643,514	(34,983,293)	(288,576,680)

A. Market Value of Assets as of June 30, 2025	$	9,354,041,911
B. Total Deferred Investment Experience	$	(288,576,680)
C. Actuarial Value of Assets as of June 30, 2025 (A. - B.)	$	9,642,618,591
D. Ratio of Actuarial Value to Market Value		103.1%

The table below shows the scheduled recognition of current deferred investment gains/(losses):

Plan Year Ended	Gain/(Loss) Deferred to Future Years	Gain/(Loss) to be Recognized in Plan Year Ending June 30, 2026	2027	2028	2029
6/30/2022	(292,498,663)	(292,498,663)			
6/30/2023	(166,536,114)	(83,268,056)	(83,268,058)		
6/30/2024	(16,384,001)	(5,461,333)	(5,461,333)	(5,461,335)	
6/30/2025	186,842,098	46,710,524	46,710,524	46,710,524	46,710,526
Total	(288,576,680)	(334,517,528)	(42,018,867)	41,249,189	46,710,526

TABLE 3
DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS
USED TO CALCULATE THE EMPLOYER CONTRIBUTION RATE

Fiscal Year End June 30,	2021	2022	2023	2024	2025
A. Market Value of Assets, Beginning of Year	$ 7,910,830,533	$ 9,519,930,080	$ 8,248,414,597	$ 8,045,599,245	$ 8,252,697,596
B. Contributions During Year	504,683,875	516,725,950	634,313,804	733,897,154	820,458,219
C. Miscellaneous Income	80,121	5,852	646	1,025	1,003
D. Benefit Payments and Expenses During Year	928,655,535	971,839,742	1,002,534,589	1,049,715,875	1,100,551,241
E. Expected Rate of Return	6.95%	6.95%	6.95%	6.95%	6.95%
F. Expected Net Investment Income	535,319,903	646,085,772	560,684,083	548,378,816	563,992,766
G. Expected Market Value of Assets, End of Year	8,022,258,897	9,710,907,912	8,440,878,541	8,278,160,365	8,536,598,343
H. Market Value of Assets, End of Year*	9,519,930,080	8,248,414,597	8,045,599,245	8,252,697,596	8,754,864,433
I. Excess/(Shortfall) of Net Investment Income	$ 1,497,671,183	$ (1,462,493,315)	$ (395,279,296)	$ (25,462,769)	$ 218,266,090

* Does not reflect the additional contribution of $500 million made on July 13, 2022. The accumulated value of the additional $500 million contribution as of June 30, 2025 is $599,177,478.

TABLE 3
DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS USED TO CALCULATE THE EMPLOYER CONTRIBUTION RATE

(continued)

Plan Year Ended	Asset Gain/(Loss)	Gain/(Loss) Recognized in Prior Years	Gain/(Loss) Recognized This Year	Gain/(Loss) Deferred to Future Years
6/30/2021	1,497,671,183	1,198,136,948	299,534,235	0
6/30/2022	(1,462,493,315)	(877,495,989)	(292,498,663)	(292,498,663)
6/30/2023	(395,279,296)	(158,111,718)	(79,055,859)	(158,111,719)
6/30/2024	(25,462,769)	(5,092,554)	(5,092,554)	(15,277,661)
6/30/2025	218,266,090	0	43,653,218	174,612,872
Total	(167,298,107)	157,436,687	(33,459,623)	(291,275,171)

A. Market Value of Assets as of June 30, 2025	$	8,754,864,433
B. Total Deferred Investment Experience	$	(291,275,171)
C. Actuarial Value of Assets as of June 30, 2025 (A. - B.)	$	9,046,139,604

SECTION 4 – SYSTEM LIABILITIES

In the previous section, an analysis of System's current assets was given as of June 30, 2025. In this section, the discussion will focus on the commitments (future benefit payments) of the System, which are referred to as its liabilities.

Table 4 contains an analysis of the actuarial present value of all future benefits (PVFB) for contributing members, inactive members, retirees and their beneficiaries. The liabilities summarized in Table 4 include the actuarial present value of all future benefits expected to be paid with respect to each member. For an active member, this value includes measures of both benefits already earned and future benefits expected to be earned. For all members, active and retired, the value extends over benefits earnable and payable for the rest of their lives and, if an optional benefit is chosen, for the lives of their surviving spouses.

The actuarial assumptions used to determine liabilities are based on the results of the latest experience study. These assumptions are outlined in Appendix D.

The Board's funding policy amortizes the UAAL using a "layered" bases method. Under this method, the "Legacy UAAL", as determined in the June 30, 2018 valuation, is amortized over a closed 30-year period (see Table 5). Effective June 30, 2021, subsequent changes in the UAAL due to actuarial gains/losses or assumption changes are separately financed by establishing amortization bases and payments, as a level percentage of payroll, over closed 25-year periods. Bases established prior to June 30, 2021 will continue to be amortized on their original schedule. Any change in the System's benefit structure shall be amortized over a closed period of 20 years, as set out in state statutes. The total UAAL amortization payment is the sum of the payments for each of the amortization bases. Note that the use of closed amortization periods will result in the System being fully funded at the end of the amortization period, if all actuarial assumptions are met.

All liabilities reflect the benefit provisions in place as of June 30, 2025, as amended by any legislation in the 2025 Legislative Session.

Actuarial Accrued Liability

A fundamental principle in financing the liabilities of a retirement program is that the cost of its benefits should be related to the period in which benefits are earned, rather than to the period of benefit distribution. An actuarial cost method is a mathematical technique that allocates the present value of future benefits into annual costs. In order to do this allocation, it is necessary for the funding method to "breakdown" the present value of future benefits into two components:

(1) that which is attributable to the past and
(2) that which is attributable to the future.

Actuarial terminology calls the part attributable to the past the "past service liability" or the "actuarial accrued liability." The portion allocated to the future is known as the present value of

future normal costs, with the specific piece of it allocated to the current year being called the "normal cost." Table 6 contains the actuarial balance sheet for the System. The Entry Age Normal actuarial cost method is used to develop the actuarial accrued liability. Tables 7 and 8 show the gain/(loss) analysis in total and by source for the System. Table 9 shows historical data for gain/(loss) experience by source.

TABLE 4
UNFUNDED ACTUARIAL ACCRUED LIABILITY
As of June 30, 2025

	(1) Actuarial Present Value	(2) Present Value of Future Normal Cost Contributions	(3) = (1) - (2) Actuarial Accrued Liabilities
Active Members			
Service retirement benefits based on service rendered before and likely to be rendered after valuation date	$6,316,697,550	$869,123,006	$5,447,574,544
Disability benefits likely to be paid to present active members who become totally and permanently disabled	132,004,348	75,422,501	56,581,847
Survivor benefits likely to be paid to widows and children of present active members who die before retiring	76,507,811	23,498,632	53,009,179
Separation benefits likely to be paid to present active members	484,767,954	380,177,086	104,590,868
Active Member Totals	$7,009,977,663	$1,348,221,225	$5,661,756,438
Members on Leave of Absence & LTD Service retirement benefits based on service rendered before the valuation date			74,237,298
Terminated Vested Members Service retirement benefits based on service rendered before the valuation date			892,496,121
Retired Lives			10,711,173,889
Terminated Nonvested Members			53,748,417
Total Actuarial Accrued Liability			$17,393,412,163
Actuarial Value of Assets			9,642,618,591
Unfunded Actuarial Accrued Liability			$7,750,793,572
Funded Ratio			55.4%

TABLE 5
AMORTIZATION SCHEDULE FOR LEGACY UAAL

The legacy UAAL base, established in the June 30, 2018 valuation, is the largest component of the total UAAL. To illustrate the impact of the level percent of payroll methodology, the amortization schedule for the legacy base is shown below. Note that this schedule is based on the underlying assumptions used in this valuation including an investment return assumption of 6.95% and an assumed payroll growth of 2.25%. Any change in these assumptions in the future will impact the projected UAAL amortization schedule for the legacy UAAL.

As of June 30	Outstanding Balance (BOY)	Amortization Years Remaining	Contributions ($M)
2026	4,962	23	350
2027	4,945	22	358
2028	4,919	21	366
2029	4,882	20	374
2030	4,834	19	383
2031	4,775	18	391
2032	4,702	17	400
2033	4,615	16	409
2034	4,513	15	418
2035	4,394	14	428
2036	4,257	13	437
2037	4,101	12	447
2038	3,923	11	457
2039	3,723	10	467
2040	3,499	9	478
2041	3,247	8	489
2042	2,968	7	500
2043	2,657	6	511
2044	2,313	5	522
2045	1,934	4	534
2046	1,516	3	546
2047	1,056	2	559
2048	552	1	571
2049	0	0	0

TABLE 6
ACTUARIAL BALANCE SHEET

ASSETS		
Actuarial Value of Assets		$ 9,642,618,591
Unfunded Actuarial Accrued Liability		7,750,793,572
Present Value of Future Normal Costs		1,348,221,225
Total Assets		$ 18,741,633,388
LIABILITIES		
Present Value of Future Benefits		
Active members		
Retirement	$ 6,316,697,550	
Withdrawal	484,767,954	
Death	76,507,811	
Disability	132,004,348	
Total		$ 7,009,977,663
Inactive members		
Currently receiving benefits	10,711,173,889	
Not currently receiving benefits	1,020,481,836	
Total		$ 11,731,655,725
Total Liabilities		$ 18,741,633,388

TABLE 7
ANALYSIS OF GAIN/(LOSS)

	(1) Actuarial Accrued Liabilities	(2) Valuation Assets	(3) = (1) - (2) UAAL
(1) Value at Start of Year	$ 16,915,028,387	$ 9,355,757,779	$ 7,559,270,608
(2) Total Normal Cost From Last Valuation	190,592,804	0	190,592,804
(3) Actual Contributions (Employer and Member)	0	816,955,882	(816,955,882)
(4) Miscellaneous Income	0	1,003	(1,003)
(5) Benefit Payments	(1,087,238,087)	(1,087,238,087)	0
(6) Administrative Expenses	0	(13,313,154)	13,313,154
(7) Service Purchases/Transfers	3,502,337	3,502,337	0
(8) Interest on (1) through (7) at 6.95%	1,151,813,399	640,655,449	511,157,950
(9) Expected Value Before Changes	$ 17,173,698,840	$ 9,716,321,209	$ 7,457,377,631
(10) Other Changes	0	0	0
(11) Expected Value After Changes: (9) + (10)	$ 17,173,698,840	$ 9,716,321,209	$ 7,457,377,631
(12) Actual Value at End of Year	17,393,412,163	9,642,618,591	7,750,793,572
(13) Gain / (Loss)	$ (219,713,323)	$ (73,702,618)	$ (293,415,941)
(14) Gain / (Loss) as Percent of Expected Actuarial Accrued Liability: $17,173,698,840	(1.3%)	(0.4%)	(1.7%)

TABLE 8
GAIN/(LOSS) ANALYSIS BY SOURCE

Type of Activity	Gain or (Loss) for Year Ended 6/30/2025	
Age & Service Retirements. If members retire at older ages or with lower final average pay than assumed, there is a gain. If younger ages or higher average pays, a loss.	($3,700,000)	(0.0%)
Death-in-Service Benefits. If survivor claims are less than assumed, there is a gain. If more claims, there is a loss.	3,700,000	0.0%
Withdrawal From Employment. If more liabilities are released by withdrawals than assumed, there is a gain. If smaller releases, a loss.	(22,600,000)	(0.1%)
Long Term Disability. The occurrence of a gain or loss depends upon the age at disability and the incidence of disability.	(3,600,000)	(0.0%)
Salary Increases. If there are smaller salary increases than assumed, there is a gain. If greater increases, a loss.	(111,200,000)	(0.6%)
Investment Income. If there is greater investment return on assets than assumed, there is a gain. If less return, a loss.	(73,700,000)	(0.4%)
Retiree Mortality. If more deaths than assumed, there is a gain. if fewer deaths, a loss.	18,700,000	0.1%
COLAs. If Cost of Living Adjustments are less than expected, a gain; if more a loss.	(88,800,000)	(0.5%)
Other. Miscellaneous gains and losses resulting from data adjustments, timing of financial transactions, valuation methods, etc.	(12,200,000)	(0.1%)
Gain (or Loss) During Year From Experience	($293,400,000)	(1.7%)

Note: Percentages may not add due to rounding.

TABLE 9
HISTORICAL EXPERIENCE GAINS AND LOSSES BY SOURCE

Year Ending June 30	Gain (Loss) By Risk Area									Total Exper. Gain (Loss)	Exper. Gain (Loss) as % of AAL	Actuarial Accrued Liability Beginning of Year
	Salary Increases	Investments	Age & Service Retirement	Disability	Death In-Service	Withdrawal	Death Retired Lives****	COLAs	Other			
2001*	(23.2)	(67.9)	(59.8)	(1.0)	(0.2)	(28.2)	(13.1)		(66.1)	(259.5)	(4.4)	5,921
2002	115.0	(284.6)	(14.4)	(0.5)	(1.3)	(21.4)	37.1		(62.6)	(232.8)	(3.8)	6,065
2003	7.7	(314.1)	(27.2)	(0.6)	(2.6)	(14.6)	9.6		(63.1)	(404.9)	(6.5)	6,294
2004*	(40.0)	(240.1)	(51.5)	(1.4)	(1.3)	(6.7)	(4.3)		(53.8)	(399.1)	(6.0)	6,662
2005	(3.4)	(196.6)	3.1	(2.0)	(1.7)	(0.9)	(11.7)		(35.5)	(248.7)	(3.4)	7,230
2006	(29.5)	38.0	(1.7)	(2.3)	(2.4)	15.5	(21.1)		(3.6)	(7.1)	(0.1)	7,578
2007	(11.5)	179.4	(17.3)	(2.1)	(2.4)	3.8	(29.7)		(43.0)	77.2	1.0	8,013
2008*	(10.5)	78.3	(22.9)	(2.0)	(3.4)	6.6	8.7		(49.8)	5.0	0.1	8,500
2009*	(15.9)	(354.3)	8.8	(1.5)	0.0	(31.3)	(39.8)		(37.6)	(471.6)	(5.2)	9,128
2010	23.2	(313.6)	(19.0)	8.4	8.0	(30.6)	4.7		(56.9)	(375.8)	(3.9)	9,495
2011	49.6	(204.0)	(52.8)	10.8	7.5	(21.0)	32.7		(60.4)	(237.6)	(2.4)	9,853
2012*	12.3	(447.2)	(24.3)	8.3	8.9	8.1	10.3		(53.6)	(477.2)	(4.7)	10,124
2013**	60.4	(313.7)	6.7	11.1	7.4	2.0	(7.7)	(3.1)	(70.4)	(307.3)	(2.8)	10,794
2014	52.6	249.5	(6.9)	(4.2)	(2.5)	(12.7)	6.3	18.0	(68.3)	231.8	2.1	11,135
2015	51.4	(137.9)	(29.1)	(1.6)	(0.5)	15.6	18.9	30.0	(54.0)	(107.2)	(0.9)	11,495
2016***	(59.3)	(320.4)	7.5	(1.2)	3.0	(8.3)	16.9	50.3	(70.0)	(381.5)	(3.3)	11,728
2017*	17.0	(232.1)	(53.3)	(0.6)	6.2	(28.2)	14.3	68.3	(2.2)	(210.5)	(1.6)	12,751
2018***	85.3	(202.1)	(51.8)	(0.9)	7.2	(38.0)	20.1	43.3	17.9	(119.0)	(0.9)	13,152
2019*	24.9	(241.2)	(26.4)	(2.3)	7.1	1.5	6.4	29.5	(44.2)	(244.7)	(1.8)	13,613
2020*	(60.6)	(274.4)	(19.2)	(3.1)	7.1	(4.1)	9.1	20.2	3.7	(321.3)	(2.3)	13,958
2021*	(128.0)	30.8	(34.8)	(1.3)	12.4	(35.6)	17.8	45.4	(5.9)	(99.2)	(0.7)	14,258
2022	(26.7)	(163.5)	(0.5)	(1.1)	10.7	12.9	22.9	(32.4)	(15.8)	(193.5)	(1.3)	15,111
2023	(317.0)	(333.7)	(30.0)	(1.7)	5.9	(30.1)	8.1	(175.2)	(25.0)	(898.7)	(5.8)	15,409
2024	(269.7)	(297.4)	17.7	(1.8)	3.8	(23.7)	1.1	(188.6)	(20.4)	(779.0)	(4.8)	16,191
2025	**(111.2)**	**(73.7)**	**(3.7)**	**(3.6)**	**3.7**	**(22.6)**	**18.7**	**(88.8)**	**(12.2)**	**(293.4)**	**(1.7)**	**16,915**

* Revision in assumptions.
** Revision in asset valuation method.
*** Revision in assumptions & asset valuation method.
**** Prior to the 2013 valuation, this amount included COLAs.

SECTION 5 – EMPLOYER CONTRIBUTIONS

The previous two sections were devoted to a discussion of the assets and liabilities of the Missouri State Employees' Retirement System. Table 6 indicates that current assets fall short of meeting the present value of future benefits (total liability). This is expected in all but a completely closed fund, where no further contributions are anticipated. In an active system, there will almost always be a difference between the actuarial value of assets and total liabilities. This deficiency has to be made up by future contributions and investment returns. An actuarial valuation sets out a schedule of future contributions that will fund this deficiency in an orderly fashion.

The method used to determine the incidence of the contributions in various years is called the actuarial cost method. Under an actuarial cost method, the contributions required to meet the difference between current assets and current liabilities are allocated each year between two elements: (1) the normal cost rate and (2) the unfunded actuarial accrued liability contribution rate.

The term "fully funded" is often applied to a system in which contributions at the normal cost rate are sufficient to pay for the benefits of existing employees as well as for those of new employees. More often than not, systems are not fully funded, either because of past benefit improvements that have not been completely funded or because of actuarial deficiencies that have occurred because experience has not been as favorable as anticipated by the actuarial assumptions. Under these circumstances, an unfunded actuarial accrued liability (UAAL) exists. Likewise, when the actuarial value of assets is greater than the actuarial accrued liability, a surplus exists.

Description of Contribution Rate Components

The Entry Age Normal (EAN) actuarial cost method is used for the valuation. Under that method, the normal cost for each year from entry age to assumed exit age is a constant percentage of the member's year by year projected compensation. The portion of the present value of future benefits not provided by the present value of future normal costs is the actuarial accrued liability. The unfunded actuarial accrued liability represents the difference between the actuarial accrued liability and the actuarial value of assets as of the valuation date. The UAAL is calculated each year and reflects experience gains and losses.

In general, contributions are computed in accordance with a level percent-of-payroll funding objective. The contribution rate based on the June 30, 2025 actuarial valuation will be used to determine the employer contribution rate for the plan year ending June 30, 2027. In this context, the term "contribution rate" means the percentage, which is applied to a particular active member payroll to determine the actual employer contribution amount (i.e., in dollars) for the group.

Contribution Rate Summary

Table 10 shows the development of the June 30, 2026 projected UAAL used to develop the UAAL contribution rate. In Table 11, the amortization payment related to the UAAL is developed. Table 12 develops the required employer contribution rate for the Plan and the estimated amount of

required employer contributions. Table 13 shows estimated contribution amounts for each department if the employer contributions are paid early on July 15, September 1 or November 1. Amounts are shown for both the UAAL payment only and the total employer contribution.

The contribution rates shown in this report are based on the actuarial assumptions and cost methods described in Appendix D.

TABLE 10
PROJECTED UAAL AS OF JUNE 30, 2026

(1) Actuarial Accrued Liability at June 30, 2025	$17,393,412,163
(2) Actuarial Value of Assets for UAAL Contribution Rate	$9,046,139,604
(3) Unfunded Actuarial Accrued Liability at June 30, 2025 [(1) - (2)]	$8,347,272,559
(4) Expected Contribution Rate for Year Ending June 30, 2026*	32.68%
(5) Normal Cost Rate for Year Ending June 30, 2026	8.69%
(6) Contribution Rate Applied to UAAL [(4) - (5)]	23.99%
(7) Projected Payroll for the Year After the Valuation Date	$2,674,714,487
(8) Expected UAAL Contribution [(6) * (7)]	$641,664,005
(9) Interest on (3) and (8) to June 30, 2026 at 6.95%	$558,212,138
(10) Projected UAAL at June 30, 2026 [(3) - (8) + (9)]	$8,263,820,692

*The Expected Contribution Rate for FYE 2026 is equal to the employer rate of 30.25% plus the weighted average member rate of 2.43% of payroll from the June 30, 2024 valuation.

TABLE 11
UAAL CONTRIBUTION RATE

We believe the use of the layered amortization policy with new bases over 25 years and the remainder of the legacy base over 23 years, complies with Actuarial Standard of Practice Number 4. This policy will fully amortize the individual, as well as the total, unfunded actuarial accrued liability within a reasonable timeframe and/or reduce the amount of the UAAL by a reasonable amount within a sufficiently short period.

Amortization Base	Original Amount	Remaining Payments	Projected June 30, 2026 Balance	Annual Payment*
2018 Legacy UAAL	$ 4,861,507,879	23	$ 4,962,186,655	$ 350,026,003
2019 Assumption Changes	74,340,841	24	75,817,680	5,221,394
2019 Experience Base	259,714,456	24	264,873,887	18,241,271
2020 Assumption Changes	124,766,739	25	127,123,599	8,560,842
2020 Experience Base	196,930,919	25	200,650,970	13,512,371
2021 Assumption Changes	515,859,705	21	510,378,142	37,973,023
2021 Experience Base	152,907,202	21	151,282,399	11,255,674
2022 Experience Base	254,311,768	22	252,962,322	18,308,245
2023 Experience Base	844,468,490	23	842,894,411	59,456,643
2024 Experience Base	680,399,283	24	680,301,634	46,850,849
2025 Experience Base	$ 195,348,993	25	195,348,993	13,155,322
Total			**$ 8,263,820,692**	**$ 582,561,637**

* Payment amount reflects mid-year timing.

