

Teachers' Retirement System of the State of Illinois

# Summary Review of Preliminary June 30, 2024 Actuarial Valuation

October 25, 2024 / Matthew Strom, Senior Vice President and Actuary / Daniel Siblik, Vice President and Actuary / Laura Jeske, Senior Actuarial Analyst

This document has been prepared by Segal for the benefit of the Board of Trustees of the Teachers' Retirement System of the State of Illinois and is not complete without the presentation provided at the October 25, 2024, meeting. The preliminary actuarial valuation report has information on the plan provisions, data, methods and assumptions used in the valuation. Use of the information in this presentation is subject to the caveats described in that document. The measurements in this presentation may not be appropriate for purposes other than those described in the actuarial valuation report. The actuarial calculations were completed under the supervision of Matt Strom, FSA, MAAA, EA and Tanya Dybal, FSA, MAAA, EA.

# Agenda

**Overview of the Valuation Process**

**Summary of Valuation Highlights**

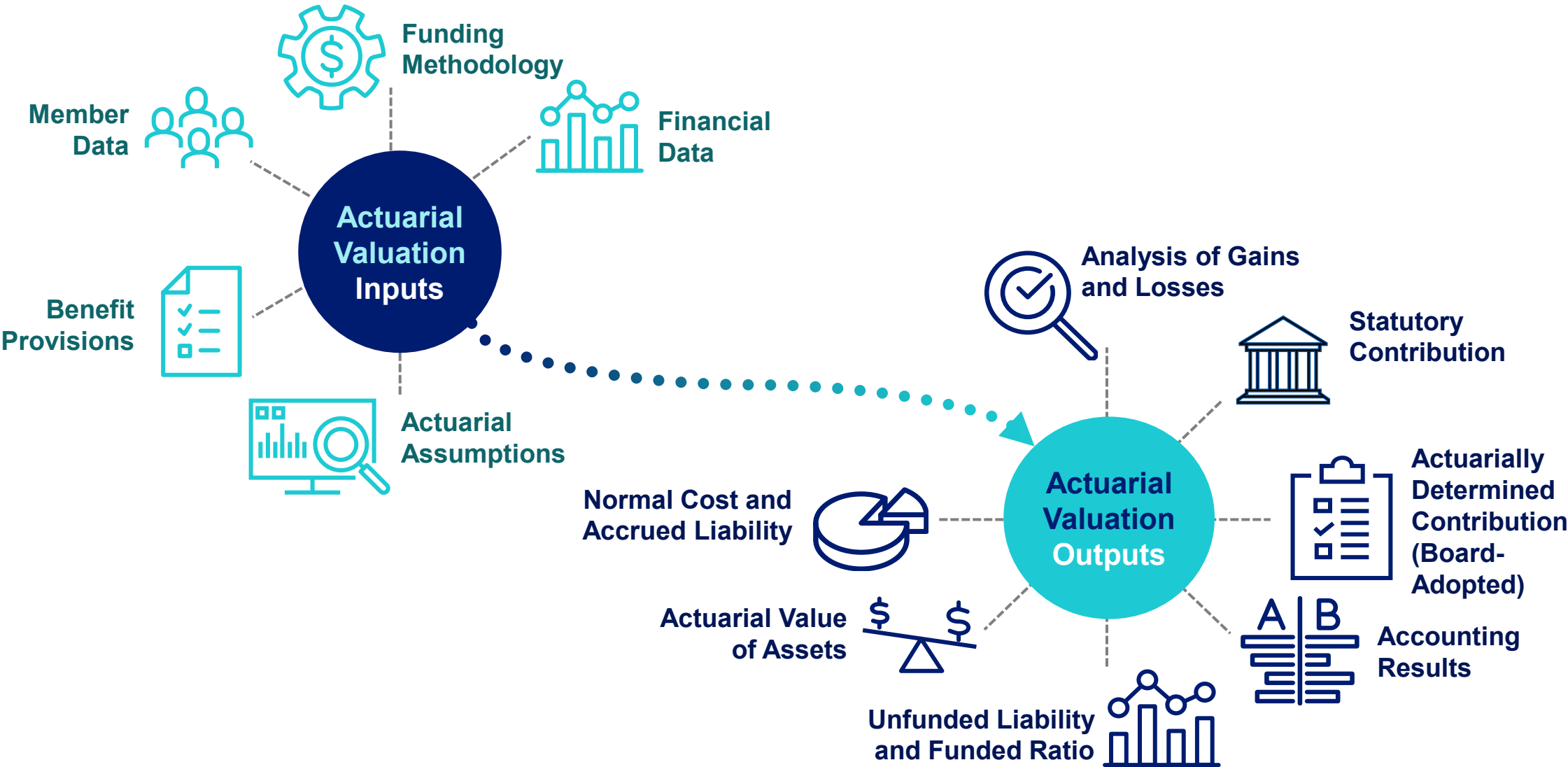
**Membership and Demographics**

**Valuation Results**

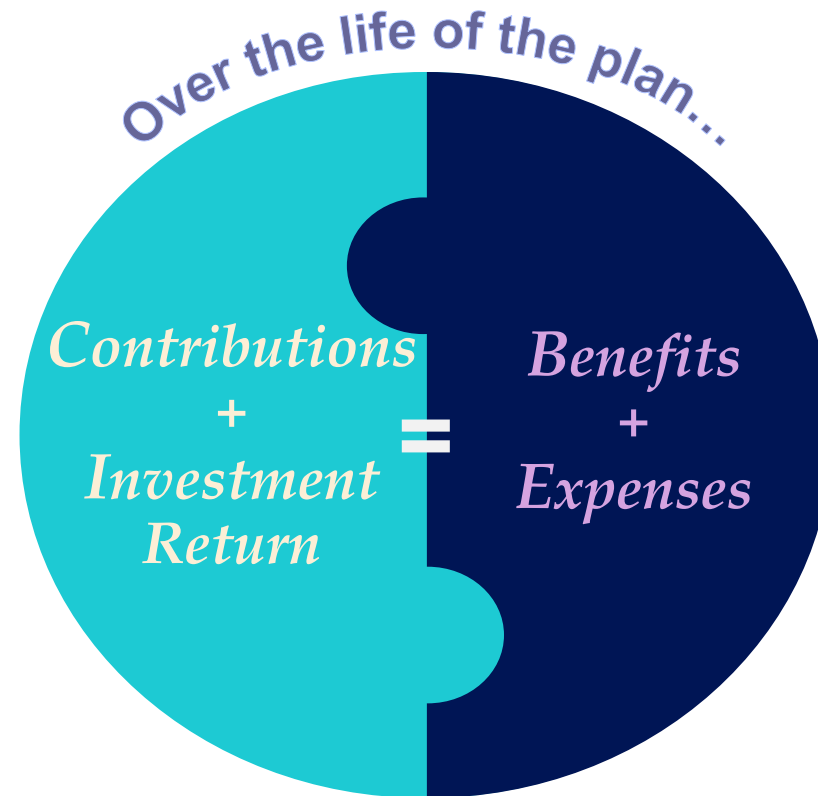
**Sensitivity Projections**

**Appendix**

# Valuation Components



# Actuarial Balance



Or: *Contributions* = *Benefits + Expenses* - *Investment Return*

# Actuarial Assumptions

## *Demographic*

- Retirement
- Disability
- Withdrawal
- Mortality



## *Economic*

- Inflation: 2.50%
- Investment return: 7.00%
- Salary increases: 8.50% for new members to 4.00% for members with 20+ years of service
- Payroll growth: Based on open group projection with level active population and new entrants similar to newly hired employees



Economic assumptions are reviewed annually, and demographic assumptions are reviewed every three years, most recently with the actuarial experience review for the period July 1, 2020 to June 30, 2023. Detailed information regarding the assumption changes adopted by the Board in June/August 2024 can be found in our experience study presentation dated August 16, 2024.

# Actuarial Methods



## Asset Valuation Details

- Investment gains and losses recognized over several years
- TRS recognizes 20% of the difference in expected and actual returns in a given year (5-year smoothing)

## Cost Method Components

- Allocation of liability to past and future service
- TRS uses the Projected Unit Credit cost method for the **Statutory Contribution**  
Current year's cost based on value of benefit earned that year, using projected salary, resulting in back-loading of normal cost
- Entry Age Normal used for the **Board-Adopted Actuarial Funding Policy**  
Commonly used method that allocates cost of member's benefit over expected career as a level % of salary

## Amortization Breakdown

- **Statutory Contribution**  
No explicit method to amortize the UAAL; the total contribution less the normal cost is the payment toward the UAAL