1. Total UAAL Amortization Payments	$ 582,561,637
2. Expected Payroll for FYE 2027	$ 2,734,895,563
3. UAAL Amortization Payment Rate (1) / (2)	21.30%

TABLE 12
REQUIRED EMPLOYER CONTRIBUTION RATE FOR THE FISCAL YEAR ENDING JUNE 30, 2027

ACTUARIAL VALUATION RESULTS AS OF JUNE 30, 2025

	Percent of Payroll		
	MSEP & MSEP 2000	MSEP 2011	Weighted Average
A. Normal Cost			
(1) Service retirement benefits	6.32 %	4.85 %	5.39 %
(2) Termination benefits	1.78	2.46	2.21
(3) Survivor benefits	0.11	0.16	0.14
(4) Disability benefits	0.43	0.46	0.45
(5) Administrative expenses	0.50	0.50	0.50
(6) Total	9.14	8.43	8.69
B. Less Member Contributions	0.00	4.00	2.55
C. Employer Normal Cost [A(6) - B]	9.14	4.43	6.14
D. Unfunded Actuarial Accrued Liabilities (UAAL) (level percent-of-payroll amortization with layered bases)			21.30
E. ACTUARIAL EMPLOYER CONTRIBUTION RATE [C. + D.]			**27.44 %**
F. POLICY MINIMUM EMPLOYER CONTRIBUTION RATE			**32.00 %**
G. ESTIMATED EMPLOYER CONTRIBUTION ($Millions)#			**$875.2**

At their September 21, 2023 meeting, the Board adopted a new Policy Minimum Employer Contribution Rate of 28.75% of pay in FYE 2025, 30.25% of pay in FYE 2026, and 32.00% of pay thereafter. The Policy Minimum Employer Contribution Rate continues until the System reaches an 80% funded ratio.

Illustrative only. Estimated employer contribution amounts (shown in millions) are based on the greater of the Actuarial Employer Contribution Rate and the Policy Minimum Employer Contribution Rate shown, and the valuation payroll projected two years to the applicable fiscal year using the valuation assumption of 2.25% per year.

TABLE 13
EARLY PAYMENT AMOUNTS BY DEPARTMENT FOR FISCAL YEAR 2027
(UAAL CONTRIBUTION RATE: 25.86% OF PAYROLL)

Section 104.436, RSMo. describes the certified contribution rate a department shall pay in accordance with its ordinary course payrolls during each fiscal year. Per a Board Rule adopted during 2020, a department may elect to pre-pay the amount for the unfunded actuarial accrued liabilities (UAAL) only or the total contribution which also includes the normal cost rate, at July 15, September 1, or November 1. For purposes of this exhibit, the UAAL contribution rate is calculated as the excess of the required employer contribution rate over the employer share of the normal cost rate. At the end of the fiscal year, actual payroll will be compared to assumed payroll and an adjustment will be made to the total contributions paid, as either an additional amount paid by the department or a credit to reduce future payments.

This exhibit is for informational purposes only and all payment amounts should be confirmed with MOSERS. Payment amounts are adjusted to payment dates using the assumed rate of return (6.95%) used in the actuarial funding valuation and assuming all scheduled payments are made prior to the one-time payment date.

Department	Expected Payroll for FY 2027	Total FY 2027 UAAL Payment	FY 2027 UAAL Contribution Rate	One-Time Payment, Adjusted for Expected Payroll Contributions to Date: July 15*	September 1**	November 1***	Additional Payroll Contributions
State of Missouri	2,330,985,013	602,792,724	25.86%	584,512,056	491,201,660	397,386,654	6.14%
Environmental Improvement & Energy Resource Authority	548,303	141,791	25.86%	137,491	115,542	93,475	6.14%
Missouri Agriculture & Small Business Development Authority	125,754	32,520	25.86%	31,534	26,500	21,439	6.14%
Missouri Consolidated Health Care Plan (MCHCP)	3,814,609	986,458	25.86%	956,542	803,841	650,315	6.14%
Missouri Development Finance Board	645,523	166,932	25.86%	161,870	136,029	110,049	6.14%
Missouri Housing Development Commission	10,379,799	2,684,216	25.86%	2,602,813	2,187,305	1,769,550	6.14%
Missouri Public Entity Risk Management Fund	985,293	254,797	25.86%	247,070	207,628	167,973	6.14%
Missouri Technology Corporation	0	0	25.86%	0	0	0	6.14%
Missouri Wine and Grape Board	358,523	92,714	25.86%	89,902	75,550	61,121	6.14%
Harris Stowe State University	11,222,718	2,902,195	25.86%	2,814,181	2,364,931	1,913,251	6.14%
Lincoln University	19,865,787	5,137,293	25.86%	4,981,496	4,186,260	3,386,722	6.14%
Missouri Southern State University	19,154,295	4,953,301	25.86%	4,803,084	4,036,329	3,265,427	6.14%
Missouri State University	127,681,785	33,018,510	25.86%	32,017,170	26,906,010	21,767,209	6.14%
Missouri Western State University	20,473,928	5,294,558	25.86%	5,133,992	4,314,411	3,490,398	6.14%
Northwest Missouri State University	39,981,535	10,339,225	25.86%	10,025,671	8,425,192	6,816,058	6.14%
Southeast Missouri State University	46,314,367	11,976,895	25.86%	11,613,676	9,759,691	7,895,680	6.14%
State Technical College of Missouri	16,328,766	4,222,619	25.86%	4,094,561	3,440,913	2,783,730	6.14%
Truman State University	24,516,617	6,339,997	25.86%	6,147,726	5,166,315	4,179,596	6.14%
University of Central Missouri	61,512,948	15,907,248	25.86%	15,424,835	12,962,443	10,486,736	6.14%
Total	2,734,895,563	707,243,993	25.86%	685,795,670	576,316,550	466,245,383	6.14%

* One-time payment is for fiscal year payments and assumes no other contributions during the fiscal year have been made.
** Fiscal year payments are assumed to be made for all of July and August, in addition to the one-time payment.
*** Fiscal year payments are assumed to be made for all of July, August, September and October, in addition to the one-time payment.

TABLE 13
EARLY PAYMENT AMOUNTS BY DEPARTMENT FOR FISCAL YEAR 2027

(continued)

(TOTAL EMPLOYER CONTRIBUTION RATE: 32.00% OF PAYROLL)

Department	Expected Payroll for FY 2027	Total FY 2027 Payments	FY 2027 Contribution Rate	One-Time Payment, Adjusted for Expected Payroll Contributions to Date: July 15*	September 1**	November 1***	Additional Payroll Contributions
State of Missouri	2,330,985,013	745,915,206	32.00%	723,294,116	607,828,816	491,739,094	0.00%
Environmental Improvement & Energy Resource Authority	548,303	175,457	32.00%	170,136	142,976	115,669	0.00%
Missouri Agriculture & Small Business Development Authority	125,754	40,241	32.00%	39,021	32,791	26,529	0.00%
Missouri Consolidated Health Care Plan (MCHCP)	3,814,609	1,220,675	32.00%	1,183,656	994,699	804,721	0.00%
Missouri Development Finance Board	645,523	206,567	32.00%	200,303	168,327	136,178	0.00%
Missouri Housing Development Commission	10,379,799	3,321,536	32.00%	3,220,805	2,706,642	2,189,698	0.00%
Missouri Public Entity Risk Management Fund	985,293	315,294	32.00%	305,732	256,926	207,855	0.00%
Missouri Technology Corporation	0	0	32.00%	0	0	0	0.00%
Missouri Wine and Grape Board	358,523	114,727	32.00%	111,248	93,488	75,633	0.00%
Harris Stowe State University	11,222,718	3,591,270	32.00%	3,482,359	2,926,442	2,367,518	0.00%
Lincoln University	19,865,787	6,357,052	32.00%	6,164,264	5,180,213	4,190,840	0.00%
Missouri Southern State University	19,154,295	6,129,374	32.00%	5,943,491	4,994,683	4,040,745	0.00%
Missouri State University	127,681,785	40,858,171	32.00%	39,619,081	33,294,366	26,935,448	0.00%
Missouri Western State University	20,473,928	6,551,657	32.00%	6,352,967	5,338,792	4,319,132	0.00%
Northwest Missouri State University	39,981,535	12,794,091	32.00%	12,406,089	10,425,605	8,434,410	0.00%
Southeast Missouri State University	46,314,367	14,820,597	32.00%	14,371,138	12,076,957	9,770,369	0.00%
State Technical College of Missouri	16,328,766	5,225,205	32.00%	5,066,742	4,257,897	3,444,678	0.00%
Truman State University	24,516,617	7,845,317	32.00%	7,607,395	6,392,965	5,171,967	0.00%
University of Central Missouri	61,512,948	19,684,143	32.00%	19,087,189	16,040,147	12,976,626	0.00%
Total	2,734,895,563	875,166,580	32.00%	848,625,732	713,152,732	576,947,110	0.00%

* One-time payment is for fiscal year payments and assumes no other contributions during the fiscal year have been made.
** Fiscal year payments are assumed to be made for all of July and August, in addition to the one-time payment.
*** Fiscal year payments are assumed to be made for all of July, August, September, and October, in addition to the one-time payment.

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SECTION 6 - PROJECTIONS

The June 30, 2025 valuation results present the System's financial status at a single point in time and contribution requirements for a single fiscal year. Historical valuation results allow analysis of past trends, but no insight into future trends. A projection model provides insight into the longer-term trend of (1) the projected Employer contributions; (2) the projected System funded status (ratio of actuarial assets over liabilities); (3) net cash flow patterns; and (4) the unfunded actuarial accrued liability (actuarial accrued liability minus actuarial assets). Projections can also be used to demonstrate how sensitive the valuation results are to the key variables being modeled. Such sensitivity analysis can be found in Section 7 of this report.

For MSEP, projections are particularly important and insightful due to the multiple-tiered benefit structure. The current valuation produces a normal cost and actuarial accrued liability based on the composition of active members on the valuation date, June 30, 2025. Without a tiered structure, systems can assume that the normal cost, as a percentage of payroll, will remain relatively level. However, since all new employees are covered under a lower cost benefit structure, until all new employees are covered under MSEP 2011 benefits, the normal cost percentage will continue to decrease. In addition, MSEP 2011 members are the only group making employee contributions, so projections allow for the projected payroll to be segregated by tier so that total future contributions reflect an estimate of the amounts to be contributed by employees.

The member data (active and in-pay status) is projected for each year in the future using current assumptions. After the first year, a new-member profile is used to estimate the demographics of new employees replacing members who are projected to terminate, retire, die or become disabled in future years. ***For this modeling, the number of active members is assumed to remain level over the projection period.*** To the extent that assumption does not occur, i.e., the size of the active membership declines or increases, the actual valuation results are expected to be different than those shown here.

Unless otherwise noted, the projections in this section assume that all actuarial assumptions are met in all future years, including the investment return assumption, and that the Employer makes contributions equal to the full amount of the actuarially required contribution, as calculated by the valuation, or the minimum employer contribution rate as set out in the Board's Funding Policy. The projections are based on the current plan provisions and assume that all new members joining after June 30, 2025 will make employee contributions and participate in the MSEP 2011 plan.

The projections do not predict the System's financial condition or its ability to pay benefits in the future and do not provide any guarantee of future financial soundness of the System nor do they, on their own, indicate future funding requirements. Over time, a defined benefit plan's total cost will depend on a number of factors, including the amount of benefits paid, the number of people paid benefits, plan expenses and the amount of earnings on assets invested to pay benefits. These amounts, and other variables, are uncertain and unknowable at the time the projections were prepared. Because not all of the assumptions will unfold exactly as expected, actual results will differ from the projections shown.

TABLE 14
PROJECTION OF FUTURE ACTUARIAL VALUATION RESULTS
AS OF JUNE 30, 2025

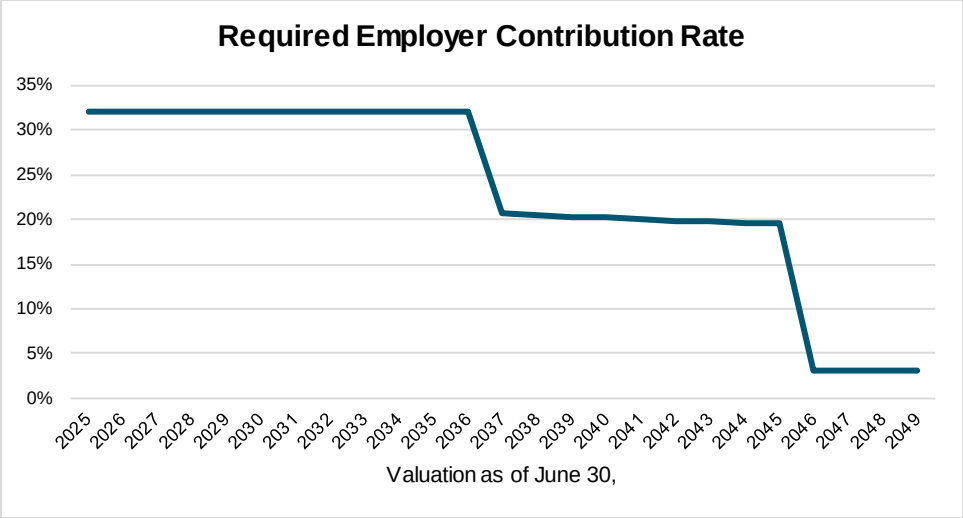
Projection Based on Assumptions Outlined in Appendix D (Amounts in thousands)											
Valuation as of June 30, (1)	Covered Payroll at Valuation (2)	Actuarial Accrued Liability (AAL) (3)	Actuarial Value of Assets (AVA) (4)	Unfunded AAL (5)	Funded Ratio Using AVA (6)	Normal Cost Rate (7)	UAAL Amortization Payment Rate (8)	Actuarial Contribution Rate (9)	Member Contribution Rate (10)	Employer Contribution Rate* (11)	Estimated Dollar Amount of Employer Contribution** (12)
2025	$2,674,714	$17,393,412	$9,642,619	$7,750,794	55.4%	8.69%	21.30%	29.99%	2.55%	32.00%	$875,167
2026	2,734,896	17,596,059	9,635,209	7,960,849	54.8%	8.62%	21.96%	30.58%	2.68%	32.00%	887,969
2027	2,774,902	17,783,464	9,979,626	7,803,838	56.1%	8.56%	21.79%	30.35%	2.81%	32.00%	905,870
2028	2,830,845	17,949,439	10,419,613	7,529,826	58.0%	8.50%	21.38%	29.88%	2.94%	32.00%	924,329
2029	2,888,528	18,092,333	10,878,705	7,213,628	60.1%	8.45%	20.92%	29.37%	3.06%	32.00%	943,705
2030	2,949,078	18,211,519	11,307,279	6,904,240	62.1%	8.39%	20.51%	28.90%	3.17%	32.00%	963,897
2031	3,012,178	18,318,196	11,766,959	6,551,238	64.2%	8.36%	20.06%	28.42%	3.28%	32.00%	984,712
2032	3,077,224	18,403,109	12,252,283	6,150,826	66.6%	8.32%	19.56%	27.88%	3.38%	32.00%	1,006,360
2033	3,144,874	18,467,730	12,768,746	5,698,985	69.1%	8.28%	19.01%	27.29%	3.47%	32.00%	1,028,907
2034	3,215,335	18,514,448	13,322,675	5,191,773	72.0%	8.25%	18.41%	26.66%	3.56%	32.00%	1,052,451
2035	3,288,910	18,547,188	13,922,455	4,624,733	75.1%	8.22%	17.74%	25.96%	3.64%	32.00%	1,076,757
2036	3,364,866	18,567,134	14,574,291	3,992,843	78.5%	8.19%	17.02%	25.21%	3.71%	32.00%	1,102,076
2037	3,443,988	18,577,179	15,286,063	3,291,117	82.3%	8.16%	16.24%	24.40%	3.77%	20.63%	727,623
2038	3,527,015	18,584,001	16,069,885	2,514,116	86.5%	8.14%	16.16%	24.30%	3.82%	20.48%	740,113
2039	3,613,831	18,593,013	16,522,457	2,070,556	88.9%	8.12%	16.07%	24.19%	3.86%	20.33%	753,108
2040	3,704,419	18,610,192	17,026,209	1,583,982	91.5%	8.11%	15.98%	24.09%	3.90%	20.19%	766,920
2041	3,798,515	18,642,319	17,590,807	1,051,512	94.4%	8.10%	15.88%	23.98%	3.92%	20.06%	781,484
2042	3,895,735	18,693,323	18,224,039	469,284	97.5%	8.09%	15.78%	23.87%	3.94%	19.93%	796,350
2043	3,995,734	18,767,135	18,933,022	(165,888)	100.9%	8.08%	15.68%	23.76%	3.96%	19.80%	811,500
2044	4,098,485	18,867,114	19,724,925	(857,811)	104.5%	8.08%	15.58%	23.66%	3.97%	19.69%	827,627
2045	4,203,285	18,993,083	20,603,609	(1,610,526)	108.5%	8.06%	15.48%	23.54%	3.97%	19.57%	843,441
2046	4,309,869	19,145,860	21,574,513	(2,428,652)	112.7%	8.06%	-0.92%	7.14%	3.98%	3.16%	139,617
2047	4,418,258	19,324,192	22,640,072	(3,315,879)	117.2%	8.06%	-0.94%	7.12%	3.99%	3.13%	141,758
2048	4,529,024	19,528,086	23,061,291	(3,533,204)	118.1%	8.06%	-0.97%	7.09%	3.99%	3.10%	143,906
2049	4,642,128	19,756,843	23,520,903	(3,764,061)	119.1%	8.06%	-0.99%	7.07%	3.99%	3.08%	146,537

* Reflects Policy Minimum Contribution Rate, if applicable.
** Amounts shown are contributions in the fiscal year ending two years after the valuation date.

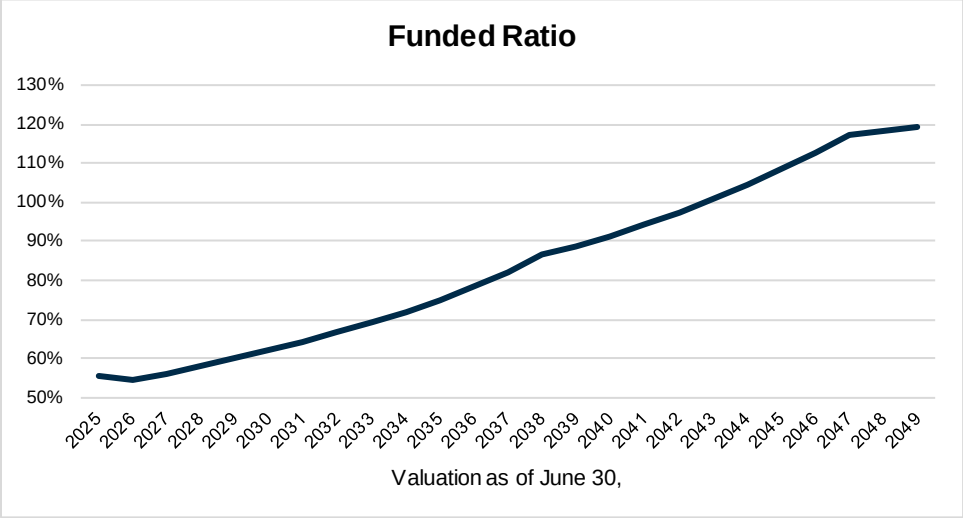
Notes: Valuation results as of June 30, 2025 are based on the current valuation report. Results after June 30, 2025 are estimated based on an open group projection model. Projections assume the size of the active population remains constant over the projection period and all actuarial assumptions are met in the future. Projected covered payroll amounts reflect the assumption that current members who leave active employment will be replaced with new members whose pay is similar to recent new hires.
Numbers may not add due to rounding.

TABLE 14
PROJECTION OF FUTURE ACTUARIAL VALUATION RESULTS
AS OF JUNE 30, 2025

(continued)



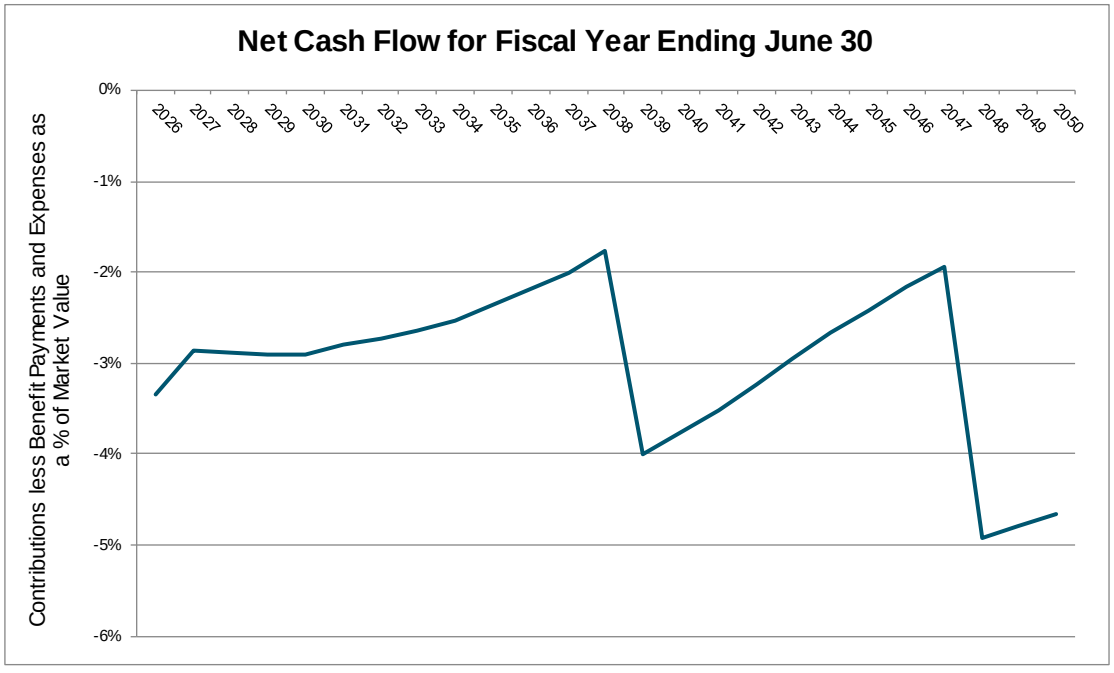
The employer contribution rate is projected to remain at the minimum contribution rate level until the Plan reaches 80% funded in the June 30, 2037 valuation. The employer contribution rate then continues to steadily decline until the plan reaches a 100% funded ratio, at which point employers begin to contribute their share of the normal cost rate.



The current results show that the funded ratio is expected to improve rapidly after the current deferred investment losses are recognized, largely due to the Board's decision to increase the minimum employer contribution rate until the plan reaches 80% funded and their policy to not recognize the additional $500 million contributed during FY 2023 when calculating the required employer contribution rate.

TABLE 15
PROJECTION OF FUTURE NET CASH FLOWS
AS OF JUNE 30, 2025

Projection Based on Assumptions Outlined in Appendix D Amounts in thousands						
Fiscal Year Ending June 30, (1)	Total Contributions (2)	Benefit Payments (3)	Administrative Expenses (4)	Net Cash Flows (5)	Market Value of Assets (MVA) (6)	Net Cash Flow as a % of MVA (7)
2026	$874,097	$1,172,811	$13,613	($312,327)	$9,354,042	(3.34%)
2027	940,299	1,203,322	13,919	(276,942)	9,681,150	(2.86%)
2028	962,336	1,239,120	14,232	(291,016)	10,067,586	(2.89%)
2029	985,417	1,275,485	14,552	(304,620)	10,466,324	(2.91%)
2030	1,009,252	1,311,048	14,880	(316,676)	10,878,705	(2.91%)
2031	1,033,947	1,334,133	15,215	(315,400)	11,307,279	(2.79%)
2032	1,059,383	1,365,321	15,557	(321,495)	11,766,959	(2.73%)
2033	1,085,645	1,393,739	15,907	(324,001)	12,252,283	(2.64%)
2034	1,112,656	1,418,872	16,265	(322,480)	12,768,746	(2.53%)
2035	1,140,479	1,439,220	16,631	(315,371)	13,322,675	(2.37%)
2036	1,169,536	1,457,874	17,005	(305,343)	13,922,455	(2.19%)
2037	1,199,238	1,473,043	17,388	(291,192)	14,574,291	(2.00%)
2038	1,229,848	1,481,426	17,779	(269,356)	15,286,063	(1.76%)
2039	860,592	1,484,751	18,179	(642,338)	16,069,885	(4.00%)
2040	878,161	1,482,837	18,588	(623,264)	16,522,457	(3.77%)
2041	896,099	1,475,376	19,006	(598,283)	17,026,209	(3.51%)
2042	915,062	1,465,487	19,434	(569,859)	17,590,807	(3.24%)
2043	934,197	1,453,492	19,871	(539,166)	18,224,039	(2.96%)
2044	953,782	1,440,096	20,318	(506,633)	18,933,022	(2.68%)
2045	973,800	1,428,962	20,775	(475,937)	19,724,925	(2.41%)
2046	994,497	1,419,070	21,243	(445,816)	20,603,609	(2.16%)
2047	1,014,543	1,412,358	21,721	(419,535)	21,574,513	(1.94%)
2048	315,464	1,407,452	22,209	(1,114,198)	22,640,072	(4.92%)
2049	322,467	1,405,137	22,709	(1,105,380)	23,061,291	(4.79%)
2050	329,127	1,403,846	23,220	(1,097,939)	23,520,903	(4.67%)



SECTION 7 – RISK MEASURES

Actuarial Standards of Practice are issued by the Actuarial Standards Board and are binding on credentialed actuaries practicing in the United States. These standards generally identify what the actuary should consider, document and disclose when performing an actuarial assignment. In September 2017, Actuarial Standard of Practice Number 51, *Assessment and Disclosure of Risk in Measuring Pension Obligations*, (ASOP 51) was issued as final with application to measurement dates on or after November 1, 2018. This ASOP, which applies to funding valuations, actuarial projections, and actuarial cost studies of proposed plan changes, was first applicable for the June 30, 2019 actuarial valuation for the Missouri State Employees' Retirement System (MOSERS or System).

A typical retirement plan faces many different risks, but the greatest risk is the inability to make benefit payments when due. If plan assets are depleted, benefits may not be paid which could create legal and litigation risk or the plan could become "pay as you go". This risk is why consistent funding of the full actuarial contribution rate, based on reasonable assumptions and methods, is so critical to the successful funding of a retirement system.

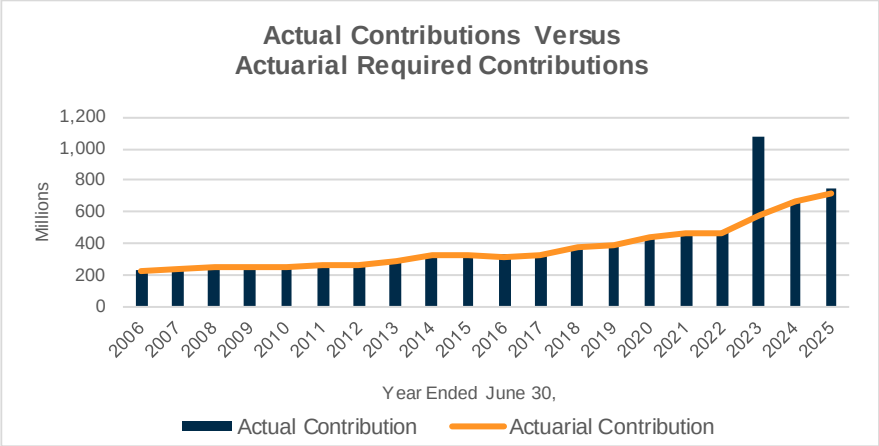
The term "risk" is most commonly associated with an outcome with undesirable results. However, in the actuarial world, risk can be translated as uncertainty. The actuarial valuation process uses many actuarial assumptions to project how future contributions and investment returns will meet the cash flow needs for future benefit payments. Of course, we know that actual experience will not unfold exactly as anticipated by the assumptions and that uncertainty, whether favorable or unfavorable, creates risk. ASOP 51 defines risk as the potential of actual future measurements to deviate from expected results due to actual experience that is different than the actuarial assumptions.

The various risk factors for a given plan can have a significant impact – positive or negative – on the actuarial projection of liability and contribution rates.

There are a number of risks inherent in the funding of a defined benefit plan. These include:

- economic risks, such as investment return and price inflation;
- demographic risks such as mortality, payroll growth, aging population, declining active membership and retirement ages;
- external risks such as the regulatory and political environment.

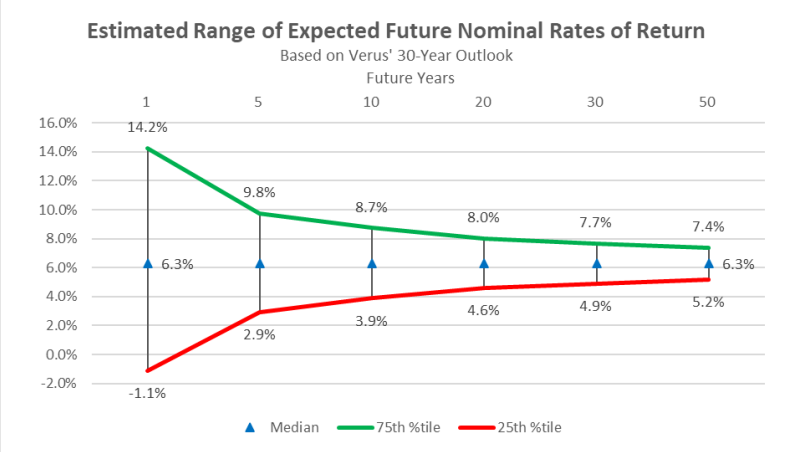
There is typically a direct correlation between healthy, well-funded retirement plans and consistent contributions equal to or greater than the full actuarial contribution rate each year. Historically, MOSERS covered employers have contributed the full actuarial rate. However, the System's contributions were slightly above the actuarial rate during FY 2016, FY 2017, and FY 2025 due to minimum contribution rates set in the funding policy. Additionally, the State of Missouri contributed an additional $500 million during FY 2023. The following graph displays the System's historical contribution levels over the past 20 years.



One of the most positive factors regarding MOSERS' funding is the commitment by covered employers to make contributions that are at least equal to the actuarial required contribution. This disciplined approach to funding has been illustrated by consistently contributing the full actuarial required contribution amount even with the increases that have occurred in the recent past. Despite the fact the full actuarial contribution rate has been contributed, the MSEP Plan is only 55% funded. Additional analysis of the Plan's historical funding indicates that the funded ratio was close to 100% in 2001. Several factors have occurred since that time which have impacted the funded status of the Plan. The actuarial assumptions or methods have been changed eight times in the last fourteen years, resulting in an ultimate reduction in the investment return assumption from 8.50% in the 2011 valuation to 6.95% in the 2020 valuation. In addition, actual investment experience over this period has lagged the assumption causing a decline in the funded ratio. However, to the extent the State continues to fund at or above the full actuarial contribution rate in the future, we would expect the funded ratio to steadily improve if the actuarial assumptions are met.

The most significant risk factor for most systems is investment return because of the volatility of returns and the size of plan assets compared to payroll (see Table 16). Given the underlying capital market assumptions provided by MOSERS' investment consultant, Verus, in 2021 when the experience study was performed and the System's asset allocation, the distribution of returns over time is illustrated in the graph on the next page.

As the graph illustrates, in any single year the rate of return is expected to fall between -1% and 14% about 50% of the time. This volatility in the investment return creates significant risk to funding a retirement plan because of the volatility it creates in the contribution rate. As Table 16 explains, if the actual return is 10% different than the expected return, it would result in an increase in the actuarial contribution rate of 2.47% once the experience is fully recognized in the asset smoothing method (five years).

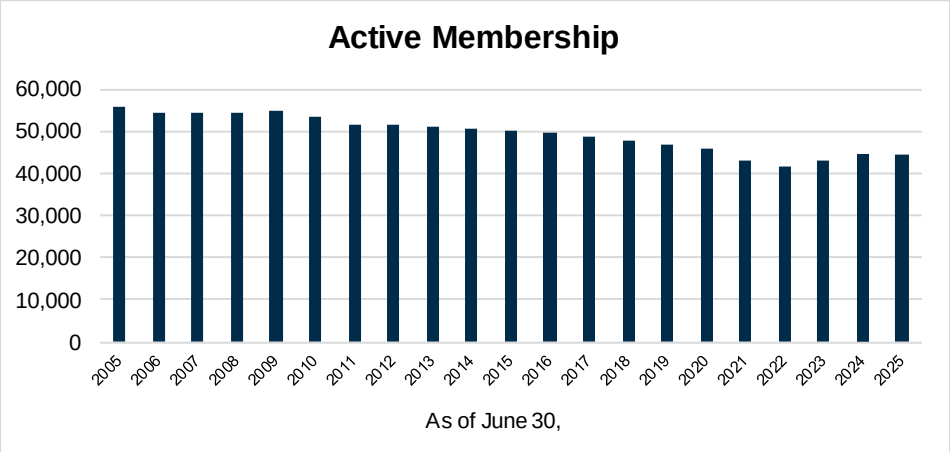


Under the revised Actuarial Standards of Practice (ASOP) No. 4 effective for valuations after February 15, 2023, we are required to include a low-default-risk obligation measure of the System's liability in our funding valuation report. This is an informational disclosure as described below and would not be appropriate for assessing the funding progress or health of the plan. This measure uses the unit credit cost method and reflects all the assumptions and provisions of the funding valuation except the discount rate is derived from considering low-default-risk fixed income securities. We considered the FTSE Pension Discount Curve based on market bond rates published by the Society of Actuaries as of June 30, 2025, with the 30-year spot rate used for all durations beyond 30. Using these assumptions, we calculate a liability of $18.6 billion. This amount approximates the termination liability if the plan (or all covered employment) ended on the valuation date and all of the accrued benefits had to be paid with cash-flow matched bonds. This assurance of funded status and benefit security is typically more relevant for corporate plans than for governmental plans since governments rarely have the need or option to completely terminate a plan.

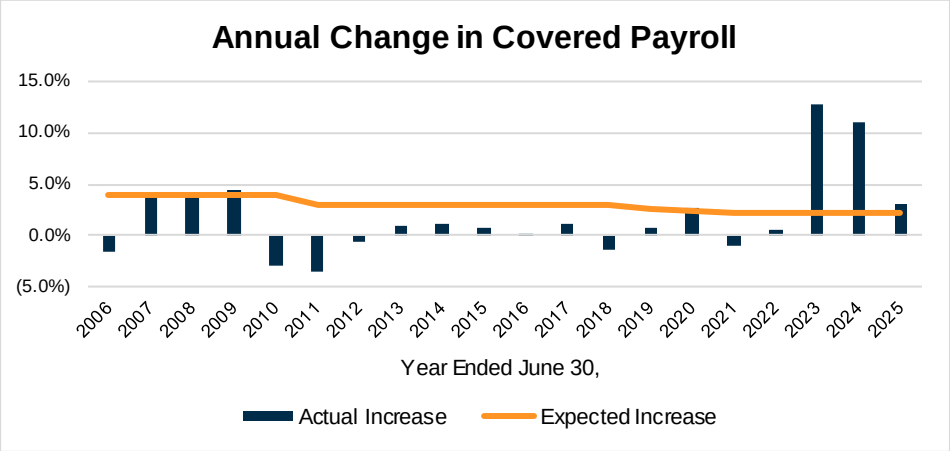
A key demographic risk for all retirement systems, including MOSERS, is improvements in mortality (longevity) greater than anticipated. While the actuarial assumptions reflect small, continuous improvements in mortality experience over time and these assumptions are refined every experience study, the risk arises because there is a possibility of some sudden shift, perhaps from a significant medical breakthrough that could quickly increase liabilities. Likewise, there is some possibility of a significant public health crisis that could result in a significant number of additional deaths in a short time period, as experienced with the COVID-19 pandemic. This type of event is also significant, although more easily absorbed. While either of these events could happen, it represents a small probability and thus represents much less risk than the volatility associated with investment returns.

Another funding risk for the MSEP Plan is the decline in the active membership. With the exception of the 2023 and 2024 valuations, the active member count has steadily declined since 2009 as shown in the following graph, with an overall decrease of about 20%. This is important because the unfunded actuarial accrued liability (UAAL) is amortized with payments that are

calculated as a level-percent of payroll. When payroll does not grow as expected, the UAAL contribution rate increases because the dollar amount of the UAAL payment is divided by a smaller payroll amount. The reduction in the number of active members also mutes the positive impact of the MSEP 2011 Plan on the employer contribution rate.



The decline in the number of active members and low salary increases over much of this period has resulted in actual payroll changes that have been far below the expected increase (based on the payroll growth assumption). The following graph shows the actual versus expected payroll growth from FY 2006 through FY 2025. In the early part of the period, actual increases were reasonably close to the expected increase, but since 2009 – when the number of active members started to decline – actual payroll growth has been low and even negative. Despite the large spikes during FY 2023 and FY 2024, the average annual percentage change to payroll was +1.7% during this 20-year period, which is well below the current payroll growth assumption. While this does not necessarily impact the dollar amount of the UAAL payment directly, it does cause the UAAL contribution rate to be higher.



SECTION 7 – RISK MEASURES

Many of the public retirement systems were created shortly after World War II. In general, the aging of the population, including the retirement of the baby boomers, along with earlier retirement eligibility has created a shift in the demographics of most systems. This change is not unexpected and has, in fact, been anticipated in the funding of the retirement system. Even though it was anticipated, the demographic shift and maturing of the plans have increased the risk associated with funding the system. The following exhibits summarize certain historical information that indicates how certain key risk metrics have changed over time due to the maturing of the retirement system.

TABLE 16
HISTORICAL ASSET VOLATILITY RATIOS

As a retirement system matures, the size of the market value of assets is expected to increase relative to the covered payroll of active members, on which the System is funded. The size of the plan assets relative to covered payroll, sometimes referred to as the asset volatility ratio, is an important indicator of the contribution risk for the System. The higher this ratio, the more sensitive a plan's contribution rate is to investment return volatility. In other words, it will be harder to recover from investment losses with increased contribution rates.

Valuation Date	Market Value of Assets	Covered Payroll	Asset Volatility Ratio	Change in ACR with a Return 10% Different than Assumed*
6/30/2006	6,983,737,684	1,777,277,138	3.93	2.65%
6/30/2007	8,056,993,537	1,846,643,330	4.36	2.94%
6/30/2008	7,934,030,312	1,916,527,398	4.14	2.79%
6/30/2009	6,163,086,701	2,002,402,087	3.08	2.07%
6/30/2010	6,727,623,355	1,945,095,321	3.46	2.33%
6/30/2011	7,768,709,373	1,875,569,816	4.14	2.79%
6/30/2012	7,581,882,309	1,864,069,493	4.07	2.74%
6/30/2013	7,993,837,570	1,880,212,950	4.25	2.86%
6/30/2014	9,136,781,826	1,902,719,928	4.80	3.23%
6/30/2015	8,516,654,912	1,918,527,768	4.44	2.99%
6/30/2016	8,109,161,214	1,921,528,936	4.22	2.84%
6/30/2017	7,945,358,298	1,941,969,786	4.09	2.75%
6/30/2018	8,034,508,424	1,915,143,002	4.20	2.83%
6/30/2019	7,916,465,279	1,930,764,635	4.10	2.76%
6/30/2020	7,910,830,533	1,980,910,473	3.99	2.69%
6/30/2021	9,519,930,080	1,961,975,052	4.85	3.27%
6/30/2022	8,248,414,597	1,972,872,754	4.18	2.81%
6/30/2023	8,557,793,248	2,225,164,914	3.85	2.59%
6/30/2024	8,798,645,184	2,471,604,459	3.56	2.40%
6/30/2025	9,354,041,911	2,546,706,568	3.67	2.47%

* The impact of asset smoothing is not reflected in the impact on the Actuarial Contribution Rate (ACR). Current year assumptions are used for all years shown.

The assets as of June 30, 2025 are about 367% of covered payroll. Consequently, underperforming the investment return assumption by 10.00% (i.e., earn -3.05% for one year) is equivalent to about 37% of payroll. While the actual impact of this experience in the first year is mitigated by the asset smoothing method and amortization of the UAAL, this table illustrates the risk associated with volatile investment returns. Such an event in one year would be expected to increase the actuarial contribution rate by 2.47% of payroll once it is fully recognized in the asset smoothing method.

TABLE 16
HISTORICAL ASSET VOLATILITY RATIOS

(continued)

The following graph shows a comparison of MSEP's historical asset volatility ratios and the historical median asset volatility ratio for a group of large public plans that are tracked in the Public Plan Database. The pattern of the change in the asset volatility ratio for MSEP over time is similar to that observed in the Public Plan Database. When asset values drop significantly (like in 2009), the ratio drops as well. MSEP's funded ratio is lower than the median funded ratio for systems in the Public Plan Database. This fact, coupled with the reduction in active members/covered payroll over the last decade, likely explains the lower asset volatility ratio.

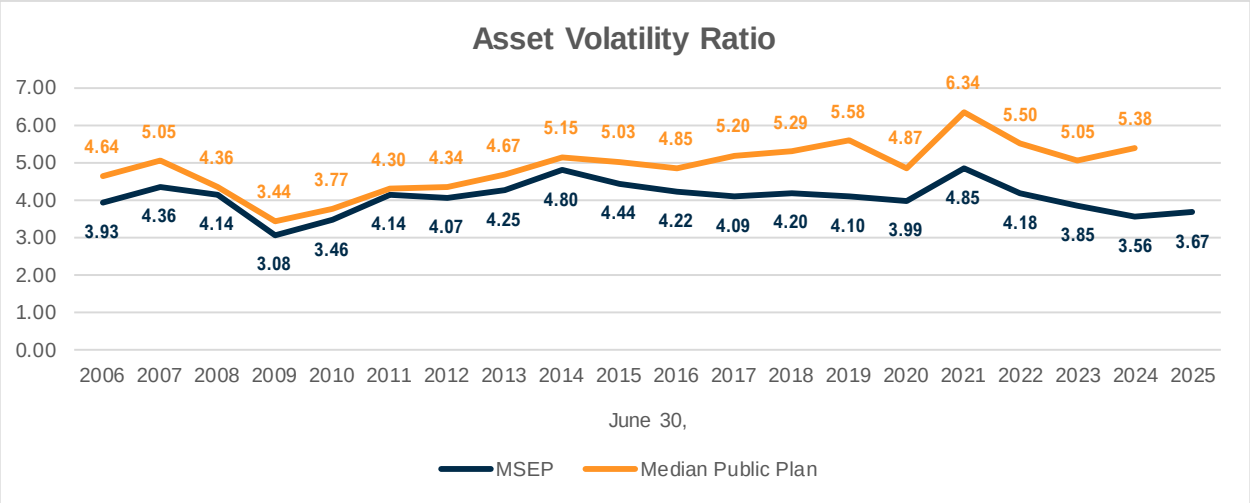


TABLE 17
LIABILITY MATURITY MEASUREMENTS

Most public sector retirement systems have been in operation for many years. As a result, they have aging plan populations, and in some cases declining active populations, resulting in an increasing ratio of retirees to active members and a growing percentage of retiree liability. The retirement of the remaining baby boomers over the next decade is expected to further exacerbate the aging of the retirement system population. With more of the total liability residing with retirees, investment volatility has a greater impact on the funding of the system since it is more difficult to restore the system financially after losses occur when there is comparatively less payroll over which to spread costs.