- **Board-Adopted Actuarial Funding Policy**  
Layered amortization with new UAAL amortized over 20 years  
Amortization payments increase at the rate of the future State revenue growth, assumed at 2%

# Actuarially Determined vs. Statutory Contribution

## Actuarial Determined Contribution (Board-Adopted Actuarial Funding Policy)

Equal to the normal cost plus amortization of the unfunded actuarial accrued liability (UAAL)

### Benefits:

- Entry age normal cost method
- 100% funding target
- Reflects appropriate tier of benefits of those currently in TRS

## Statutory Contribution under Illinois Funding Policy

Equal to the amount determined as a level percentage of payroll necessary to achieve a projected funded percentage of 90% by 2045

### Shortcomings:

- Projected unit credit cost method
- 90% funding target
- Reflects effect of Tier 2 provisions for members who have not yet been hired

# Changes Since Last Year's Valuation

## Assumption Changes

- The following assumption changes were approved by the Board on August 16, 2024, and are reflected in the June 30, 2024 actuarial valuation:
  - The rates of individual salary increase were adjusted based on plan experience
  - The assumed percent of retirees receiving severance<sup>1</sup> and the average severance payment was increased from 18% to 20% and 8% to 10%, respectively
  - The retirement, termination, and disability rates were adjusted based on plan experience
  - The healthy pre-retirement mortality assumption was updated to adjust rate multipliers for all ages to better reflect recent plan experience
  - The healthy, disabled, and beneficiary pre-retirement mortality assumptions were updated to adjust rate multipliers for males and females to better reflect recent plan experience
  - The mortality improvement scale was updated from Scale MP-2020 to 2024 Adjusted Scale MP-2021 to reflect a more recently published study
  - The future service accrual rate was increased based on plan experience. For substitute and part-time members, future service accrual rates are based on the member's actual service accrual in the prior year.
  - The sick leave service credit, optional service purchase, and future service accrual rates were adjusted based on plan experience
  - The AAI and IV buyout election percentages were adjusted based on plan experience

*The impact of these assumption changes increased the actuarial accrued liability as of June 30, 2024 by \$1.37 billion and increased the FY 2026 State Contribution by \$14 million<sup>2</sup> under the Statutory Funding Policy*

<sup>1</sup> Reflects payments (e.g., bonus pay, severance, lump-sum payments of sick, personal and vacation days, employer payment of member's 2.2 upgrade cost or optional service balance, and retirement incentive payments) that are received by the member with or prior to the last paycheck or last day of creditable service.

<sup>2</sup> The total increase would have been \$69M without consideration of assumption change smoothing per statute.