Projections provide the most effective way of analyzing the impact of these changes on future funding measures, but studying several key metrics from the valuation can also provide some valuable insight.

Fiscal Year End	Retiree Liability (a)	Total Actuarial Accrued Liability (b)	Retiree Percentage (a) / (b)	Covered Payroll (c)	Ratio (b) / (c)
6/30/10	5,012,677,769	9,853,155,445	50.87%	1,945,095,321	5.07
6/30/11	5,357,794,617	10,123,544,043	52.92%	1,875,569,816	5.40
6/30/12	5,749,411,068	10,793,651,577	53.27%	1,864,069,493	5.79
6/30/13	6,062,654,441	11,134,637,484	54.45%	1,880,212,950	5.92
6/30/14	6,347,728,717	11,494,571,835	55.22%	1,902,719,928	6.04
6/30/15	6,695,661,737	11,727,618,410	57.09%	1,918,527,768	6.11
6/30/16	7,305,895,284	12,751,162,753	57.30%	1,921,528,936	6.64
6/30/17	7,559,623,100	13,152,273,895	57.48%	1,941,969,786	6.77
6/30/18	8,073,692,664	13,612,763,961	59.31%	1,915,143,002	7.11
6/30/19	8,430,014,943	13,957,626,309	60.40%	1,930,764,635	7.23
6/30/20	8,701,290,590	14,258,408,888	61.03%	1,980,910,473	7.20
6/30/21	9,037,922,330	15,110,646,537	59.81%	1,961,975,052	7.70
6/30/22	9,463,674,203	15,408,995,032	61.42%	1,972,872,754	7.81
6/30/23	9,939,272,500	16,190,813,686	61.39%	2,225,164,914	7.28
6/30/24	10,354,611,684	16,915,028,387	61.22%	2,471,604,459	6.84
6/30/25	10,711,173,889	17,393,412,163	61.58%	2,546,706,568	6.83

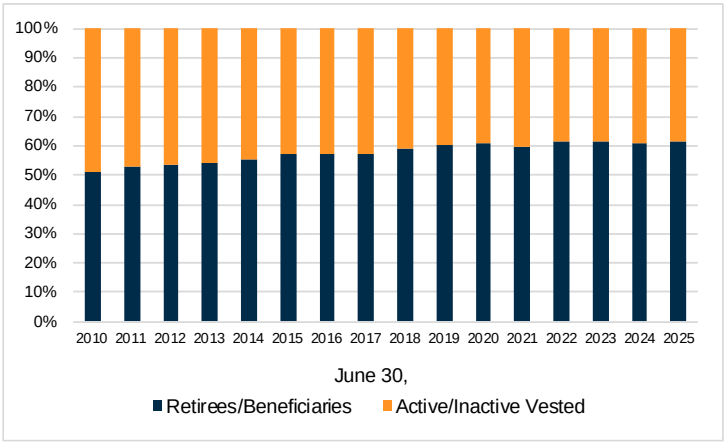
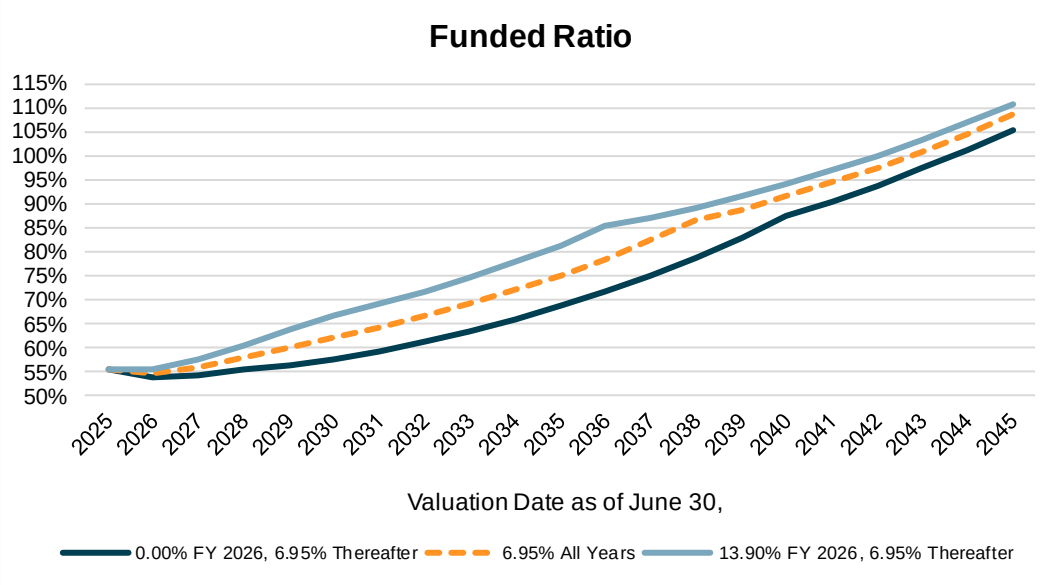


TABLE 18
SCENARIO TESTING

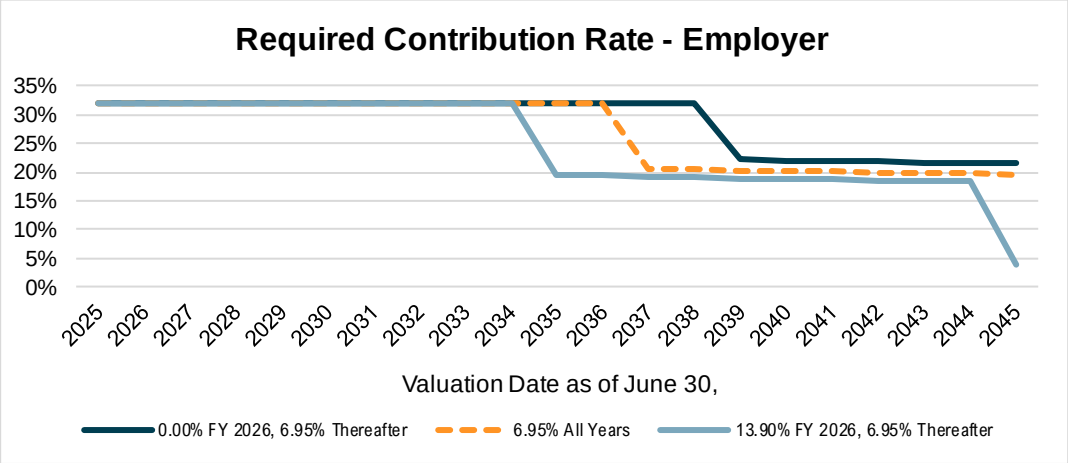
As mentioned earlier, the most significant risk factor for most systems is investment return. There are many different tools that can be useful when assessing investment risk. One of these tools is to perform scenario testing using a projection model. Scenario testing is choosing one set of specific criteria to compare against another set of specific criteria, also known as a "what if" scenario. The scenario testing illustrated below shows the impact to the System's funded ratio and required employer contribution rate if the asset return during the upcoming year (FYE 2026) is at, above or below the currently assumed 6.95% return. The projections assume the actual return on assets will be as follows:

- Scenario 1: 6.95% return in all years (the current assumption)
- Scenario 2: 0.00% return in FYE 2026, then 6.95% thereafter
- Scenario 3: 13.90% return in FYE 2026, then 6.95% thereafter



The funded ratio holds steady or declines slightly at first as deferred investment losses are recognized. Once the deferred investment losses have been recognized, the funded ratio improves rapidly until reaching 80%, at which point it continues to improve but at a more gradual pace. This illustrates the positive impact of the Board's decision on September 21, 2023 to increase the minimum employer contribution rate in the Funding Policy from 16.97% of pay for all years to 28.75% of pay for FYE 2025, 30.25% of pay for FYE 2026 and 32.00% of pay thereafter. The minimum employer contribution rate will be in effect until the System reaches an 80% funded ratio, which is unchanged from the prior policy. Under the scenario where the System earns 6.95% in all years, the funded ratio is expected to reach 80% in the June 30, 2037 valuation, which sets the employer contribution rate for FYE 2039.

Another element to the Board's funding policy that is expected to improve the System's funded status more rapidly is the election to exclude the value of the additional $500 million contribution made on July 13, 2022 when calculating the System's UAAL contribution rate. This results in higher contributions being made to the System in the future. The determination of the actuarial contribution rate in future years will not reflect the impact of the additional contribution until so directed by the MOSERS Board.



As shown in the graph above, the minimum contribution rate is expected to impact the required employer contribution rate for the next decade, even under the scenario where the System earns a 13.90% return on assets during FYE 2026. However, once the System reaches an 80% funded ratio and the policy minimum employer contribution rate expires, the employer contribution rate drops by 10% to 12% of pay the following year.

TABLE 19
COMPARISON OF VALUATION RESULTS UNDER ALTERNATE INVESTMENT RETURN ASSUMPTIONS

($ in millions)

This exhibit compares the key June 30, 2025 valuation results under five (5) different investment return assumptions to illustrate the impact of different assumptions on the funding of the System. Note that only the investment return assumption is changed, as identified in the heading below. All other assumptions are unchanged for purposes of this analysis.

Investment Return Assumption	**5.95%**	**6.45%**	**6.95%**	**7.45%**	**7.95%**
Contributions					
Total Normal Cost	11.03%	9.77%	8.69%	7.77%	6.97%
Member Contributions	(2.55%)	(2.55%)	(2.55%)	(2.55%)	(2.55%)
Employer Normal Cost	8.48%	7.22%	6.14%	5.22%	4.42%
Unfunded Actuarial Accrued Liability	24.14%	22.72%	21.30%	19.88%	18.44%
Actuarial Employer Contribution Rate	32.62%	29.94%	27.44%	25.10%	22.86%
Required Employer Contribution Rate*	32.62%	32.00%	32.00%	32.00%	32.00%
Estimated Employer Contribution Amount	$892.1	$875.2	$875.2	$875.2	$875.2
Actuarial Accrued Liability	$19,400.0	$18,350.5	$17,393.4	$16,518.7	$15,717.4
Actuarial Value of Assets	$9,642.6	$9,642.6	$9,642.6	$9,642.6	$9,642.6
Unfunded Actuarial Accrued Liability	$9,757.4	$8,707.9	$7,750.8	$6,876.1	$6,074.8
Funded Ratio	49.7%	52.5%	55.4%	58.4%	61.3%

* The minimum employer contribution rate is 32.00% of pay for FYE 2027.

Note: All other assumptions are unchanged for purposes of this sensitivity analysis. Numbers may not add due to rounding.

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SECTION 8 – HISTORICAL FUNDING AND OTHER INFORMATION

This section of the report provides a historical perspective on the System's funding and contribution practices, along with other information that may be of interest.

The information required for financial reporting by the System and participating employers is established by the Governmental Accounting Standards Board (GASB). GASB 67 separates accounting and financial reporting from funding requirements by creating disclosure and reporting requirements that are independent of the basis used for funding the System. A separate report that contains all of the information and exhibits of an actuarial nature that are necessary for the System's financial reporting under GASB 67 will be issued in the future.

GASB Statement No. 68 establishes standards for the measurement, recognition, and display of pension expense and related liabilities. Annual pension cost is measured and disclosed on the accrual basis of accounting. A separate report containing all of the pertinent information under GASB 68 reporting will also be prepared in the future.

TABLE 20
SCHEDULE OF FUNDING PROGRESS

($ in millions)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded Actuarial Accrued Liability (UAAL) (b - a)	Funded Ratio (a / b)	Covered Payroll (c)	UAAL as a % of Covered Payroll [(b - a) / c]
June 30, 2006	$6,837	$8,013	$1,176	85.3%	$1,777	66.2%
June 30, 2007	7,377	8,500	1,123	86.8%	1,847	60.8%
June 30, 2008*	7,838	9,128	1,290	85.9%	1,917	67.3%
June 30, 2009*	7,876	9,495	1,619	83.0%	2,002	80.9%
June 30, 2010	7,923	9,853	1,930	80.4%	1,945	99.2%
June 30, 2011	8,022	10,124	2,102	79.2%	1,876	112.0%
June 30, 2012*	7,897	10,794	2,897	73.2%	1,864	155.4%
June 30, 2013*	8,096	11,135	3,039	72.7%	1,880	161.6%
June 30, 2014	8,638	11,495	2,857	75.1%	1,903	150.1%
June 30, 2015	8,792	11,728	2,936	75.0%	1,919	153.0%
June 30, 2016*	8,878	12,751	3,873	69.6%	1,922	201.5%
June 30, 2017*	8,872	13,152	4,280	67.5%	1,942	220.4%
June 30, 2018*	8,830	13,613	4,782	64.9%	1,915	249.7%
June 30, 2019*	8,782	13,958	5,175	62.9%	1,931	268.0%
June 30, 2020*	8,711	14,258	5,547	61.1%	1,981	280.0%
June 30, 2021*	8,909	15,111	6,201	59.0%	1,962	316.1%
June 30, 2022	8,894	15,409	6,515	57.7%	1,973	330.2%
June 30, 2023	9,331	16,191	6,860	57.6%	2,225	308.3%
June 30, 2024	9,356	16,915	7,559	55.3%	2,472	305.8%
June 30, 2025	9,643	17,393	7,751	55.4%	2,547	304.3%

* Revision to actuarial assumptions and/or methods.
Note: Information before 2017 was produced by prior actuary. Numbers may not add due to rounding.

TABLE 21
SHORT-TERM SOLVENCY TEST

Fiscal Year End	Member Contributions (1)	Current Retirees and Beneficiaries (2)	Active and Inactive Members, Employer Financed Portion (3)	Actuarial Value of Assets Available for Benefits	Percentage of Actuarial Liabilities Covered by Actuarial Value of Assets Available for (1)	(2)	(3)
2010	$ 0	$ 5,012,677,769	$ 4,840,477,676	$ 7,923,377,393	100.0	100.0	60.1
2011	599,761	5,357,794,617	4,765,149,665	8,022,481,408	100.0	100.0	55.9
2012	5,431,451	5,749,411,068	5,038,809,058	7,897,167,203	100.0	100.0	42.5
2013	14,507,994	6,062,654,441	5,057,475,049	8,096,436,929	100.0	100.0	39.9
2014	27,111,467	6,347,728,717	5,119,731,651	8,637,758,955	100.0	100.0	44.2
2015	42,731,658	6,695,631,737	4,989,255,015	8,792,485,658	100.0	100.0	41.2
2016	60,618,379	7,305,895,284	5,384,649,090	8,878,057,191	100.0	100.0	28.1
2017	78,979,370	7,559,623,100	5,513,671,425	8,872,381,848	100.0	100.0	22.4
2018	103,784,514	8,073,692,664	5,435,286,783	8,830,410,210	100.0	100.0	12.0
2019	128,255,311	8,430,014,943	5,399,356,055	8,782,383,977	100.0	100.0	4.2
2020	157,133,312	8,701,290,590	5,399,984,986	8,711,224,151	100.0	98.3	0.0
2021	187,797,531	9,037,922,330	5,884,926,676	8,909,251,051	100.0	96.5	0.0
2022	217,318,884	9,463,674,203	5,728,001,945	8,894,328,756	100.0	91.7	0.0
2023	255,269,694	9,939,272,500	5,996,271,492	9,331,207,050	100.0	91.3	0.0
2024	302,361,989	10,354,611,684	6,258,054,714	9,355,757,779	100.0	87.4	0.0
2025	354,811,183	10,711,173,889	6,327,427,091	9,642,618,591	100.0	86.7	0.0

TABLE 22
HISTORICAL EMPLOYER CONTRIBUTIONS

($ in millions)

Fiscal Year Ending	Actuarial Employer Contribution Rate	Actuarial Employer Contribution	Actual Dollar Amount	Percent Contributed
June 30, 2006	12.59%	$227.2	$227.2	100.0%
June 30, 2007	12.78%	239.5	239.5	100.0%
June 30, 2008	12.84%	249.8	249.8	100.0%
June 30, 2009	12.53%	252.1	252.1	100.0%
June 30, 2010	12.75%	251.2	251.2	100.0%
June 30, 2011	13.81%	263.4	263.4	100.0%
June 30, 2012	13.97%	263.4	263.4	100.0%
June 30, 2013	14.45%	290.3	290.3	100.0%
June 30, 2014	16.98%	326.4	326.4	100.0%
June 30, 2015	16.97%	329.8	329.8	100.0%
June 30, 2016	15.95%	310.1	330.0	106.4%
June 30, 2017	16.34%	322.8	335.2	103.8%
June 30, 2018	19.45%	379.6	379.6	100.0%
June 30, 2019	20.21%	394.2	394.2	100.0%
June 30, 2020	21.77%	436.9	436.9	100.0%
June 30, 2021	22.88%	463.3	463.3	100.0%
June 30, 2022	23.51%	471.3	471.3	100.0%
June 30, 2023	26.33%	580.7	1,080.7	186.1%
June 30, 2024	27.26%	669.9	669.9	100.0%
June 30, 2025	27.35%	714.1	750.7	105.1%

TABLE 23
HISTORICAL MEMBER STATISTICS

Valuation Date June 30	Active Members				Retired Members			
	Number	Payroll $ Millions	Average Salary $	% Incr.	Number	Active/ Retired	Annual Benefits $ Millions	% Incr.
2006	54,493	$1,777	$32,615	1.0	27,052	2.0	$373.6	7.3
2007	54,363	1,847	33,969	4.2	28,692	1.9	406.4	8.8
2008	54,542	1,917	35,139	3.4	30,132	1.8	434.6	6.9
2009	55,057	2,002	36,370	3.5	31,637	1.7	465.4	7.1
2010	53,478	1,945	36,372	0.0	33,251	1.6	493.7	6.1
2011	51,660	1,876	36,306	(0.2)	35,315	1.5	525.6	6.5
2012	51,332	1,864	36,314	0.0	37,308	1.4	558.6	6.3
2013	50,833	1,880	36,988	1.9	39,139	1.3	589.9	5.6
2014	50,621	1,903	37,588	1.6	41,000	1.2	618.7	4.9
2015	49,980	1,919	38,386	2.1	42,964	1.2	650.9	5.2
2016	49,464	1,922	38,847	1.2	44,828	1.1	680.8	4.6
2017	48,910	1,942	39,705	2.2	46,560	1.1	710.2	4.3
2018	47,806	1,915	40,061	0.9	48,207	1.0	744.9	4.9
2019	46,864	1,931	41,199	2.8	49,696	0.9	779.9	4.7
2020	45,999	1,981	43,064	4.5	50,857	0.9	810.5	3.9
2021	42,829	1,962	45,809	6.4	52,223	0.8	841.7	3.8
2022	41,595	1,973	47,431	3.5	53,648	0.8	883.8	5.0
2023	43,088	2,225	51,642	8.9	54,709	0.8	937.8	6.1
2024	44,680	2,472	55,318	7.1	55,579	0.8	986.5	5.2
2025	44,673	2,547	57,008	3.1	56,494	0.8	1,027.3	4.1

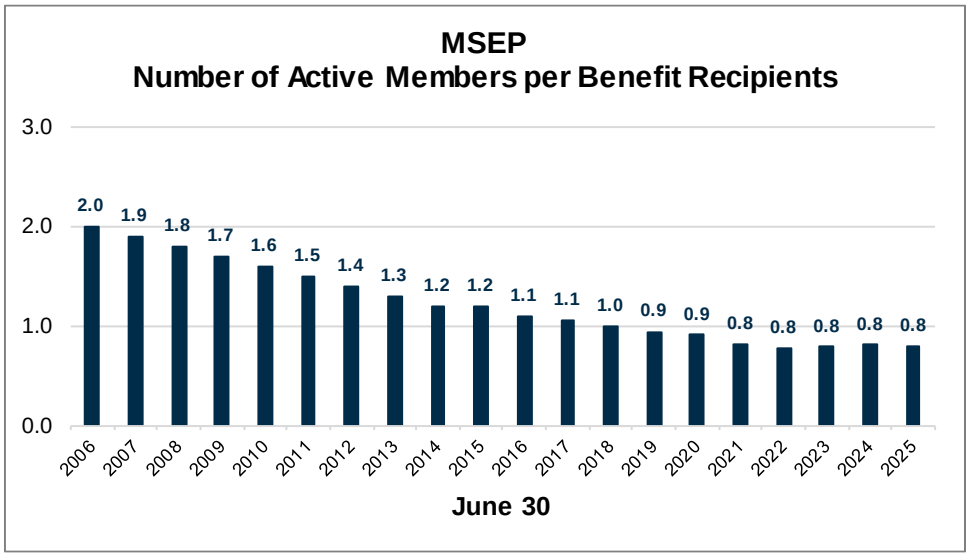


TABLE 24
RETIREES AND BENEFICIARIES ADDED TO AND REMOVED FROM ROLLS

Fiscal Year Ended June 30	Added to Rolls		Removed from Rolls		Rolls at End of Year			Percentage Increase/(Decrease)	
Benefit Type	Number	Annual Allowances	Number	Annual Allowances	Number	Annual Allowances	Average Annual Allowances	Annual Allowances	Average Annual Allowances
2025									
Retirees	2,367	$64,500,563	1,544	$27,172,547	50,059	$930,991,152	$18,598	4.18%	2.46%
Beneficiaries	477	9,016,300	385	5,570,416	6,435	96,309,180	14,966	3.71%	2.23%
2024									
Retirees	2,167	$66,752,029	1,403	$23,126,665	49,236	$893,663,136	$18,151	5.13%	3.50%
Beneficiaries	499	10,536,249	393	5,484,537	6,343	92,863,296	14,640	5.75%	3.98%
2023									
Retirees	2,407	$71,324,181	1,472	$23,958,297	48,472	$850,037,772	$17,537		
Beneficiaries	470	10,739,133	344	4,044,621	6,237	87,811,584	14,079		

Note: This schedule is intended to show a 10-year history. Additional years will be reported as they become available.