# Summary of Valuation Highlights

## State Contribution

- Required State contribution for fiscal 2026 is **\$6.50 billion**, a 4.70% increase from the fiscal 2025 contribution of \$6.20 billion
- The fiscal 2026 State contribution under the **Board-Adopted Actuarial Funding Policy** is **\$10.73 billion**
  - Statutory contribution is approximately 61% of the Board funding policy amount
  - The \$4.24 billion contribution shortfall increases future contribution requirements

## Asset Experience

- Fair value of **assets returned 8.71%\*** for year the ending June 30, 2024
  - Gradual recognition of deferred gains and losses resulted in a **7.60% return on actuarial assets**, compared to 7.00% expected
  - Gain on actuarial value of assets is \$397.3 million
  - Total deferred investment gain as of June 30, 2024, is \$737.2 million
- This valuation reflects the remaining portion of the additional \$230,431,000 contribution (\$115,215,500 paid during fiscal 2024) appropriated to TRS per Public Act 103-0006

## Demographic Experience

- Demographic and liability experience resulted in a loss of \$246.3 million, or 0.2% of actuarial accrued liability

\* Based on Segal's calculation, which involves simplified mid-year cash flow timing

# Summary of Valuation Highlights (continued)

## Funded Percentage

- Funded ratio based on the actuarial value of assets increased from 44.8% in 2023 to **45.8%** in 2024

## Unfunded Actuarial Accrued Liability (UAAL)

- The actuarial accrued liability increased from \$148.4 billion (as of June 30, 2023) to **\$154.3 billion** (as of June 30, 2024)
- The actuarial value of assets increased from \$66.5 billion (as of June 30, 2023) to **\$70.7 billion** (as of June 30, 2024)
- The UAAL increased from \$81.9 billion to **\$83.6 billion**
  - \$1.7 billion increase results from net experience gain (\$0.2 billion), liability increase from assumption changes (\$1.4 billion) and loss from inadequate State contributions (\$0.5 billion)

## Buyout Experience

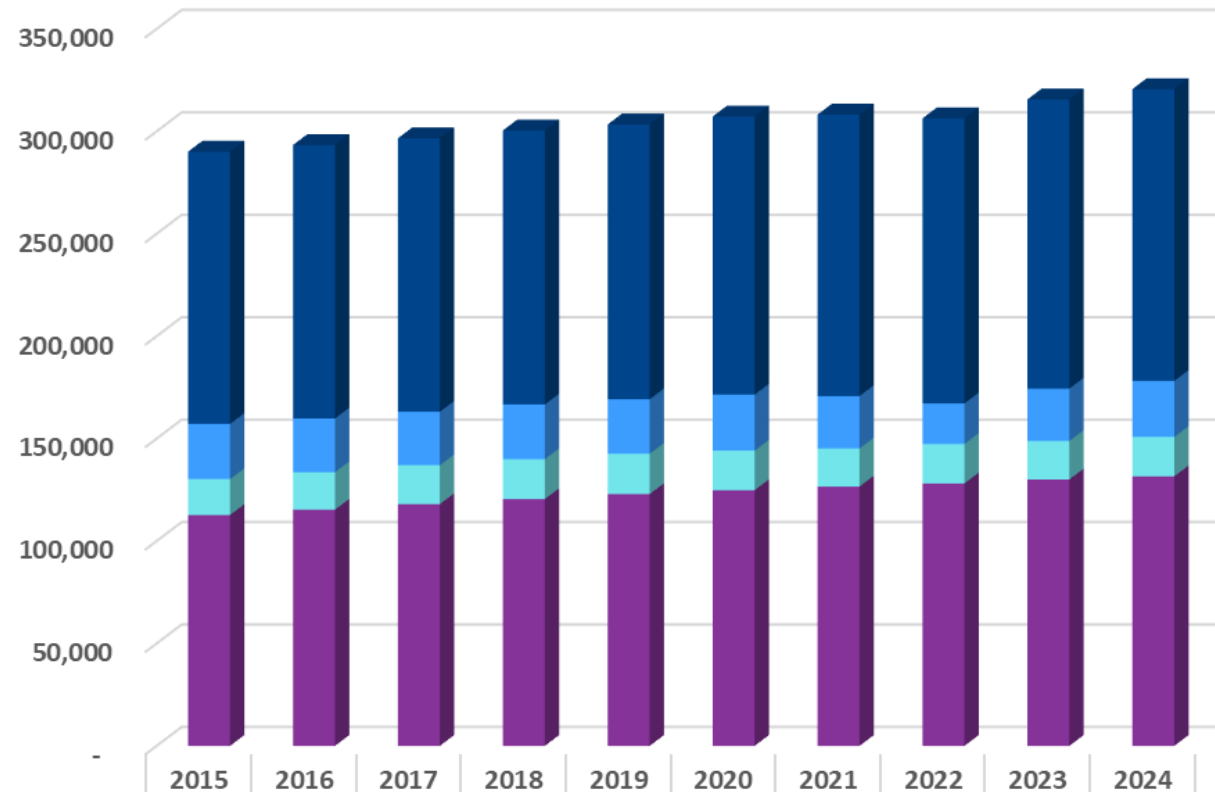
- Based on the September 25, 2024, report provided by TRS staff, there have been over **\$1.02 billion** of buyout payments paid since the commencement of the AAI and IV buyout programs
- Approximately \$998 million and \$543 million of liability has been settled as a result of the AAI and IV buyout experience, respectively
- The required State contribution for fiscal 2026 is approximately \$130 million lower due as a result of the buyout programs

# Membership

June 30 Valuation Date	2024	2023	Change
<b>Total Actives</b>			
<u>Tier 1</u>			
• Number	100,964	104,124	-3.0%
• Payroll (annualized)	\$8.640 bil	\$8.612 bil	+0.3%
• Average Age	48.4 years	47.8 years	+0.6 years
• Average Service	17.0 years	16.6 years	+0.4 years
<u>Tier 2</u>			
• Number	68,788	62,590	+9.9%
• Payroll (annualized)	\$3.301 mil	\$2.886 mil	+14.4%
• Average Age	35.4 years	34.9 years	+0.5 years
• Average Service	4.1 years	3.9 years	+0.2 years
<b>Retirees and Beneficiaries</b>			
• Number	131,568	130,051	+1.2%
• Total Annual Benefits	\$8.062 bil	\$7.765 bil	+3.8%
• Average Monthly Benefit	\$5,106	\$4,976	+2.6%

Member data used in the valuation is as of the prior valuation date.