TABLE 25
BENEFIT RECIPIENTS BY TYPE AND OPTION ELECTED

		Type of Retirement			
Amount of Monthly Benefit	Number of Benefit Recipients	Normal Retirement	Early Retirement	Survivor of Active	Survivor of Retired
1-500	13,159	5,821	5,513	561	1,264
501-1,000	11,380	6,834	2,696	509	1,341
1,001-1,500	9,641	7,807	781	279	774
1,501-2,000	7,400	6,557	216	170	457
2,001-2,500	5,164	4,737	84	80	263
2,501-3,000	3,330	3,075	40	43	172
3,001-3,500	2,223	2,049	13	37	124
3,501-4,000	1,319	1,225	12	15	67
Over 4,000	2,878	2,590	9	39	240
Total	56,494	40,695	9,364	1,733	4,702

	Option Elected							
Amount of Monthly Benefit	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1-500	29	549	555	1,573	0	3,075	52	7,326
501-1,000	33	324	265	2,315	0	2,574	17	5,852
1,001-1,500	29	171	123	2,261	0	2,301	4	4,752
1,501-2,000	16	115	78	1,761	0	1,676	3	3,751
2,001-2,500	7	63	32	1,315	0	1,143	0	2,604
2,501-3,000	8	30	15	874	0	797	0	1,606
3,001-3,500	5	18	10	603	0	599	0	988
3,501-4,000	1	10	5	352	0	350	0	601
Over 4,000	8	24	9	873	0	980	0	984
Total	136	1,304	1,092	11,927	0	13,495	76	28,464

1) Life Income with 60 Guaranteed Payments
2) Life Income with 120 Guaranteed Payments
3) Life Income with 180 Guaranteed Payments
4) Joint & 50% Survivor
5) Joint & 75% Survivor
6) Joint & 100% Survivor
7) Automatic Minor Survivor
8) No Survivor Option (includes pop-ups)

TABLE 26A
AVERAGE MONTHLY BENEFIT AMOUNTS

Total MSEP

Members Retiring During Fiscal Year		Years Credited Service by Category							All Members
		<5	5-10	11-15	16-20	21-25	26-30	31+	
2025	Average monthly benefit	$491	$364	$633	$1,024	$1,581	$2,088	$2,895	$1,267
	Average final salary	$8,576	$3,217	$3,514	$3,849	$4,424	$4,766	$5,462	$4,079
	Number of retirees	8	548	417	309	415	471	199	2,367
2024	Average monthly benefit	$330	$318	$599	$973	$1,470	$1,999	$2,550	$1,164
	Average final salary	$5,898	$2,875	$3,201	$3,615	$4,100	$4,551	$4,883	$3,749
	Number of retirees	9	514	352	314	389	424	165	2,167
2023	Average monthly benefit	$415	$321	$602	$983	$1,340	$1,970	$2,545	$1,150
	Average final salary	$7,077	$2,857	$3,157	$3,648	$3,773	$4,481	$4,838	$3,679
	Number of retirees	9	527	395	357	485	447	187	2,407

Notes: COLA increases and temporary benefits payable under MSEP 2000 until age 62 are excluded from the above table.
This schedule is intended to show a 10-year history. Additional years will be reported as they become available.

TABLE 26B
AVERAGE MONTHLY BENEFIT AMOUNTS

General Employees*

Members Retiring During Fiscal Year		Years Credited Service by Category							All Members
		<5	5-10	11-15	16-20	21-25	26-30	31+	
2025	Average monthly benefit	$502	$336	$630	$1,019	$1,581	$2,070	$2,862	$1,260
	Average final salary	$10,142	$3,193	$3,514	$3,852	$4,424	$4,730	$5,393	$4,067
	Number of retirees	6	528	415	307	415	468	197	2,336
2024	Average monthly benefit	$344	$302	$586	$964	$1,466	$1,999	$2,531	$1,159
	Average final salary	$6,536	$2,854	$3,189	$3,601	$4,096	$4,551	$4,845	$3,740
	Number of retirees	7	506	349	313	388	424	164	2,151
2023	Average monthly benefit	$313	$302	$575	$976	$1,340	$1,970	$2,545	$1,148
	Average final salary	$7,534	$2,840	$3,146	$3,651	$3,773	$4,481	$4,838	$3,679
	Number of retirees	7	514	386	355	485	447	187	2,381

* Excludes legislators, elected officials, water patrol, and administrative law judges.

Notes: COLA increases and temporary benefits payable under MSEP 2000 until age 62 are excluded from the above table.
This schedule is intended to show a 10-year history. Additional years will be reported as they become available.

TABLE 26C
AVERAGE MONTHLY BENEFIT AMOUNTS

Legislators

Members Retiring During Fiscal Year		Years Credited Service by Category							All Members
		<5	5-10	11-15	16-20	21-25	26-30	31+	
2025	Average monthly benefit	$570	$982	$1,316	$1,862	$0	$0	$0	$1,066
	Average final salary	$3,422	$3,422	$3,422	$3,422	$0	$0	$0	$3,422
	Number of retirees	1	19	2	2	0	0	0	24
2024	Average monthly benefit	$447	$960	$1,565	$0	$0	$0	$0	$1,047
	Average final salary	$3,272	$3,272	$3,272	$0	$0	$0	$0	$3,272
	Number of retirees	1	5	2	0	0	0	0	8
2023	Average monthly benefit	$511	$900	$1,487	$2,314	$0	$0	$0	$1,224
	Average final salary	$3,142	$3,142	$3,142	$3,142	$0	$0	$0	$3,142
	Number of retirees	1	11	8	2	0	0	0	22

Notes: COLA increases are excluded from the above table.
This schedule is intended to show a 10-year history. Additional years will be reported as they become available.

TABLE 26D
AVERAGE MONTHLY BENEFIT AMOUNTS

Elected Officials

Members Retiring During Fiscal Year		Years Credited Service by Category							All Members
		<5	5-10	11-15	16-20	21-25	26-30	31+	
2025	Average monthly benefit	$0	$3,627	$0	$0	$0	$0	$0	$3,627
	Average final salary	$0	$12,091	$0	$0	$0	$0	$0	$12,091
	Number of retirees	0	1	0	0	0	0	0	1
2024	Average monthly benefit	$0	$0	$0	$0	$0	$0	$0	$0
	Average final salary	$0	$0	$0	$0	$0	$0	$0	$0
	Number of retirees	0	0	0	0	0	0	0	0
2023	Average monthly benefit	$0	$0	$0	$0	$0	$0	$0	$0
	Average final salary	$0	$0	$0	$0	$0	$0	$0	$0
	Number of retirees	0	0	0	0	0	0	0	0

Notes: COLA increases are excluded from the above table.
This schedule is intended to show a 10-year history. Additional years will be reported as they become available.

TABLE 26E
AVERAGE MONTHLY BENEFIT AMOUNTS

Uniformed Water Patrol

Members Retiring During Fiscal Year		Years Credited Service by Category							All Members
		<5	5-10	11-15	16-20	21-25	26-30	31+	
2025	Average monthly benefit	$0	$0	$0	$0	$0	$2,891	$0	$2,891
	Average final salary	$0	$0	$0	$0	$0	$7,443	$0	$7,443
	Number of retirees	0	0	0	0	0	1	0	1
2024	Average monthly benefit	$0	$0	$0	$0	$2,927	$0	$0	$2,927
	Average final salary	$0	$0	$0	$0	$5,716	$0	$0	$5,716
	Number of retirees	0	0	0	0	1	0	0	1
2023	Average monthly benefit	$0	$0	$0	$0	$0	$0	$0	$0
	Average final salary	$0	$0	$0	$0	$0	$0	$0	$0
	Number of retirees	0	0	0	0	0	0	0	0

Notes: COLA increases and temporary benefits payable under MSEP 2000 until age 62 are excluded from the above table.
This schedule is intended to show a 10-year history. Additional years will be reported as they become available.

TABLE 26F
AVERAGE MONTHLY BENEFIT AMOUNTS

Administrative Law Judges and Legal Advisors

Members Retiring During Fiscal Year		Years Credited Service by Category							All Members
		<5	5-10	11-15	16-20	21-25	26-30	31+	
2025	Average monthly benefit	$346	$0	$0	$0	$0	$5,937	$6,158	$4,907
	Average final salary	$4,331	$0	$0	$0	$0	$11,873	$12,314	$10,541
	Number of retirees	1	0	0	0	0	2	2	5
2024	Average monthly benefit	$113	$1,995	$3,075	$3,878	$0	$0	$5,553	$2,658
	Average final salary	$4,058	$5,784	$7,200	$7,756	$0	$0	$11,105	$6,782
	Number of retirees	1	3	1	1	0	0	1	7
2023	Average monthly benefit	$1,030	$1,913	$3,750	$0	$0	$0	$0	$2,152
	Average final salary	$7,808	$5,708	$7,500	$0	$0	$0	$0	$6,681
	Number of retirees	1	2	1	0	0	0	0	4

Notes: COLA increases are excluded from the above table.
This schedule is intended to show a 10-year history. Additional years will be reported as they become available.

TABLE 27
RETIREES AND BENEFICIARIES TABULATED BY FISCAL YEAR OF RETIREMENT

Fiscal Year of Retirement	Number	Total Annual Benefit	Average Monthly Benefit
1985 and prior	35	$227,421	$541
1986	17	137,181	672
1987	28	288,463	859
1988	31	532,776	1,432
1989	43	831,393	1,611
1990	41	684,096	1,390
1991	61	1,467,258	2,004
1992	100	2,004,844	1,671
1993	142	3,233,504	1,898
1994	153	3,156,062	1,719
1995	238	5,170,083	1,810
1996	285	6,723,135	1,966
1997	323	7,659,568	1,976
1998	404	10,142,970	2,092
1999	531	13,119,027	2,059
2000	592	14,661,457	2,064
2001	1,383	32,890,127	1,982
2002	978	20,119,700	1,714
2003	1,131	24,457,393	1,802
2004	1,592	32,364,413	1,694
2005	1,116	20,847,055	1,557
2006	1,307	22,890,807	1,460
2007	1,576	28,594,856	1,512
2008	1,649	28,609,341	1,446
2009	1,717	30,659,254	1,488
2010	1,844	31,345,350	1,417
2011	2,369	41,803,389	1,471
2012	2,241	36,659,759	1,363
2013	2,346	37,010,305	1,315
2014	2,357	37,541,763	1,327
2015	2,694	43,884,028	1,357
2016	2,707	44,616,633	1,373
2017	2,650	47,983,711	1,509
2018	2,808	50,566,896	1,501
2019	2,572	46,419,134	1,504
2020	2,551	44,116,977	1,441
2021	2,920	53,367,175	1,523
2022	3,137	57,219,055	1,520
2023	2,704	49,916,156	1,538
2024	2,591	44,798,660	1,441
2025	2,530	48,579,157	1,600
Total	56,494	$1,027,300,332	$1,515

MEMBER DATA RECONCILIATION

	Active Members	Inactive Vested	Inactive Nonvested	Leave of Absence	Long-term Disability	Retirees and Beneficiaries	Total
As of June 30, 2024	44,680	17,341	34,969	130	491	55,579	153,190
Changes in status:							
a) Retirement	(1,549)	(765)	0	(5)	(48)	2,367	0
b) Death	(60)	(63)	(75)	0	(17)	(1,847)	(2,062)
c) Non-vested termination	(3,114)	0	3,162	(42)	(6)	0	0
d) Leave of absence	(154)	0	(11)	165	0	0	0
e) Vested termination	(1,050)	1,086	0	(2)	(34)	0	0
f) Contribution refund	(1,333)	(153)	(1,034)	(17)	(3)	0	(2,540)
g) Beneficiary in receipt	0	0	0	0	0	470	470
h) Long-term disability	(59)	(6)	(3)	(4)	72	0	0
i) Return to active service	731	(206)	(452)	(39)	(1)	(33)	0
j) Expired benefit	0	0	0	0	0	(44)	(44)
k) Transfer to MPERS	(43)	(25)	(16)	0	0	0	(84)
l) Data adjustment	(28)	(2)	6	0	1	2	(21)
Total changes in status	(6,659)	(134)	1,577	56	(36)	915	(4,281)
New entrants	6,652	0	2,323	94	1	0	9,070
Net Change	(7)	(134)	3,900	150	(35)	915	4,789
As of June 30, 2025	44,673	17,207	38,869	280	456	56,494	157,979

SUMMARY OF MEMBERSHIP DATA

A. ACTIVE MEMBERS	June 30, 2025	June 30, 2024	% Change
1. Number of Active Members			
(a) MSEP	4,351	5,183	(16.1)
(b) MSEP 2000	9,577	10,166	(5.8)
(c) MSEP 2011	30,745	29,331	4.8
(d) Total	44,673	44,680	(0.0)
2. Annualized Reported Salary			
(a) MSEP	$ 302,894,210	$ 341,513,051	(11.3)
(b) MSEP 2000	615,083,757	619,620,258	(0.7)
(c) MSEP 2011	1,628,728,601	1,510,471,150	7.8
(d) Total	$ 2,546,706,568	$ 2,471,604,459	3.0
3. Accumulated Member Contributions	$ 253,422,847	$ 215,065,808	17.8
4. Active Member Averages			
(a) Age	44.7	44.8	(0.2)
(b) Service	9.6	9.8	(2.0)
(c) Compensation	$ 57,008	$ 55,318	3.1
B. INACTIVE MEMBERS			
1. Number of Inactive Members			
(a) Terminated vested	17,207	17,341	(0.8)
(b) Terminated nonvested (refund only)	38,869	34,969	11.2
(c) Leave of absence	280	130	115.4
(d) Long-term disability	456	491	(7.1)
(e) Total	56,812	52,931	7.3
2. Accumulated Member Contributions	$ 101,388,336	$ 87,296,181	16.1
3. Inactive Member Averages			
(a) Age (vesteds only)	49.9	49.7	0.4
(b) Monthly benefit	$ 590	$ 567	4.1
(c) Accumulated member contributions	$ 1,785	$ 1,649	8.2
C. RETIREES, DISABLEDS, AND BENEFICIARIES			
1. Number of Members			
(a) Service retirees	50,059	49,236	1.7
(b) Beneficiaries	6,435	6,343	1.5
(c) Total	56,494	55,579	1.6
2. Total Monthly Benefits			
(a) Service retirees	$ 77,582,596	$ 74,471,928	4.2
(b) Beneficiaries	8,025,765	7,738,608	3.7
(c) Total	$ 85,608,361	$ 82,210,536	4.1
3. Average Age			
(a) Service retirees	71.7	71.7	0.0
(b) Beneficiaries	73.8	73.5	0.4
(c) Total	71.9	71.9	0.0

MEMBERSHIP DATA BY GROUP

Valuation Group	Number	Payroll	Group Averages		
			Salary	Age(yrs.)	Service(yrs.)
Regular State Employees	42,415	$ 2,392,843,470	$ 56,415	44.5	9.4
Elected Officials	6	610,646	101,774	51.0	3.2
Legislators	195	7,896,077	40,493	53.6	4.0
Uniformed Water Patrol	6	637,598	106,266	46.7	21.8
Conservation Department	1,437	88,261,302	61,421	43.1	12.3
School-Term Salaried Employees	605	55,241,525	91,308	55.9	17.9
Administrative Law Judges	9	1,215,950	135,106	66.0	26.6
Total MSEP	**44,673**	**$ 2,546,706,568**	**$ 57,008**	**44.7**	**9.6**

The total number of System active members includes 4,351 MSEP members, 9,577 MSEP 2000 members and 30,745 MSEP 2011 members.

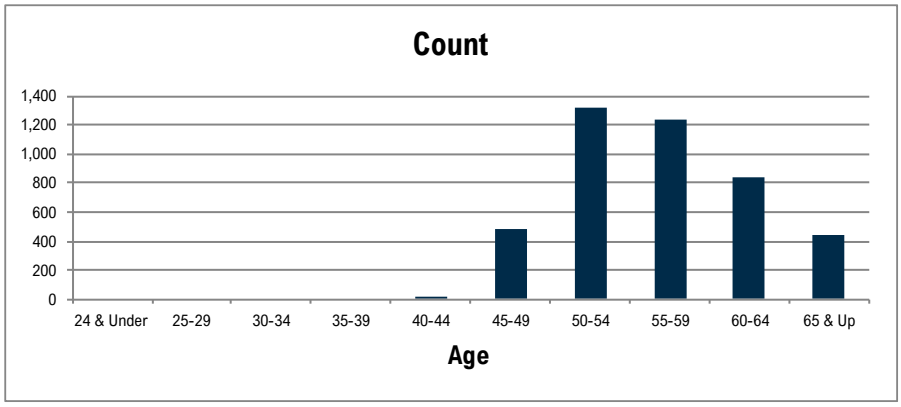
Type of Benefit Payment	No.	Monthly Benefit	Group Averages	
			Benefit	Age(yrs.)
Retirement	50,059	$ 77,582,596	$ 1,550	71.7
Survivor of Active Member	1,733	1,882,559	1,086	65.5
Survivor of Retired Member	4,702	6,143,206	1,307	76.9
Total MSEP	**56,494**	**$ 85,608,361**	**$ 1,515**	**71.9**

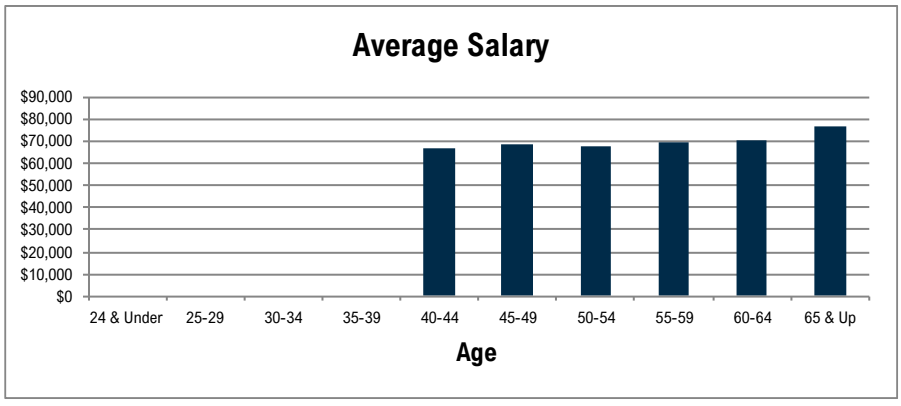
This valuation also includes 17,207 terminated vested members, 38,869 terminated members who have a refund pending, 280 members on leave and 456 members on long-term disability.