# Active and Retired Membership



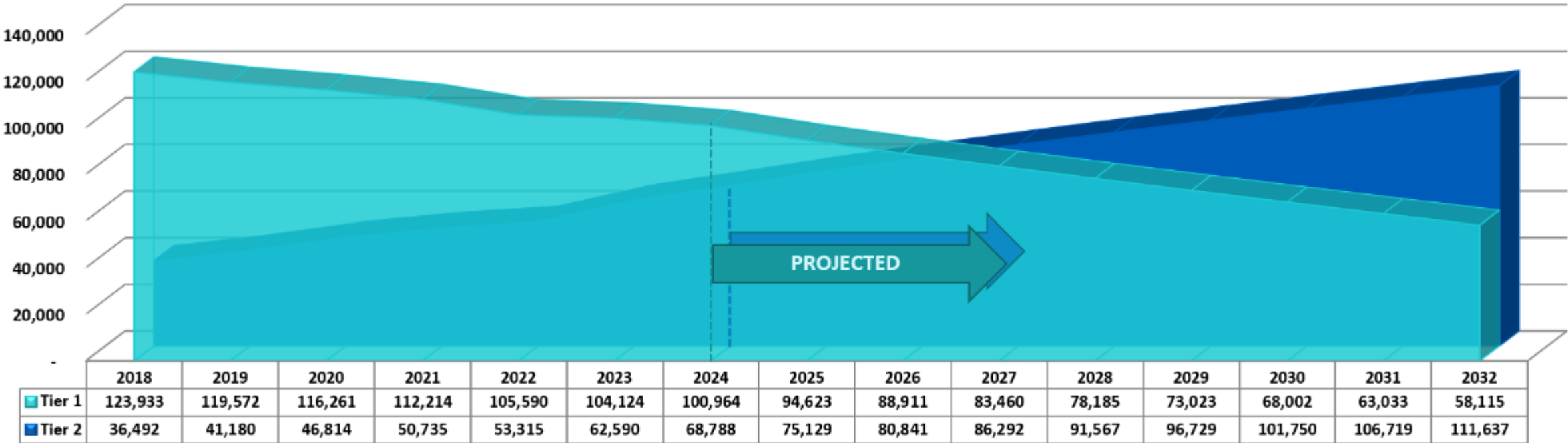
*Total active membership increased over the past year (mostly attributable to substitute / hourly teachers). Retired membership growth continues at a relatively consistent pace (1.4% average per year last five years).*

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Active Members (Full Time)	132,916	133,478	133,505	133,761	134,160	135,752	137,394	139,144	141,155	142,390
Active Members (Part Time)	26,920	26,206	26,080	26,664	26,592	27,323	25,555	19,761	25,559	27,362
Inactive Members with Deferred Benefits	17,575	18,362	19,038	19,531	19,726	19,363	18,632	19,308	18,808	19,265
Retirees and Beneficiaries	112,682	115,273	117,990	120,453	122,895	124,791	126,594	128,116	130,051	131,568

Years shown in the graph above are the June 30 valuation dates and data used in the valuation is as of the prior valuation date.

Excludes non-vested members only eligible for a refund of contributions.

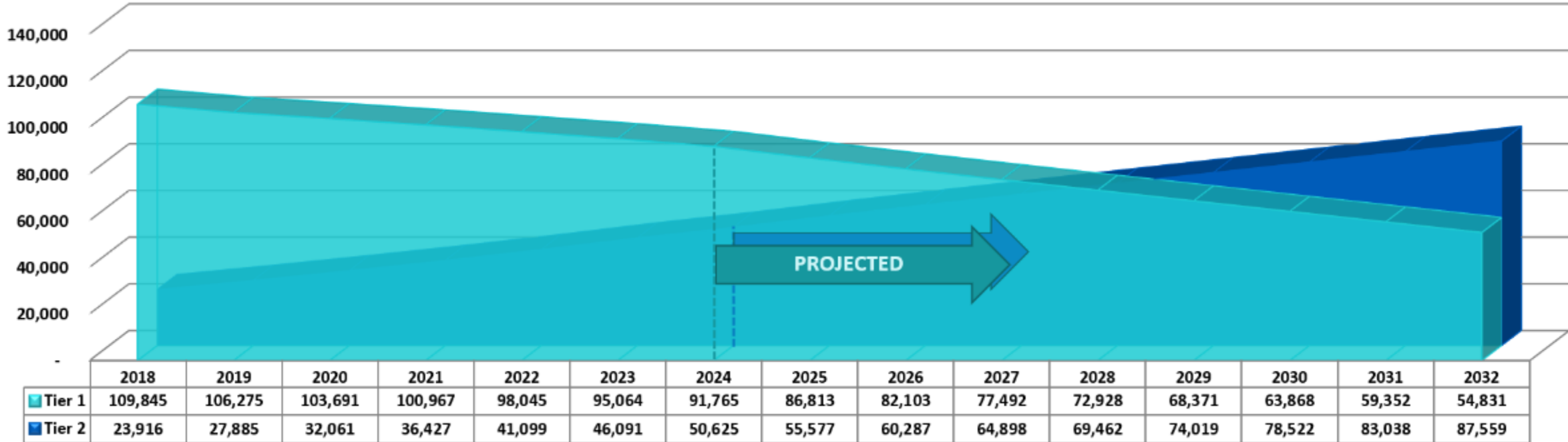
# Projection of Active Membership by Tier



Years shown in the graph above are the June 30 valuation dates and active member data used in the valuation is as of the prior valuation date.

*Based on the demographic assumptions and assuming a level active headcount, Tier 2 membership is projected to exceed Tier 1 in about three years.*

# Projection of Full-Time Active Membership by Tier



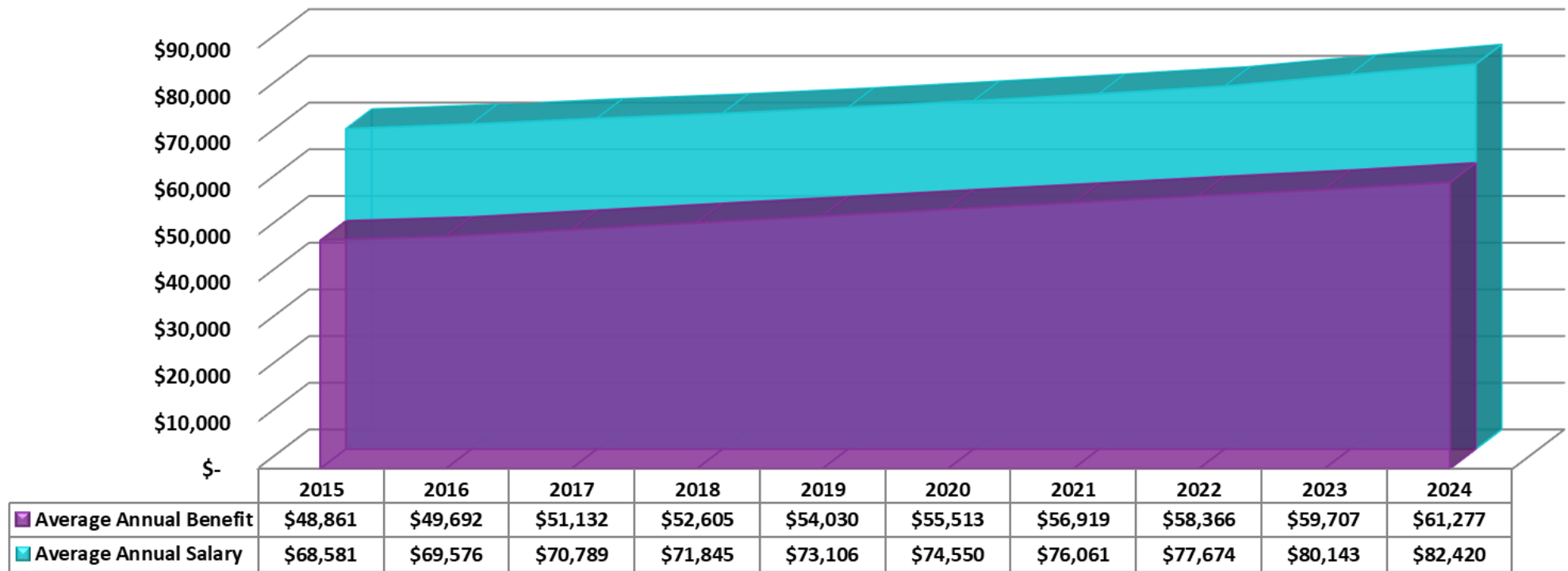
Years shown in the graph above are the June 30 valuation dates and active member data used in the valuation is as of the prior valuation date.

*Based on the demographic assumptions and assuming a level active headcount, full-time Tier 2 membership is projected to exceed full-time Tier 1 in about five years.*

# Average Salary and Average Benefit

*The average annual salary for full-time / regular part-time employees has increased by approximately 2.1% per year.*

*The average annual benefit for all benefit recipients has increased by approximately 2.6% per year.*



Average salaries shown are for full-time / regular part-time employees only

# Assets

- The **fair value of assets** increased from \$66.5 billion (as of June 30, 2023) to **\$71.4 billion** (as of June 30, 2024)
  - Segal determined the investment return was 8.71%, net of investment expenses
- The **actuarial value of assets** – which smoothes unexpected investment gains and losses over five years – increased from \$66.5 billion (as of June 30, 2023) to **\$70.7 billion** (as of June 30, 2024)
  - Return of 7.60%, net of investment expenses
  - Actuarial value is 99.0% of fair value
  - There is a total of \$737.2 million of deferred investment gains that will be recognized in future years
- Average annual returns are:

	Fair Value	Actuarial Value
5-year average	7.7%	7.4%
10-year average	6.8%	7.6%
15-year average	8.8%	6.7%
20-year average	7.0%	6.9%

*As noted in our June 18, 2024, presentation, the current investment return assumption of 7.00% results in a confidence level greater than 50% of meeting or exceeding 7.00%.*



# Assets

## Fair Value of Assets as of June 30 (in millions)

	2024	2023
Beginning of Year	\$66,504	\$62,834
Contributions		
• State*	\$6,158	\$6,009
• Employers	132	125
• Members	<u>1,169</u>	<u>1,109</u>
• Total	\$7,459	\$7,243
Benefits Paid	(8,260)	(7,967)
Administrative Expenses	(37)	(32)
Investment Income (net)	<u>5,758</u>	<u>4,427</u>
End of Year	\$71,425	\$66,505
Rate of Return	8.7%	7.1%

\* Includes additional, one-time contributions of \$115,215,500 appropriated to TRS per Public Acts 102-0698 and 103-0006.