ACTIVE MEMBERS
AS OF JUNE 30, 2025

MSEP

	Count of Members			Reported Annualized Earnings for Current Members		
Age	Male	Female	Total	Male	Female	Total
24 & Under	0	0	0	$ 0	$ 0	$ 0
25-29	0	0	0	0	0	0
30-34	0	0	0	0	0	0
35-39	0	0	0	0	0	0
40-44	4	19	23	281,495	1,255,924	1,537,419
45-49	149	338	487	10,656,679	22,677,334	33,334,013
50-54	457	865	1,322	33,146,678	56,531,148	89,677,826
55-59	436	794	1,230	33,508,160	51,730,005	85,238,165
60-64	353	489	842	27,693,512	31,238,742	58,932,254
65 & Up	205	242	447	18,137,523	16,037,010	34,174,533
Total	1,604	2,747	4,351	$ 123,424,047	$ 179,470,163	$ 302,894,210

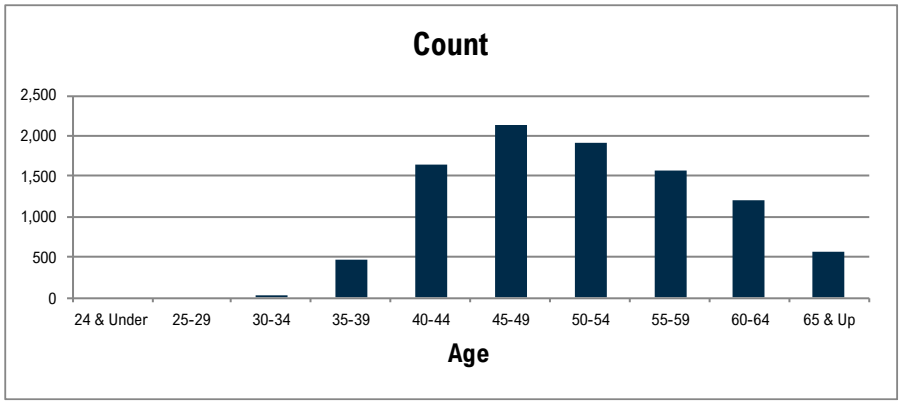


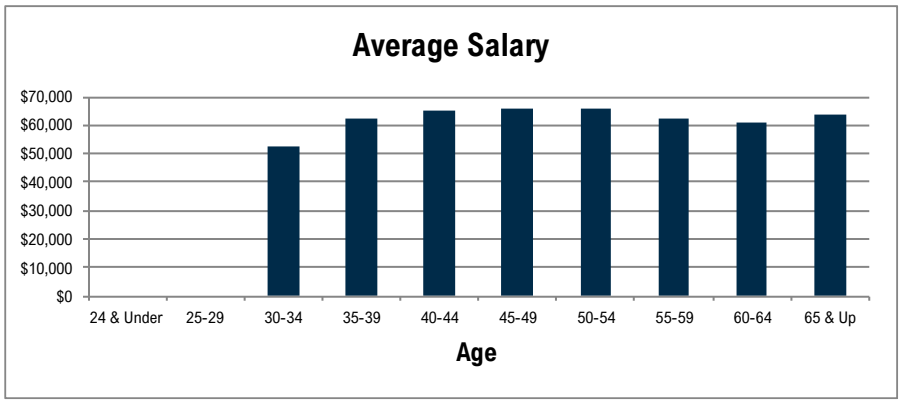


ACTIVE MEMBERS
AS OF JUNE 30, 2025

MSEP 2000

	Count of Members			Reported Annualized Earnings for Current Members		
Age	Male	Female	Total	Male	Female	Total
24 & Under	0	0	0	$ 0	$ 0	$ 0
25-29	0	0	0	0	0	0
30-34	6	8	14	327,807	410,655	738,462
35-39	178	295	473	11,666,696	17,916,537	29,583,233
40-44	638	1,018	1,656	42,757,221	65,535,139	108,292,360
45-49	827	1,316	2,143	56,998,367	84,103,859	141,102,226
50-54	743	1,183	1,926	53,398,246	73,644,678	127,042,924
55-59	615	965	1,580	41,983,545	56,281,060	98,264,605
60-64	455	757	1,212	30,496,621	43,061,783	73,558,404
65 & Up	240	333	573	16,537,314	19,964,229	36,501,543
Total	3,702	5,875	9,577	$ 254,165,817	$ 360,917,940	$ 615,083,757

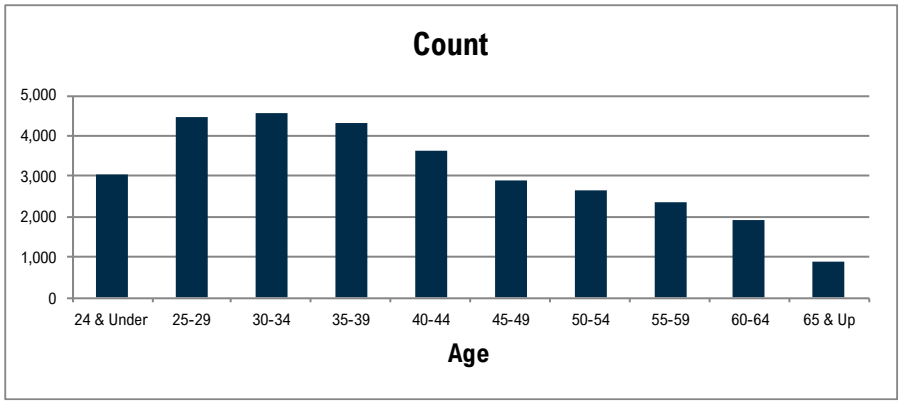


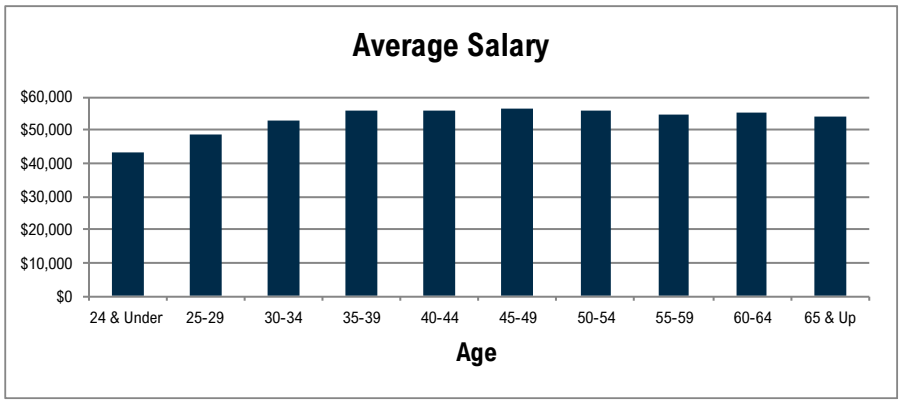


ACTIVE MEMBERS
AS OF JUNE 30, 2025

MSEP 2011

	Count of Members			Reported Annualized Earnings for Current Members		
Age	Male	Female	Total	Male	Female	Total
24 & Under	1,423	1,630	3,053	$ 64,979,557	$ 67,618,194	$ 132,597,751
25-29	1,905	2,576	4,481	96,025,878	122,341,028	218,366,906
30-34	1,890	2,648	4,538	103,555,950	135,836,844	239,392,794
35-39	1,686	2,615	4,301	98,851,010	140,297,193	239,148,203
40-44	1,315	2,304	3,619	78,069,624	124,639,229	202,708,853
45-49	1,016	1,871	2,887	62,641,723	100,518,329	163,160,052
50-54	956	1,707	2,663	56,883,557	91,739,464	148,623,021
55-59	832	1,532	2,364	49,352,302	80,367,986	129,720,288
60-64	721	1,214	1,935	43,717,121	62,685,294	106,402,415
65 & Up	366	538	904	21,068,123	27,540,195	48,608,318
Total	12,110	18,635	30,745	$ 675,144,845	$ 953,583,756	$ 1,628,728,601

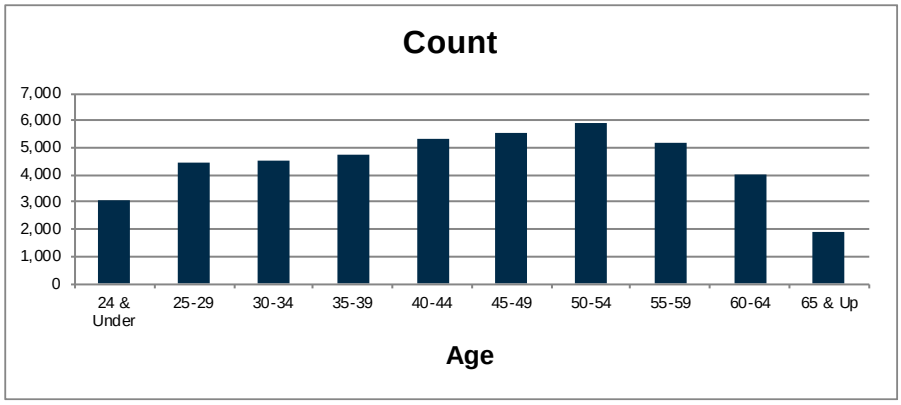


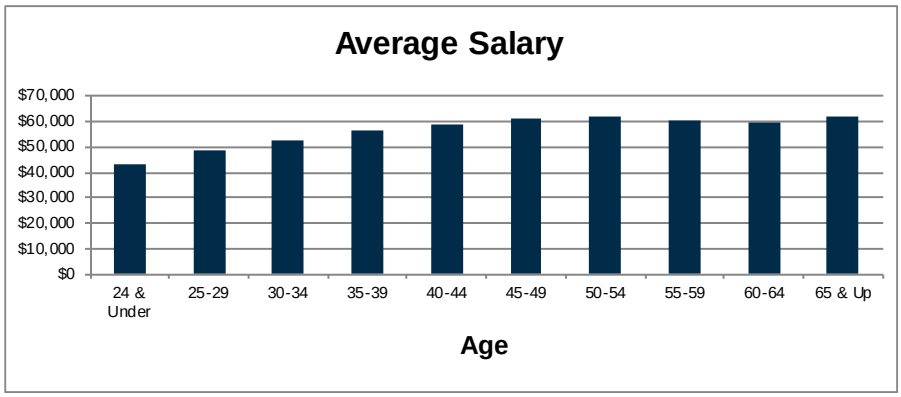


ACTIVE MEMBERS
AS OF JUNE 30, 2025

TOTAL

	Count of Members			Reported Annualized Earnings for Current Members		
Age	Male	Female	Total	Male	Female	Total
24 & Under	1,423	1,630	3,053	$ 64,979,557	$ 67,618,194	$ 132,597,751
25-29	1,905	2,576	4,481	96,025,878	122,341,028	218,366,906
30-34	1,896	2,656	4,552	103,883,757	136,247,499	240,131,256
35-39	1,864	2,910	4,774	110,517,706	158,213,730	268,731,436
40-44	1,957	3,341	5,298	121,108,340	191,430,292	312,538,632
45-49	1,992	3,525	5,517	130,296,769	207,299,522	337,596,291
50-54	2,156	3,755	5,911	143,428,481	221,915,290	365,343,771
55-59	1,883	3,291	5,174	124,844,007	188,379,051	313,223,058
60-64	1,529	2,460	3,989	101,907,254	136,985,819	238,893,073
65 & Up	811	1,113	1,924	55,742,960	63,541,434	119,284,394
Total	17,416	27,257	44,673	$ 1,052,734,709	$ 1,493,971,859	$ 2,546,706,568





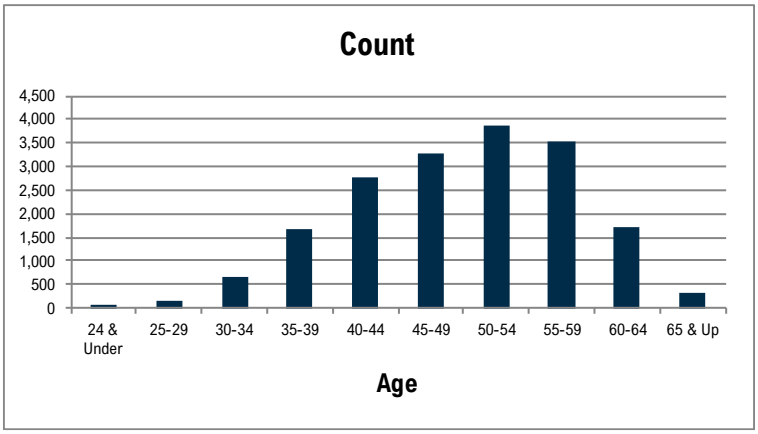
AGE AND SERVICE DISTRIBUTION
AS OF JUNE 30, 2025

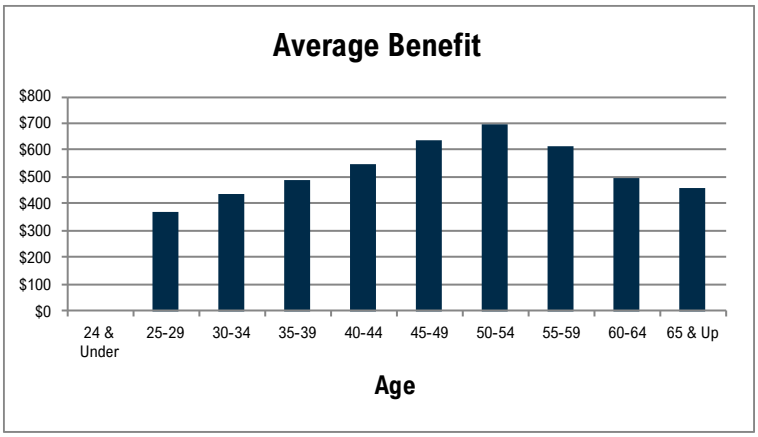
Age		0-4	5-9	10-14	15-19	20-24	25-29	30-34	Over 34	Total
24 & Under	Number	3,038	15	0	0	0	0	0	0	3,053
	Total Salary	$ 131,926,408	$ 671,343	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 132,597,751
	Average Sal.	$ 43,425	$ 44,756	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 43,432
25-29	Number	3,942	533	6	0	0	0	0	0	4,481
	Total Salary	$ 189,252,551	$ 28,790,675	$ 323,680	$ 0	$ 0	$ 0	$ 0	$ 0	$ 218,366,906
	Average Sal.	$ 48,009	$ 54,016	$ 53,947	$ 0	$ 0	$ 0	$ 0	$ 0	$ 48,732
30-34	Number	2,893	1,296	361	2	0	0	0	0	4,552
	Total Salary	$ 144,497,657	$ 73,324,486	$ 22,204,400	$ 104,713	$ 0	$ 0	$ 0	$ 0	$ 240,131,256
	Average Sal.	$ 49,947	$ 56,578	$ 61,508	$ 52,357	$ 0	$ 0	$ 0	$ 0	$ 52,753
35-39	Number	2,291	1,216	975	285	7	0	0	0	4,774
	Total Salary	$ 116,235,271	$ 71,602,140	$ 62,049,312	$ 18,444,230	$ 400,483	$ 0	$ 0	$ 0	$ 268,731,436
	Average Sal.	$ 50,736	$ 58,883	$ 63,640	$ 64,717	$ 57,212	$ 0	$ 0	$ 0	$ 56,291
40-44	Number	2,086	1,046	855	918	365	28	0	0	5,298
	Total Salary	$ 107,883,270	$ 63,256,001	$ 54,161,773	$ 60,909,799	$ 24,294,152	$ 2,033,637	$ 0	$ 0	$ 312,538,632
	Average Sal.	$ 51,718	$ 60,474	$ 63,347	$ 66,351	$ 66,559	$ 72,630	$ 0	$ 0	$ 58,992
45-49	Number	1,680	877	742	779	927	489	23	0	5,517
	Total Salary	$ 89,232,079	$ 52,731,077	$ 47,821,933	$ 50,516,776	$ 61,683,649	$ 34,124,698	$ 1,486,079	$ 0	$ 337,596,291
	Average Sal.	$ 53,114	$ 60,127	$ 64,450	$ 64,848	$ 66,541	$ 69,785	$ 64,612	$ 0	$ 61,192
50-54	Number	1,587	859	676	688	780	1,062	252	7	5,911
	Total Salary	$ 84,618,760	$ 51,667,274	$ 42,512,573	$ 43,631,065	$ 51,798,659	$ 71,833,695	$ 18,826,677	$ 455,068	$ 365,343,771
	Average Sal.	$ 53,320	$ 60,148	$ 62,888	$ 63,417	$ 66,409	$ 67,640	$ 74,709	$ 65,010	$ 61,807
55-59	Number	1,389	780	627	628	634	618	390	108	5,174
	Total Salary	$ 73,653,980	$ 44,795,677	$ 37,599,613	$ 38,763,070	$ 39,743,556	$ 42,345,942	$ 28,480,831	$ 7,840,389	$ 313,223,058
	Average Sal.	$ 53,027	$ 57,430	$ 59,967	$ 61,725	$ 62,687	$ 68,521	$ 73,028	$ 72,596	$ 60,538
60-64	Number	893	767	594	514	430	397	200	194	3,989
	Total Salary	$ 47,031,856	$ 44,951,038	$ 34,602,292	$ 29,962,903	$ 26,156,789	$ 26,831,202	$ 14,684,225	$ 14,672,768	$ 238,893,073
	Average Sal.	$ 52,667	$ 58,606	$ 58,253	$ 58,294	$ 60,830	$ 67,585	$ 73,421	$ 75,633	$ 59,888
65 & Up	Number	392	370	320	221	178	165	116	162	1,924
	Total Salary	$ 20,878,801	$ 21,150,006	$ 18,700,511	$ 12,904,161	$ 11,647,798	$ 11,528,356	$ 9,407,033	$ 13,067,728	$ 119,284,394
	Average Sal.	$ 53,262	$ 57,162	$ 58,439	$ 58,390	$ 65,437	$ 69,869	$ 81,095	$ 80,665	$ 61,998
Total	Number	20,191	7,759	5,156	4,035	3,321	2,759	981	471	44,673
	Total Salary	$ 1,005,210,633	$ 452,939,717	$ 319,976,087	$ 255,236,717	$ 215,725,086	$ 188,697,530	$ 72,884,845	$ 36,035,953	$ 2,546,706,568
	Average Sal.	$ 49,785	$ 58,376	$ 62,059	$ 63,256	$ 64,958	$ 68,393	$ 74,296	$ 76,509	$ 57,008

INACTIVE VESTED MEMBERS
AS OF JUNE 30, 2025

	Count of Members*			Monthly Deferred Benefits*		
Age	Male	Female	Total	Male	Female	Total
24 & Under	31	31	62	$ 2,026	$ 1,575	$ 3,601
25-29	62	70	132	22,274	26,521	48,795
30-34	275	384	659	128,077	157,492	285,569
35-39	668	986	1,654	337,026	475,689	812,715
40-44	1,103	1,678	2,781	638,556	886,444	1,525,000
45-49	1,203	2,083	3,286	816,476	1,268,976	2,085,452
50-54	1,419	2,444	3,863	1,043,899	1,644,677	2,688,576
55-59	1,219	2,290	3,509	831,091	1,322,133	2,153,224
60-64	593	1,101	1,694	334,377	508,719	843,096
65 & Up	128	175	303	66,466	73,328	139,794
Total	6,701	11,242	17,943	$ 4,220,268	$ 6,365,554	$ 10,585,822

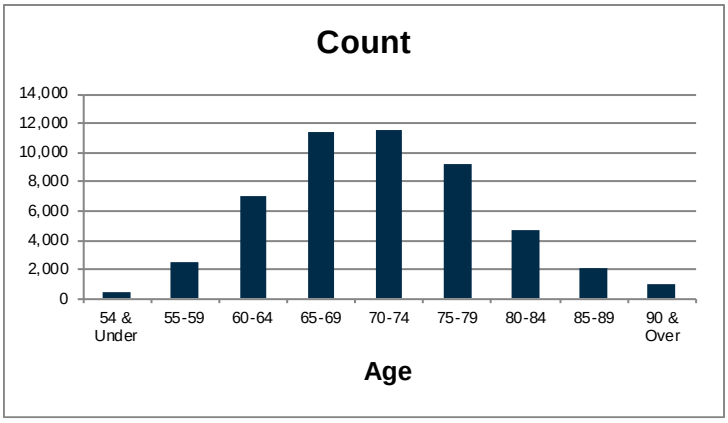
* There are 280 members currently on leave and 456 members on LTD. Their counts and estimated deferred monthly benefits are included.