# Assets

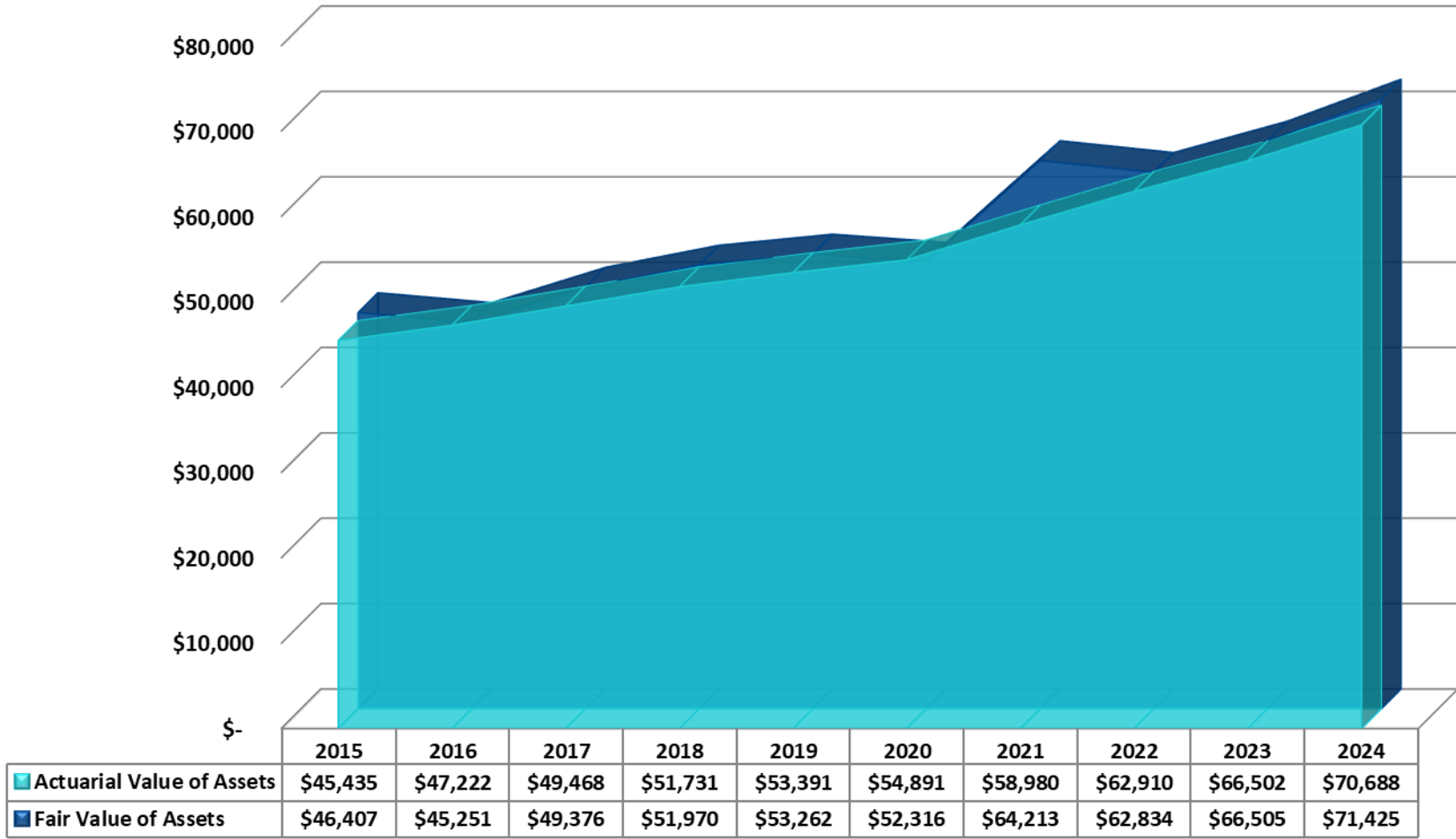
## Actuarial Value of Pension Assets\* (in millions)

Fair Value of Pension Assets as of June 30, 2024			\$71,425
Gain or (Loss) on Assets	Original Amount	% Deferred	Deferred Amount
Year Ended June 30, 2024	\$1,132	80%	\$905
Year Ended June 30, 2023	\$55	60%	33
Year Ended June 30, 2022	(5,216)	40%	(2,086)
Year Ended June 30, 2021	9,424	20%	1,885
Year Ended June 30, 2020	(3,410)	0%	<u>0</u>
Total			\$737
Actuarial Value as of June 30, 2024			\$70,688
Actuarial Value as a Percent of Fair Value			99.0%
Rate of Return			7.60%

\* Includes value of Pension Obligation Bonds (POB)

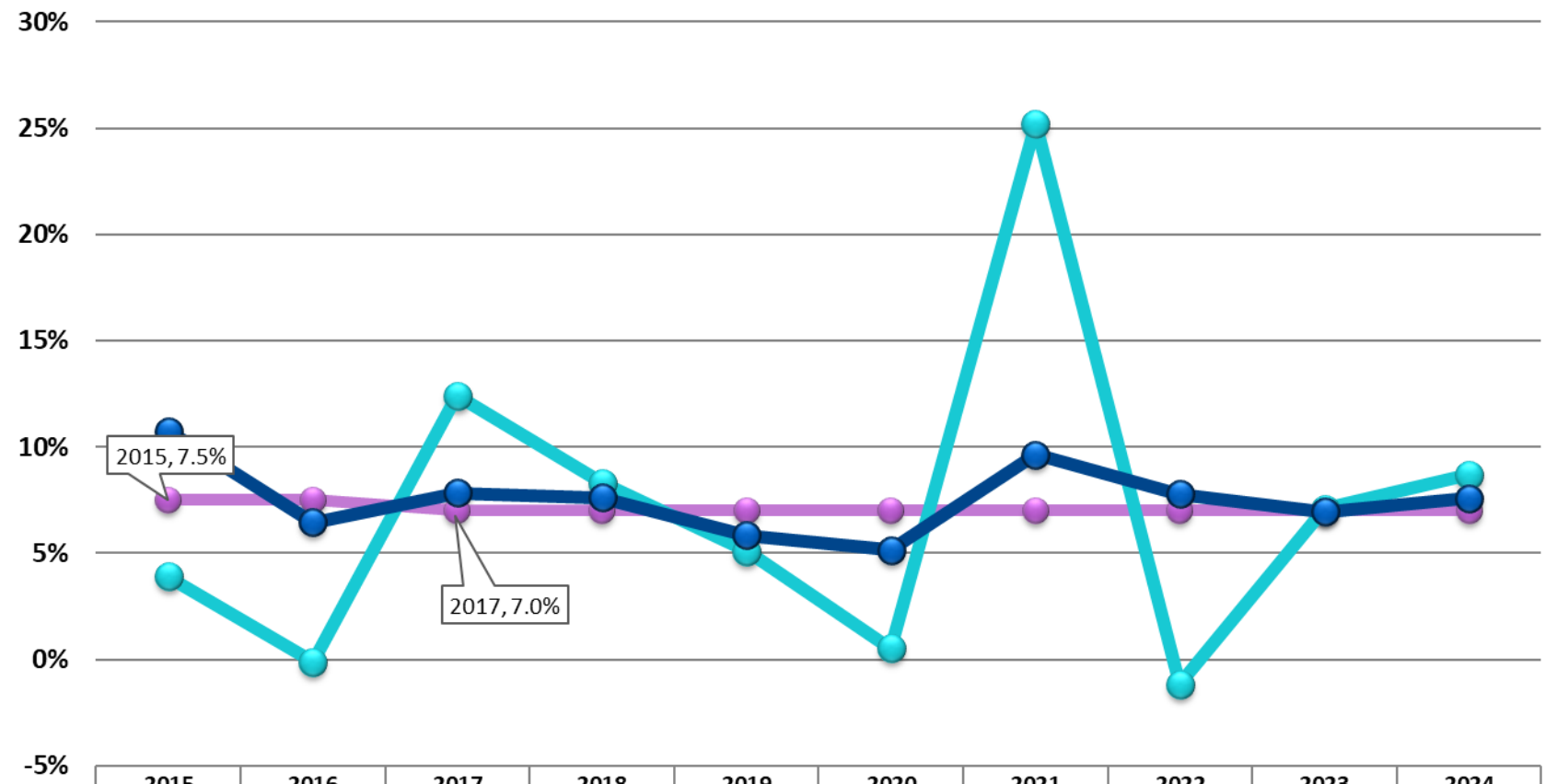
Note: Totals may not add to the dollar due to rounding

# Fair and Actuarial Values of Assets



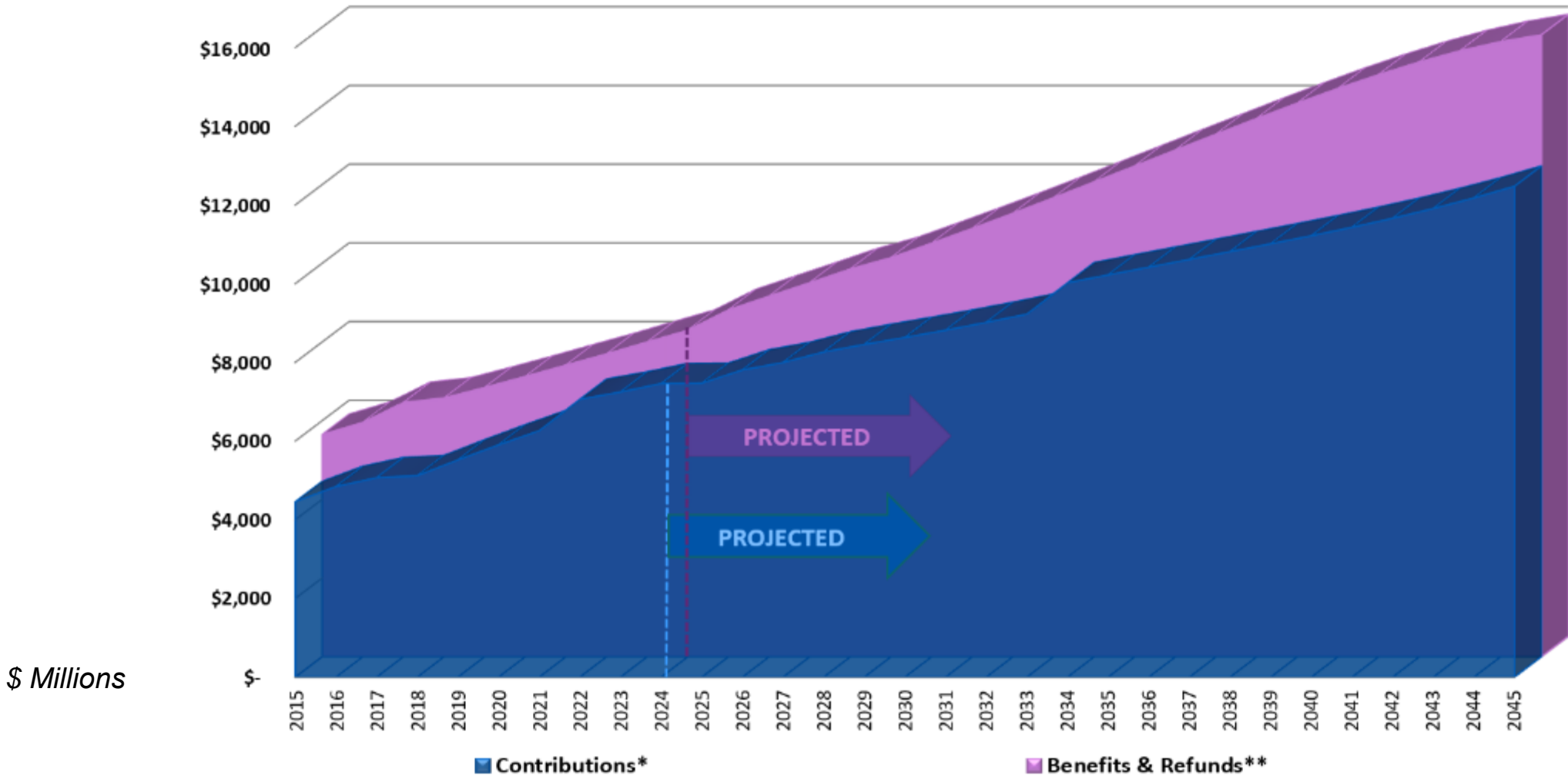
\$ Millions

# Asset Returns



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Assumed Rate of Return	7.5%	7.5%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%
Fair Value of Assets	3.9%	-0.1%	12.4%	8.3%	5.1%	0.5%	25.2%	-1.2%	7.1%	8.7%
Actuarial Value of Assets	10.8%	6.5%	7.8%	7.6%	5.8%	5.2%	9.7%	7.8%	7.0%	7.6%