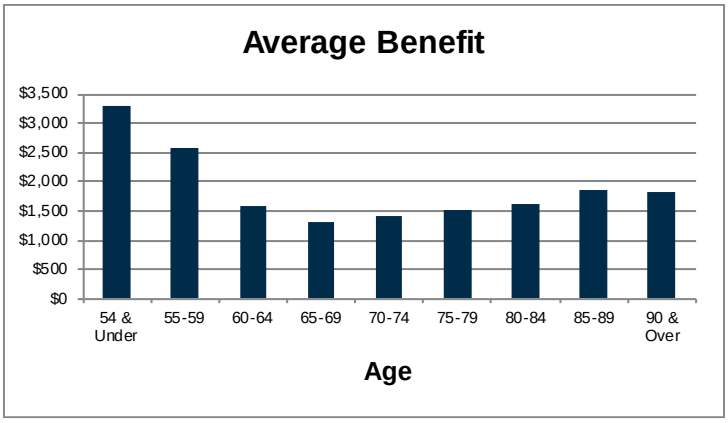




RETIRED MEMBERS
AS OF JUNE 30, 2025

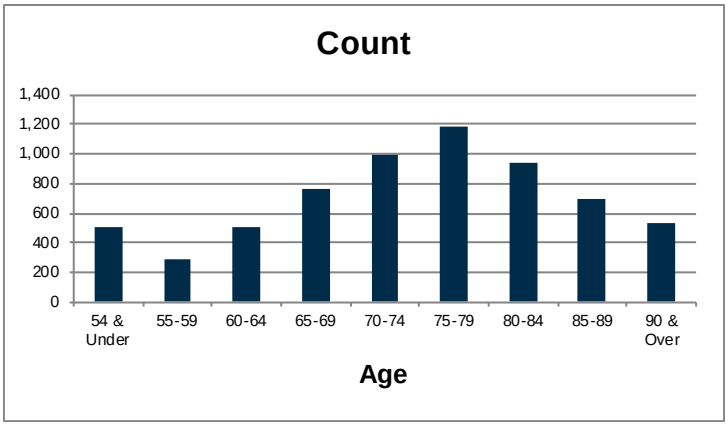
	Count of Members			Monthly Benefits		
Age	Male	Female	Total	Male	Female	Total
54 & Under	152	310	462	$ 526,588	$ 989,655	$ 1,516,243
55-59	936	1,609	2,545	2,483,476	4,049,162	6,532,638
60-64	2,499	4,578	7,077	4,349,195	6,941,453	11,290,648
65-69	4,012	7,360	11,372	5,800,717	8,918,943	14,719,660
70-74	4,376	7,210	11,586	6,953,202	9,309,062	16,262,264
75-79	3,654	5,585	9,239	6,565,687	7,309,033	13,874,720
80-84	1,833	2,816	4,649	3,858,662	3,722,222	7,580,884
85-89	761	1,368	2,129	2,023,501	1,958,904	3,982,405
90 & Over	316	684	1,000	855,557	967,577	1,823,134
Total	18,539	31,520	50,059	$ 33,416,585	$ 44,166,011	$ 77,582,596

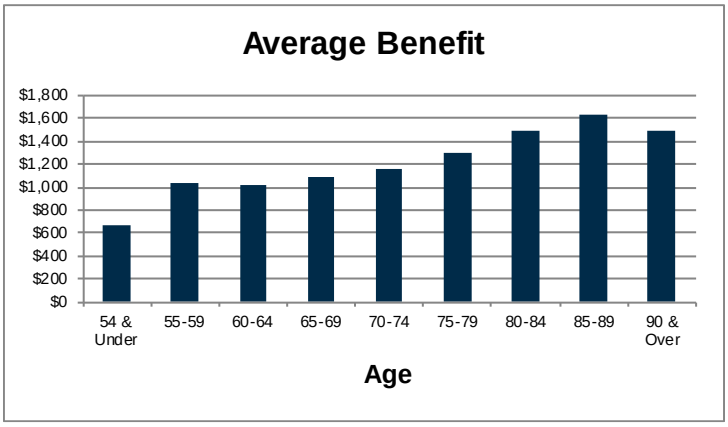




BENEFICIARIES RECEIVING BENEFITS
AS OF JUNE 30, 2025

	Count of Members			Monthly Benefits		
Age	Male	Female	Total	Male	Female	Total
54 & Under	200	309	509	$ 120,864	$ 221,435	$ 342,299
55-59	99	192	291	95,650	204,532	300,182
60-64	147	365	512	112,010	408,822	520,832
65-69	205	560	765	166,026	661,230	827,256
70-74	260	737	997	236,342	924,900	1,161,242
75-79	290	892	1,182	259,464	1,269,552	1,529,016
80-84	207	739	946	199,511	1,206,124	1,405,635
85-89	161	537	698	168,608	975,162	1,143,770
90 & Over	126	409	535	99,436	696,097	795,533
Total	1,695	4,740	6,435	$ 1,457,911	$ 6,567,854	$ 8,025,765





RETIRED MEMBERS AS OF JUNE 30, 2025
BENEFITS TABULATED BY OPTION AND TYPE OF BENEFIT

MSEP Benefits

Type of Benefit	No.	Total Monthly Benefits
Service Retirement		
Life Annuity	5,516	$ 9,297,809
50% Joint and Survivor	4,661	9,913,865
100% Joint and Survivor	3,025	6,945,186
5-Year Certain and Life	126	198,394
10-Year Certain and Life	165	206,651
Survivor Beneficiary	2,722	4,223,137
Total	16,215	30,785,042
Death-in-Service	1,275	1,617,616
Total	**17,490**	**$ 32,402,658**

MSEP 2000 Benefits

Type of Benefit	No.	Total Monthly Benefits
Service Retirement		
Life Annuity	22,270	$ 30,084,916
50% Joint and Survivor	5,005	9,496,978
100% Joint and Survivor	6,343	9,272,705
5-Year Certain and Life	9	13,871
10-Year Certain and Life	994	949,746
15-Year Certain and Life	832	690,148
Survivor Beneficiary	1,964	1,914,567
Total	37,417	52,422,931
Death-in-Service	403	240,773
Total	**37,820**	**$ 52,663,704**

RETIRED MEMBERS AS OF JUNE 30, 2025
BENEFITS TABULATED BY OPTION AND TYPE OF BENEFIT

MSEP 2011 Benefits

Type of Benefit	No.	Total Monthly Benefits
Service Retirement		
Life Annuity	661	$ 308,166
50% Joint and Survivor	89	42,102
100% Joint and Survivor	266	121,113
5-Year Certain and Life	0	0
10-Year Certain and Life	43	20,695
15-Year Certain and Life	54	20,252
Survivor Beneficiary	16	5,501
Total	1,129	517,829
Death-in-Service	55	24,170
Total	**1,184**	**$ 541,999**

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SALARY INCREASES DURING PLAN YEAR 2024-2025

Age	Count	Salary Increases	
		Actual*	Expected
Under 20	67	17.8%	7.3%
20 - 24	1,530	5.7%	5.9%
25 - 29	3,190	6.3%	5.0%
30 - 34	3,641	5.7%	4.6%
35 - 39	4,072	6.0%	4.2%
40 - 44	4,647	5.6%	4.0%
45 - 49	4,983	5.5%	3.7%
50 - 54	5,411	5.1%	3.6%
55 - 59	4,624	5.1%	3.6%
60 - 64	3,546	4.9%	3.6%
65 & Over	1,591	4.7%	3.5%
Total	**37,302**		
Average		**5.4%**	**4.0%**

** Excludes new entrants and terminations.*

	Payroll Growth				
	2025	2024	2023	2022	2021
Actual**	3.04%	11.08%	12.79%	0.56%	-0.96%
Assumed	2.25%	2.25%	2.25%	2.25%	2.25%

** Based on reported payroll.

ACTIVE MEMBERS WHO RETIRED WITH SERVICE RETIREMENT BENEFITS DURING PLAN YEAR 2024-2025

Age	Male		Female		Total	
	Actual	Expected	Actual	Expected	Actual	Expected
Under 50	3	0.2	6	0.7	9	0.9
50	2	0.9	8	1.7	10	2.6
51	7	2.7	21	6.0	28	8.7
52	14	8.9	39	15.0	53	23.9
53	19	13.5	39	22.0	58	35.5
54	23	18.2	43	31.5	66	49.7
55	29	17.4	49	33.1	78	50.5
56	28	21.7	42	35.0	70	56.7
57	26	25.6	36	40.3	62	65.9
58	27	22.3	47	40.3	74	62.6
59	33	23.3	59	38.9	92	62.2
60	26	25.9	41	40.3	67	66.2
61	23	25.6	57	38.5	80	64.1
62	56	41.0	79	64.1	135	105.1
63	26	31.6	55	50.8	81	82.4
64	51	35.1	60	48.9	111	84.0
65	60	43.7	75	62.7	135	106.4
66	38	38.2	56	52.4	94	90.6
67	31	21.3	46	36.7	77	58.0
68	15	18.7	23	21.2	38	39.9
69	10	10.3	12	17.7	22	28.0
70 & Over	50	79.9	59	72.7	109	152.6
Total	**597**	**526.0**	**952**	**770.5**	**1,549**	**1,296.5**

	Male	Female	Total
Average age at retirement	61.9 years	60.9 years	61.3 years
Average service at retirement	22.1 years	22.3 years	22.2 years

ACTIVE MEMBERS WHO BECAME DISABLED DURING PLAN YEAR 2024-2025

Age	Male		Female		Total	
	Actual	Expected	Actual	Expected	Actual	Expected
Under 25	0	0.3	0	0.3	0	0.6
25 - 29	1	0.8	1	1.0	2	1.8
30 - 34	0	1.6	0	2.3	0	3.9
35 - 39	0	2.8	2	4.4	2	7.2
40 - 44	2	4.9	3	8.7	5	13.6
45 - 49	7	7.2	3	12.8	10	20.0
50 - 54	7	9.1	8	16.4	15	25.5
55 - 59	8	7.8	4	13.6	12	21.4
60 & Over	8	5.4	5	8.9	13	14.3
Total	**33**	**39.9**	**26**	**68.4**	**59**	**108.3**

	Male	Female	Total
Average age at disability	53.2 years	50.8 years	52.2 years
Average service at disability	9.1 years	11.3 years	10.1 years

ACTIVE MEMBERS WHO DIED DURING PLAN YEAR 2024-2025

Age	Male		Female		Total	
	Actual	Expected	Actual	Expected	Actual	Expected
Under 30	1	1.5	1	0.7	2	2.2
30 - 34	1	1.4	1	1.0	2	2.4
35 - 39	1	1.9	0	1.5	1	3.4
40 - 44	3	2.2	1	2.2	4	4.4
45 - 49	2	2.9	4	3.1	6	6.0
50 - 54	2	4.5	6	5.1	8	9.6
55 - 59	9	6.2	4	7.0	13	13.2
60 - 64	6	7.8	5	8.2	11	16.0
65 & Over	8	6.7	5	6.5	13	13.2
Total	**33**	**35.1**	**27**	**35.3**	**60**	**70.4**

	Male	Female	Total
Average age at death	56.2 years	55.4 years	55.8 years
Average service at death	13.3 years	17.5 years	15.2 years

Of the 60 active members who died in service during plan year 2024-2025, 42 members had a benefit payable to a survivor.

ACTIVE MEMBERS WHO TERMINATED EMPLOYMENT WITH A DEFERRED BENEFIT DURING PLAN YEAR 2024-2025

Age	Male		Female		Total	
	Actual	Expected	Actual	Expected	Actual	Expected
Under 30	23	23.8	40	25.3	63	49.1
30 - 34	65	62.8	87	88.8	152	151.6
35 - 39	64	72.7	113	109.8	177	182.5
40 - 44	61	68.9	114	120.7	175	189.6
45 - 49	55	65.0	87	110.0	142	175.0
50 - 54	62	56.2	101	111.0	163	167.2
55 - 59	35	35.7	64	72.2	99	107.9
60 & Over	37	13.1	42	24.6	79	37.7
Total	**402**	**398.2**	**648**	**662.4**	**1,050**	**1,060.6**

	Male	Female	Total
Average age at termination	44.2 years	43.9 years	44.0 years
Average service at termination	9.7 years	9.9 years	9.8 years

ACTIVE MEMBERS WHO TERMINATED EMPLOYMENT WITHOUT A DEFERRED BENEFIT PAYABLE DURING PLAN YEAR 2024-2025

Age	Male		Female		Total	
	Actual	Expected	Actual	Expected	Actual	Expected
Under 20	41	23.6	38	21.3	79	44.9
20 - 24	391	296.4	504	367.5	895	663.9
25 - 29	425	377.6	538	522.2	963	899.8
30 - 34	280	270.2	402	400.6	682	670.8
35 - 39	194	201.5	277	322.9	471	524.4
40 - 44	114	157.9	246	298.5	360	456.4
45 - 49	104	126.2	206	247.6	310	373.8
50 - 54	90	130.7	180	226.2	270	356.9
55 - 59	78	116.1	131	187.0	209	303.1
60 - 64	47	76.2	91	118.7	138	194.9
65 - 69	18	21.1	31	33.9	49	55.0
70 & Over	11	9.8	10	12.7	21	22.5
Total	**1,793**	**1,807.3**	**2,654**	**2,759.1**	**4,447**	**4,566.4**

Service	Male		Female		Total	
	Actual	Expected	Actual	Expected	Actual	Expected
0 - 1	938	810.3	1,286	1,116.2	2,224	1,926.5
1 - 2	448	496.6	716	812.3	1,164	1,308.9
2 - 3	229	280.1	385	462.3	614	742.4
3 - 4	100	126.5	153	209.2	253	335.7
4 - 5	78	93.8	114	159.1	192	252.9
Total	**1,793**	**1,807.3**	**2,654**	**2,759.1**	**4,447**	**4,566.4**

	Male	Female	Total
Average age at termination	33.9 years	35.7 years	34.9 years
Average service at termination	1.3 years	1.4 years	1.4 years

COMPARISON OF ACTUAL TO EXPECTED DEATHS AMONG RETIRED LIVES (SERVICE RETIREMENT ONLY) DURING PLAN YEAR 2024-2025

Age	Male			Female			Total		
	Actual	Expected	Exposures	Actual	Expected	Exposures	Actual	Expected	Exposures
Under 50	0	0.0	0	0	0.0	0	0	0.0	0
50 - 54	0	1.0	127	0	1.0	222	0	2.0	349
55 - 59	9	7.7	807	8	7.8	1,420	17	15.5	2,227
60 - 64	33	27.8	2,373	38	29.1	4,392	71	56.8	6,765
65 - 69	76	54.2	3,961	77	67.0	7,207	153	121.2	11,168
70 - 74	118	88.4	4,451	111	111.6	7,288	229	200.0	11,739
75 - 79	148	115.7	3,620	181	145.8	5,446	329	261.5	9,066
80 - 84	114	99.3	1,826	136	139.8	2,805	250	239.1	4,631
85 - 89	112	75.7	809	139	127.9	1,378	251	203.7	2,187
90 - 94	46	42.8	281	92	86.0	551	138	128.8	832
95 - 99	20	14.3	64	45	41.2	176	65	55.5	240
100 & Over	4	1.6	5	7	8.8	27	11	10.3	32
Total	**680**	**528.5**	**18,324**	**834**	**766.0**	**30,912**	**1,514**	**1,294.5**	**49,236**
Average Ages	**78.3**	**78.2**	**71.9**	**80.0**	**80.2**	**71.6**	**79.2**	**79.4**	**71.7**

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APPENDIX C – SUMMARY OF PLAN PROVISIONS

MSEP (Missouri State Employees' Plan)	MSEP 2000 (Missouri State Employees' Plan 2000)	MSEP 2011 (Missouri State Employees' Plan 2011)
DEFINITIONS **Participants** All MOSERS members, vested former members, retirees and survivors who first became members prior to July 1, 2000 and who do **not** elect to transfer to the MSEP 2000 plan. Election is made at the time benefits commence.	(1) All new employees who first become members on or after July 1, 2000, except full-time teaching and senior administrative personnel of the regional colleges and universities hired on or after July 1, 2002 who will be participants in the Colleges and Universities Retirement Plan (CURP). (2) MSEP active members and vested former members who elect to transfer to the MSEP 2000 plan prior to retirement. (3) MSEP retirees who elect to transfer to the MSEP 2000 plan during the election window from July 1, 2000 through June 30, 2001, and their survivors. (4) MSEP non-vested terminations rehired on or after July 1, 2000. (5) Members hired prior to January 1, 2011 participating in the CURP for six years may elect to change to MOSERS. Transferred service is for vesting purposes only.	(1) All new employees who first become employees on or after January 1, 2011, except full-time teaching and senior administrative personnel of the regional colleges and universities hired on or after July 1, 2002 who will be participants in the Colleges and Universities Retirement Plan (CURP). (2) Members hired on or after January 1, 2011 participating in the CURP for six years may elect to change to MOSERS. Transferred service is for vesting purposes only.

MSEP (Missouri State Employees' Plan)	MSEP 2000 (Missouri State Employees' Plan 2000)	MSEP 2011 (Missouri State Employees' Plan 2011)
Final average earnings		
The average annual compensation of a member for the three consecutive years of service during which pay was highest (overtime pay is included for purposes of determining Average Compensation). Non-recurring lump sum payments are excluded. Unused sick leave may be converted to additional credited service (usable only for benefit computation, not eligibility).	The average annual compensation of a member for the three consecutive years of service during which pay was highest (overtime pay is included for purposes of determining Average Compensation). Non-recurring lump sum payments are excluded. Unused sick leave may be converted to additional credited service (usable only for benefit computation, not eligibility).	The average annual compensation of a member for the three consecutive years of service during which pay was highest (overtime pay is included for purposes of determining Average Compensation). Non-recurring lump sum payments are excluded. Unused sick leave may be converted to additional credited service (usable only for benefit computation, not eligibility).
Member contributions		
None.	Same as MSEP.	4.0% of salary, with interest credited to member contributions based on the 52-week Treasury bill rate (4% prior to June 30, 2014).

MSEP (Missouri State Employees' Plan)	MSEP 2000 (Missouri State Employees' Plan 2000)	MSEP 2011 (Missouri State Employees' Plan 2011)
ELIGIBILITY FOR BENEFITS **Normal retirement** *Members of the General Assembly:* Age 55 with completion of at least 3 full biennial assemblies. *Statewide Elected Officials:* The earliest of attaining: (1) Age 65 with at least 4 years of credited service. (2) Age 60 with at least 15 years of credited service. (3) Age 50 with age plus credited service equal to 80 or more. *General Employees:* The earliest of attaining: (1) Age 65 and active with at least 4 years of credited service. (2) Age 65 with at least 5 years of credited service. (3) Age 60 with at least 15 years of credited service. (4) Age 48 with age plus credited service equal to 80 or more.	*Members of the General Assembly:* The earliest of attaining: (1) Age 55 with completion of at least 3 full biennial assemblies. (2) Age 50 with completion of at least 3 full biennial assemblies and with age plus credited service equal to 80 or more. *Statewide Elected Officials:* The earliest of attaining: (1) Age 55 with at least 4 years of credited service. (2) Age 50 with age plus credited service equal to 80 or more. *General Employees:* The earliest of attaining: (1) Age 62 with at least 5 years of credited service. (2) Age 48 with age plus credited service equal to 80 or more.	*Members of the General Assembly:* The earliest of attaining: (1) Age 62 with completion of at least 3 full biennial assemblies. (2) Age 55 with completion of at least 3 full biennial assemblies and with age plus credited service equal to 90 or more. *Statewide Elected Officials:* The earliest of attaining: (1) Age 62 with at least 4 years of credited service as a statewide elected official. (2) Age 55 with age plus credited service equal to 90 or more. *General Employees:* The earliest of attaining: (1) Age 67 with at least 5 years of credited service. (2) Age 55 with age plus credited service equal to 90 or more.

MSEP (Missouri State Employees' Plan)	MSEP 2000 (Missouri State Employees' Plan 2000)	MSEP 2011 (Missouri State Employees' Plan 2011)
Uniformed Water Patrol Employees: The earliest of attaining: (1) Age 55 and active with at least 4 years of credited service. (2) Age 55 with at least 5 years of credited service. (3) Age 48 with age plus credited service equal to 80 or more. *Administrative Law Judges:* The earliest of attaining: (1) Age 62 and active with at least 12 years of credited service. (2) Age 60 with at least 15 years of credited service. (3) Age 55 with at least 20 years of credited service. **Early retirement for general employees** Age 55 with at least 10 years of credited service.	Age 57 with at least 5 years of credited service.	Age 62 with at least 5 years of credited service.

MSEP (Missouri State Employees' Plan)	MSEP 2000 (Missouri State Employees' Plan 2000)	MSEP 2011 (Missouri State Employees' Plan 2011)
MONTHLY BENEFITS PAYABLE **Normal Retirement** *Members of the General Assembly:* $150 per month per biennial assembly served. *Statewide Elected Officials:* 1) Less than 12 years of credited service: 1.6% of Average Compensation times years of credited service. 2) 12 or more years of credited service: 50% of pay of the highest elected position held prior to retirement. *General Employees:* 1.6% of Average Compensation times years of credited service. 2.1% of Average Compensation times years of credited service for any period of non-social security covered employment transferred from the Public School Retirement System. *Uniformed Water Patrol:* 2.13% of Average Compensation times years of credited service.	*Members of the General Assembly:* 1/24 of pay times first 24 years of credited service as a member of the General Assembly. *Statewide Elected Officials:* 1/24 of pay (of the highest elected position held prior to retirement) times the first 12 years of credited service as a statewide elected official. *General Employees:* 1.7% of Average Compensation times years of credited service. Temporary Benefit: If member retires between ages 48 and 62 with age plus credited service equal to 80 or more, a temporary benefit is payable until the attainment of the minimum age at which reduced social security benefits are payable, in the amount of 0.8% of Average Compensation times years of credited service.	*Members of the General Assembly:* 1/24 of pay times first 24 years of credited service as a member of the General Assembly. *Statewide Elected Officials:* 1/24 of pay (of the highest elected position held prior to retirement) times the first 12 years of credited service as a statewide elected official. *General Employees:* 1.7% of Average Compensation times years of credited service. Temporary Benefit: If member retires between ages 55 and 62 with age plus credited service equal to 90 or more, a temporary benefit is payable until the attainment of the minimum age at which reduced social security benefits are payable, in the amount of 0.8% of Average Compensation times years of credited service.

MSEP (Missouri State Employees' Plan)	MSEP 2000 (Missouri State Employees' Plan 2000)	MSEP 2011 (Missouri State Employees' Plan 2011)
Administrative Law Judges: 50% of Compensation	Non-Social Security Covered Service: 2.5% of Average Compensation times years of credited service for any period of non-social security covered employment transferred from the Public School Retirement System.	Non-Social Security Covered Service: 2.5% of Average Compensation times years of credited service for any period of non-social security covered employment transferred from the Public School Retirement System.
Early retirement for general employees		
Normal retirement amount reduced by ½% for each month that retirement precedes eligibility for normal retirement. 1) Less than 15 years of service: Normal retirement amount actuarially reduced for years younger than age 65. 2) 15 years but less than 20 years of service, and less than the number of years of service necessary for age and service to total 80: Normal retirement amount actuarially reduced for years younger than age 60. 3) 20 or more years of service, but less than the number of years of service necessary for age and service to total 80: Normal retirement amount reduced for years younger than the 80 and out eligibility date.	Normal retirement amount reduced by ½% for each month that retirement precedes eligibility for normal retirement, age 62.	Normal retirement amount reduced by ½% for each month that retirement precedes eligibility for normal retirement, age 67.

<table>
<tr><th>MSEP
(Missouri State Employees' Plan)</th><th>MSEP 2000
(Missouri State Employees' Plan 2000)</th><th>MSEP 2011
(Missouri State Employees' Plan 2011)</th></tr>
<tr><td>

Vested deferred benefits

Benefits for employees who terminate prior to eligibility for an immediate benefit are considered to be vested in accordance with the following schedule (benefits commence at the age the individual would have been eligible for early or normal retirement, considering years of credited service). Unused sick leave is not converted.

<table>
<tr><th>Years of Service</th><th>General Assembly</th><th>Elected Officials</th><th>General Employees</th></tr>
<tr><td>4
5
6*</td><td>

100%</td><td>100%</td><td>100%</td></tr>
</table>

*3 Assemblies

Death prior to retirement

The surviving spouse benefit is computed as if the member had been normal retirement age on the date of death and elected the joint and 100% survivor optional form of payment, provided the member had at least 5 years of credited service and was married on the date of death. If no eligible spouse survives, 80% of the member's life income annuity is paid to eligible children until age 21. If the death

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Benefits for employees who terminate prior to eligibility for an immediate benefit are considered to be vested in accordance with the following schedule (benefits commence at age 57 for early retirement or 62 for normal retirement). Unused sick leave is not converted. CURP to MOSERS transfers with 6 years of service are immediately vested.

<table>
<tr><th>Years of Service</th><th>General Assembly</th><th>Elected Officials</th><th>General Employees</th></tr>
<tr><td>4
5
6*</td><td>

100%</td><td>100%</td><td>100%</td></tr>
</table>

*3 Assemblies, HB1455 prospectively

The surviving spouse benefit is computed as if the member had been normal retirement age on the date of death and elected the joint and 100% survivor optional form of payment, provided the member had at least 5 years of credited service (3 full assemblies for a member of the General Assembly, 4 years of credited service for a statewide elected official). If no eligible spouse survives, 80% of the member's life income annuity is paid to

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Benefits for employees who terminate prior to eligibility for an immediate benefit are considered to be vested in accordance with the following schedule (benefits commence at age 67 normal retirement). Unused sick leave is not converted.

<table>
<tr><th>Years of Service</th><th>General Assembly</th><th>Elected Officials</th><th>General Employees</th></tr>
<tr><td>4
5
6*</td><td>

100%</td><td>100%</td><td>100%</td></tr>
</table>

*3 Assemblies, HB1455 prospectively

The surviving spouse benefit is computed as if the member had been normal retirement age on the date of death and elected the joint and 100% survivor optional form of payment, provided the member had at least 5 years of credited service (2 full assemblies for a member of the General Assembly, 4 years of credited service for a statewide elected official). If no eligible spouse survives, 80% of the member's life income annuity is paid to

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MSEP (Missouri State Employees' Plan)	MSEP 2000 (Missouri State Employees' Plan 2000)	MSEP 2011 (Missouri State Employees' Plan 2011)
is duty related, the service requirement is waived and the minimum spouse benefit is 50% of Average Compensation (rate of compensation for members of the General Assembly).	eligible children until age 21. If the death is duty related, the service requirement is waived and the minimum spouse benefit is 50% of Average Compensation (rate of compensation for members of the General Assembly).	eligible children until age 21. If the death is duty related, the service requirement is waived and the minimum spouse benefit is 50% of Average Compensation (rate of compensation for members of the General Assembly).
Death after retirement		
50% of the benefit the retired member was receiving on the date of death (the normal form of payment), or the benefit payable under the joint and survivor or period certain form of payment, if the member elected an optional form of payment at time of retirement and provided the member was married on their date of retirement. Effective July 1, 2000, a member who is not married at retirement but marries thereafter may designate a spouse as beneficiary within one year of marriage. Additionally, a member may designate a new spouse as beneficiary within one year of marriage in the event of the death of the spouse the member was married to at the date of retirement (this provision does not apply to period certain annuities).	The benefit payable under the joint and survivor or period certain form of payment, if the member elected an optional form of payment at time of retirement. A member who is not married at retirement but marries thereafter may designate a spouse as beneficiary within one year of marriage. Additionally, a member may designate a new spouse as beneficiary within one year of marriage in the event of the death of the spouse the member was married to at the date of retirement (this provision does not apply to period certain annuities).	The benefit payable under the joint and survivor or period certain form of payment, if the member elected an optional form of payment at time of retirement. A member who is not married at retirement but marries thereafter may designate a spouse as beneficiary upon completion of one year of marriage. Additionally, a member may designate a new spouse as beneficiary upon completion of one year of marriage in the event of the death of the spouse the member was married to at the date of retirement (this provision does not apply to period certain annuities).

MSEP (Missouri State Employees' Plan)	MSEP 2000 (Missouri State Employees' Plan 2000)	MSEP 2011 (Missouri State Employees' Plan 2011)
Disability Normal retirement benefits become payable at the time the member is eligible for normal retirement, and are computed based on: i) the service that would have accrued to the member if active employment had continued; and ii) the member's rate of pay at the time of disability (if the member retires on or after August 28, 1999, the member's rate of pay is based on the rate of pay at the time of disability indexed to the time of benefit commencement). An exception is Uniformed Water Patrol employees who are eligible for an immediate occupational disability benefit equal to 50% of pay at time of disability.	Normal retirement benefits become payable at the time the member is eligible for normal retirement, and are computed based on: i) the service that would have accrued to the member if active employment had continued; and ii) the member's rate of pay at the time of disability indexed to the time of benefit commencement. The annual percentage increase in the pay used to compute benefits is the lesser of: i) 80% of the CPI increase and ii) 5%.	Normal retirement benefits become payable at the time the member is eligible for normal retirement, and are computed based on: i) the service that would have accrued to the member if active employment had continued; and ii) the member's rate of pay at the time of disability indexed to the time of benefit commencement. The annual percentage increase in the pay used to compute benefits is the lesser of: i) 80% of the CPI increase and ii) 5%.

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<tr><th>MSEP
(Missouri State Employees' Plan)</th><th>MSEP 2000
(Missouri State Employees' Plan 2000)</th><th>MSEP 2011
(Missouri State Employees' Plan 2011)</th></tr>
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Post-retirement benefit adjustments

Benefits are increased to retired members (including survivors) annually in accordance with the following formulas:

<table>
<tr><th>Increase in CPI</th><th>Formula 1 Benefit Increase</th><th>Formula 2 Benefit Increase</th></tr>
<tr><td>5.00% or less</td><td>4%</td><td>80% of CPI increase</td></tr>
<tr><td>5.01% - 6.24%</td><td>80% of CPI increase</td><td>80% of CPI increase</td></tr>
<tr><td>6.25% or more</td><td>5%</td><td>5%</td></tr>
</table>

Members first hired prior to August 28, 1997 receive COLAs based on Formula 1 until an aggregate increase of 65% is reached. At that point subsequent COLAs based on Formula 2 are granted.

Members first hired on or after August 28, 1997 receive COLAs based solely on Formula 2.

Statewide Elected Officials with 12 or more years of service have their benefit adjusted annually based on the increase in the pay for an active statewide elected official in the member's highest elected position.

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Benefits are increased to retired members (including survivors) annually in accordance with the following:

Members of the General Assembly:
Benefit is adjusted annually based on the increase in the pay for an active member of the General Assembly.

Statewide Elected Officials:
Benefit is adjusted annually based on the increase in the pay for an active statewide elected official in the retired member's highest elected position.

General Employees:
Annual benefit percentage increase equal to the lesser of: i) 80% of the CPI increase, and 5%.

CPI: For the basis of determining CPI, the average monthly reported CPI for the prior calendar year is divided by the average monthly reported CPI for the second prior calendar year to determine the current year increases, if any. If this amount is less than one, benefits are not reduced, nor is there any cumulative effect on future years' determination of CPI.

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Benefits are increased to retired members (including survivors) annually in accordance with the following:

Members of the General Assembly:
Benefit is adjusted annually based on the increase in the pay for an active member of the General Assembly.

Statewide Elected Officials:
Benefit is adjusted annually based on the increase in the pay for an active statewide elected official in the retired member's highest elected position.

General Employees:
Annual benefit percentage increase equal to the lesser of: i) 80% of the CPI increase, and 5%.

CPI: For the basis of determining CPI, the average monthly reported CPI for the prior calendar year is divided by the average monthly reported CPI for the second prior calendar year to determine the current year increases, if any. If this amount is less than one, benefits are not reduced, nor is there any cumulative effect on future years' determination of CPI.

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MSEP (Missouri State Employees' Plan)	MSEP 2000 (Missouri State Employees' Plan 2000)	MSEP 2011 (Missouri State Employees' Plan 2011)
Members who are fully vested and work beyond age 65 will have their monthly benefit increased upon retirement. The percentage increase in benefit is equal to all COLAs for the years between age 65 and date of retirement, not to exceed 65% and counts toward the Formula 1 65% maximum. Timing of Increase: Benefits are adjusted on the anniversary of the effective date of retirement for most members. Members retiring under the BackDROP provisions have an anniversary based on the retroactive starting date for the BackDROP.	Timing of Increase: Benefits are adjusted on the anniversary of the effective date of retirement for most members. Members retiring under the BackDROP provisions have an anniversary based on the retroactive starting date for the BackDROP.	Timing of Increase: Benefits are adjusted on the anniversary of the effective date of retirement. For inactive vested General Employees who enter retirement, the first COLA will not be granted until the second anniversary of the effective date of retirement.
Pop-up provision Benefits to members who choose a survivor form of payment and whose spouse precedes the member in death, will "pop-up" or revert to the amount the member would have received had he/she not elected a survivor option.	Same.	Same.

MSEP (Missouri State Employees' Plan)	MSEP 2000 (Missouri State Employees' Plan 2000)	MSEP 2011 (Missouri State Employees' Plan 2011)
Portability		
Purchase/Transfer Provisions (in addition to military). Effective August 28, 1999, a member may purchase up to four years of non-federal full-time Missouri public service, provided the member is not vested in another retirement system for that same service.	Purchase/Transfer Provisions (in addition to military). A member may purchase up to four years of non-federal full-time Missouri public service, provided the member is not vested in another retirement system for that same service. Local vested service credit granted after 10 years of state service if the other retirement plan agrees to transfer assets equal to the accrued liability to MOSERS.	May purchase qualifying public sector service at full actuarial cost.
BackDROP		
To be eligible to participate in the BackDROP, a member must have been eligible to retire under normal retirement age and/or service conditions for at least two years. A retroactive starting date is established for BackDROP purposes which is the later of: 1) the member's normal retirement date or 2) five years prior to the annuity starting date under the retirement plan selected by the member. A member may elect the BackDROP period for the accumulation of the BackDROP account in 12 month increments prior to their actual retirement date or back to the earliest possible date.	Same as MSEP.	Not eligible for the BackDROP.

MSEP (Missouri State Employees' Plan)	MSEP 2000 (Missouri State Employees' Plan 2000)	MSEP 2011 (Missouri State Employees' Plan 2011)
This results in a BackDROP period of one to five years depending upon the individual situation. A theoretical BackDROP account is accumulated that includes 90% of the value of the benefit payments that would have been paid during the BackDROP period had the member retired at the retroactive starting date with their respective option election. These payments include applicable post-retirement benefit increases. The member is paid the resulting lump sum value of the BackDROP account as of the annuity starting date or as three equal annual installments beginning at the annuity starting date. The annuity benefit payable from the actual retirement date is computed with years of service and average pay as of the retroactive starting date for the BackDROP. Post-retirement benefit increases that occurred during the BackDROP period are applied in the calculation of the monthly annuity.		

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APPENDIX D – SUMMARY OF ACTUARIAL ASSUMPTIONS

ACTUARIAL METHODS

1. **Calculation of Normal Cost and Actuarial Accrued Liability:** The funding method used to determine the normal cost and actuarial accrued liability was the Entry Age Actuarial Cost Method described below.

   Entry Age Actuarial Cost Method

   Under the entry age normal cost method, the actuarial present value of each member's projected benefit is allocated on a level basis over the member's compensation between the entry age of the member and their assumed exit age. The portion of the actuarial present value allocated to the valuation year is called the normal cost. The actuarial present value of benefits allocated to prior years of service is called the actuarial accrued liability. The unfunded actuarial accrued liability represents the difference between the actuarial accrued liability and the actuarial value of assets as of the valuation date. The unfunded actuarial accrued liability is calculated each year and reflects experience gains/losses.

2. **Calculation of the Actuarial Value of Assets:** Calculation of the Actuarial Value of Assets (AVA): The Board adopted the current asset smoothing method effective with the June 30, 2018 valuation. Under this method, the difference between the actual and assumed investment return on the market value of assets is recognized evenly over a five-year period. No corridor is used with the new method.

3. **Amortization of the Unfunded Actuarial Accrued Liability (UAAL):** Beginning with the June 30, 2018 valuation, the UAAL is amortized using a "layered" approach. Under this method, the "Legacy UAAL", as determined in the June 30, 2018 valuation, is amortized over a closed 30-year period. Effective June 30, 2021, subsequent changes in the UAAL due to actuarial gains/losses or assumption changes are separately financed by establishing amortization bases and payments, as a level percentage of payroll, over closed 25-year periods. Bases established prior to June 30, 2021 will continue to be amortized on their original schedule. Any change in the System's benefit structure shall be amortized over a closed period of 20 years, as set out in state statutes. The total UAAL amortization payment is the sum of the payments for each of the amortization bases.

   If the System has a negative UAAL (surplus), all prior amortization bases will be eliminated, and a new, single amortization base shall be established and funded over an open 30-year amortization period until the valuation indicates a positive UAAL exists. At that time, the amortization base shall be re-established equal to the amount of the UAAL and amortized over a closed 25-year period.

   On July 13, 2022, the State of Missouri made an additional contribution of $500 million to the MOSERS investment fund. This additional contribution will grow with investment

returns in the future, and it will be reflected in the System's funded ratio and UAAL. However, the accumulated value of the additional contribution will not be reflected in the valuation assets when calculating the UAAL contribution rate.

Changes in Methods and Assumptions since the Prior Year

There have been no changes since the prior valuation.

ACTUARIAL ASSUMPTIONS

An experience study which analyzed the System's economic and demographic assumptions was performed in 2021 and the results were presented to the Board. The assumptions listed below are a result of that experience study. The next experience study is scheduled for 2026.

Economic Assumptions

1. Investment Return — 6.95%, compounded annually, net of investment expenses.

2. Inflation — 2.25% per year

3. Salary Increases — Rates vary by service. Sample rates are as follows:

	Rates by Service			
Years	Inflation	Productivity	Merit	Total
0	2.25%	0.25%	7.50%	10.00%
1	2.25	0.25	2.50	5.00
2	2.25	0.25	2.25	4.75
3	2.25	0.25	2.00	4.50
4	2.25	0.25	1.85	4.35
5	2.25	0.25	1.70	4.20
10	2.25	0.25	1.00	3.50
15	2.25	0.25	0.75	3.25
20	2.25	0.25	0.50	3.00
25+	2.25	0.25	0.25	2.75

General Assembly members have a flat 2.50% assumption.

For disabled members, salaries are assumed to be indexed at a rate of 2.50% per year.

4. Payroll Growth — 2.25% per year

5. Cost-of-Living Adjustment (COLA) — 4.00% on a compounded basis when a minimum COLA of 4.00% is in effect.

1.80% on a compounded basis when no minimum COLA is in effect.

2.50% for salary-based COLAs

6. Interest on Member Contributions — 1.50% per year

7. Administrative Expenses — Actual prior year expenses, included in normal cost rate.

Demographic Assumptions

1. Mortality	The mortality assumption includes an appropriate level of conservatism that reflects expected future mortality improvement.
a. Post-retirement (Retirees)	Pub-2010 General Members Below Median Healthy Retiree mortality table, scaled by 104%, set back two years for males and set forward one year for females. Mortality projected generationally from 2010 to 2020 using Scale MP-2020 and 75% of Scale MP-2020 for years after 2020.
b. Post-retirement (Beneficiaries)	Pub-2010 General Members Below Median Contingent Survivor mortality table, set back two years for males and set forward one year for females. Mortality projected generationally from 2010 to 2020 using Scale MP-2020 and 75% of Scale MP-2020 for years after 2020.
c. Pre-retirement	Pub-2010 General Members Below Median Employee mortality table, set back two years for males and set forward one year for females. Mortality projected generationally from 2010 to 2020 using Scale MP-2020 and 75% of Scale MP-2020 for years after 2020.
d. Long-term disability	Pub-2010 Non-Safety Disabled Retiree mortality table, without mortality projection.

2. Retirement

MSEP

Early Retirement	
Age	Rate
55-56	1%
57-59	2
60-61	8
62	25
63-64	5

Unreduced Retirement	
Age	Rate
48-61	17%
62	21
63-64	17
65-66	30
67-69	25
70	40
71-77	25
78	100

MSEP 2000

Early Retirement	
Age	Rate
57-59	3%
60-61	5

Unreduced Retirement	
Age	Rate
48-57	35%
58-60	20
61	12
62	16
63	12
64	20
65	27
66	30
67-69	25
70	30
71-77	25
78	100

MSEP 2011

Early Retirement	
Age	Rate
62-64	10%
65	15
66	20

Unreduced Retirement	
Age	Rate
55-57	40%
58-66	15
67-77	20
78	100

3. Termination

General Employees

Sample Rates	
Service	Rate
1	27.00%
5	12.75
10	7.00
15	4.30
20	2.25
25	1.25

Elected Officials and Legislators

Service	Rate
0-3	5.00%
4-7	12.00
8+	35.00

4. Disability

Sample Rates	
Age	Rate
25	0.03%
30	0.07
35	0.11
40	0.22
45	0.32
50	0.43
55	0.54
60	0.59
65	0.64

Other Assumptions

1. Form of Payment

   MSEP – 50% joint and survivor
   MSEP 2000 and MSEP 2011 – Straight life annuity

2. Marital Status
   a. Percent married

      65% married at retirement, 50% of those dying in active service are married.

   b. Spouse's age

      Females assumed to be three years younger than males.

3. Pre-Retirement Death

   2% of pre-retirement deaths are assumed to be duty related.

4. Pay Increase Timing

   Beginning of the fiscal year.

5. Decrement Timing

   Decrements of all types are assumed to occur mid-year.

6. Other Liability Adjustments

   Pre-Retirement Survivor Benefits for Spouse of Terminated Vested Member

Age	Male/Female
<30	1.56/1.42
30-39	1.26/1.20
40-49	1.11/1.08
>=50	1.02/1.02

   These factors are used to estimate the cost of immediate unreduced survivor annuities upon the death of a vested member under the MSEP and MSEP 2000 plans.

7. Incidence of Contributions

   Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report, and the actual payroll payable at the time contributions are made. New entrant normal cost contributions are applied to the funding of new entrant benefits.

8. MSEP 2000 Election	All regular state employees hired on or before June 30, 2000 are assumed to elect MSEP 2000 prior to age 62 if eligible for the benefit and MSEP on or after age 62. Elected Officials, General Assembly, and Uniformed Water Patrol Members hired before July 1, 2000 are assumed to elect MSEP at retirement.
9. Service Adjustment	It is assumed that each member will be granted months of service credit for unused leave and military service purchases at retirement in the following amounts: <u>MSEP / MSEP 2000</u> 7 months (4 months of unused leave; 3 months of military service purchases) <u>MSEP 2011</u> 5 months (5 months of unused leave; not eligible for military service purchases)
10. Forfeitures	For MSEP 2011 members only: Value the greater of the refund amount or the present value of the deferred benefit.
11. Commencement age for deferred vested benefit	Normal Retirement Date

Data Adjustments

Active and retired member data was reported as of May 31, 2025. It was brought forward to June 30, 2025 by adding one month of service for all active members, one month of contributions and interest for MSEP 2011 members, and the June COLA for certain retired members. Financial information continues to be reported as of June 30. This procedure was instituted to provide sufficient time for the Board of Trustees to certify the appropriate contribution rate prior to the October 1 statutory deadline.

Active members reported with less than a $100 annualized salary were assumed to receive the average active member pay. As a result, there are 14 active members in the June 30, 2025 data whose salary is assumed to be $58,500.

When the option of choosing plans is available, terminated vested members are reported with two records, one with benefits under the MSEP plan and one with benefits under the MSEP 2000 plan. Because it is unknown what the member will elect at retirement, both records are valued and the plan that produces the higher present value of future benefits is used for valuation purposes.

For any retired member who has elected a joint and survivor benefit yet has no beneficiary date of birth provided, it was assumed that the beneficiary is 3 years younger for male retirees and 3 years older for female retirees.

TECHNICAL VALUATION PROCEDURES

Other Valuation Procedures

Salary increases are assumed to apply to annual amounts. For purposes of the valuation, no regulatory limits were applied to member compensation or benefits.

Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur. However, exact fractional service is used to determine the amount of the benefit payable.

The decrement rates are used directly from the experience study. They do not reflect an adjustment for multiple decrement table effects, except that disability and withdrawal rates do not operate during normal retirement eligibility. Decrements of all types are assumed to occur mid-year, except that immediate retirement is assumed for those who are at or above the age at which retirement rates are 100%.

No actuarial liability is included for participants who terminated without being vested prior to the valuation date, except those due a refund of contributions.

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APPENDIX E – GLOSSARY OF TERMS

Actuarial Accrued Liability	The difference between the actuarial present value of system benefits and the actuarial value of future normal costs. Also referred to as "accrued liability" or "actuarial liability".
Actuarial Assumptions	Estimates of future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.
Accrued Service	Service credited under the system which was rendered before the date of the actuarial valuation.
Actuarial Equivalent	A single amount or series of amounts of equal actuarial value to another single amount or series of amounts, computed on the basis of appropriate assumptions.
Actuarial Cost Method	A mathematical budgeting procedure for allocating the dollar amount of the actuarial present value of retirement system benefit between future normal cost and actuarial accrued liability. Sometimes referred to as the "actuarial funding method".
Experience Gain (Loss)	The difference between actual experience and actuarial assumptions anticipated experience during the period between two actuarial valuation dates.
Actuarial Present Value	The amount of funds currently required to provide a payment or series of payments in the future. It is determined by discounting future payments at predetermined rates of interest and by probabilities of payment.
Amortization	Paying off an interest-discounted amount with periodic payments of interest and principal, as opposed to paying off with lump sum payment.
Normal Cost	The actuarial present value of retirement system benefits allocated to the current year by the actuarial cost method.

Unfunded Actuarial Accrued Liability

The difference between actuarial accrued liability and the valuation assets. Sometimes referred to as "unfunded actuarial liability" or "unfunded accrued liability"

Most retirement systems have unfunded actuarial accrued liability. They arise each time new benefits are added and each time an actuarial loss is realized.