# Contributions vs Disbursements



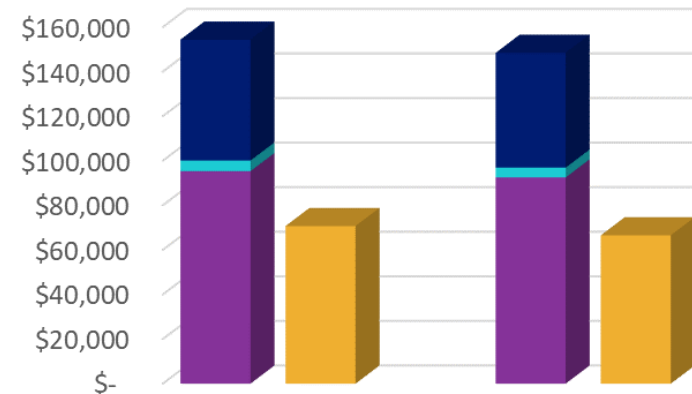
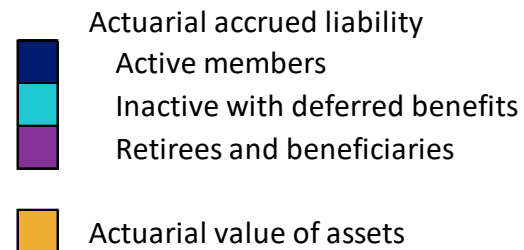
\* Includes member, employer and state contributions  
 \*\* Includes benefit payments, refunds and administrative expenses

# Valuation Results

## Comparison of current year to prior year (in millions)

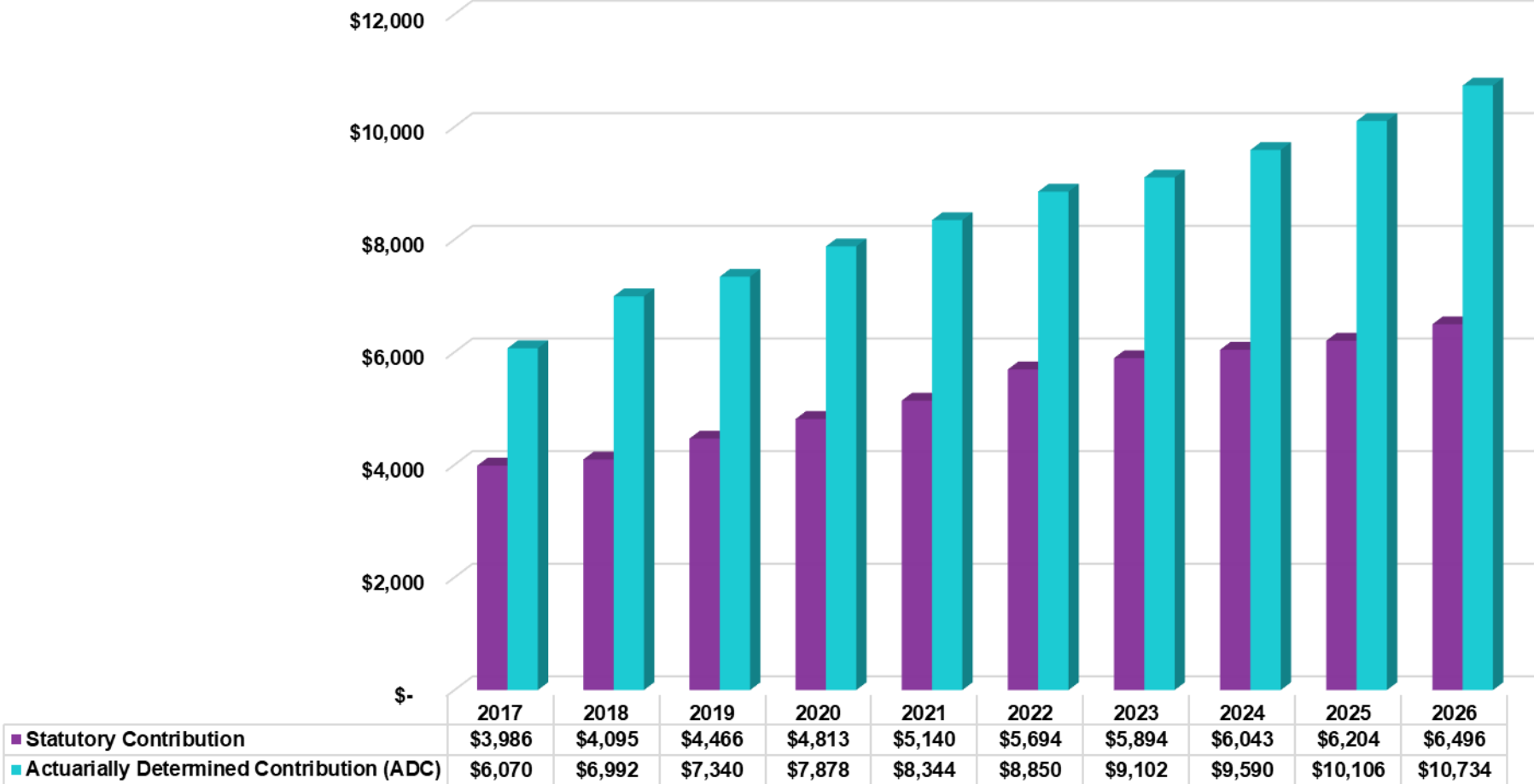
	June 30, 2024	June 30, 2023
<b>Actuarial Accrued Liability:</b>		
• Active Members	\$54,224	\$51,461
• Inactive Members with Deferred Benefits	4,779	4,421
• Retirees and Beneficiaries	<u>95,322</u>	<u>92,516</u>
<b>Total</b>	<b>\$154,325</b>	<b>\$148,398</b>
<b>Actuarial Assets</b>	<b><u>70,688</u></b>	<b><u>66,502</u></b>
<b>Unfunded Actuarial Accrued Liability</b>	<b>\$83,637</b>	<b>\$81,896</b>
<b>Funded Ratio</b>	<b>45.8%</b>	<b>44.8%</b>

Note: Totals may not add to the dollar due to rounding



# Valuation Results

Summary of State Contribution by Fiscal Year (in \$ thousands)



*The difference between the FY 2026 Statutory and the Board-Adopted Actuarial Funding Policy Contribution is \$4.24 billion, or, in other words, the Statutory Contribution is 61% of the Board-Adopted Actuarial Funding Policy Contribution.*

# Valuation Results

## Reconciliation of State Statutory Funding Plan Contribution from Fiscal Year 2025 to 2026 (in millions)

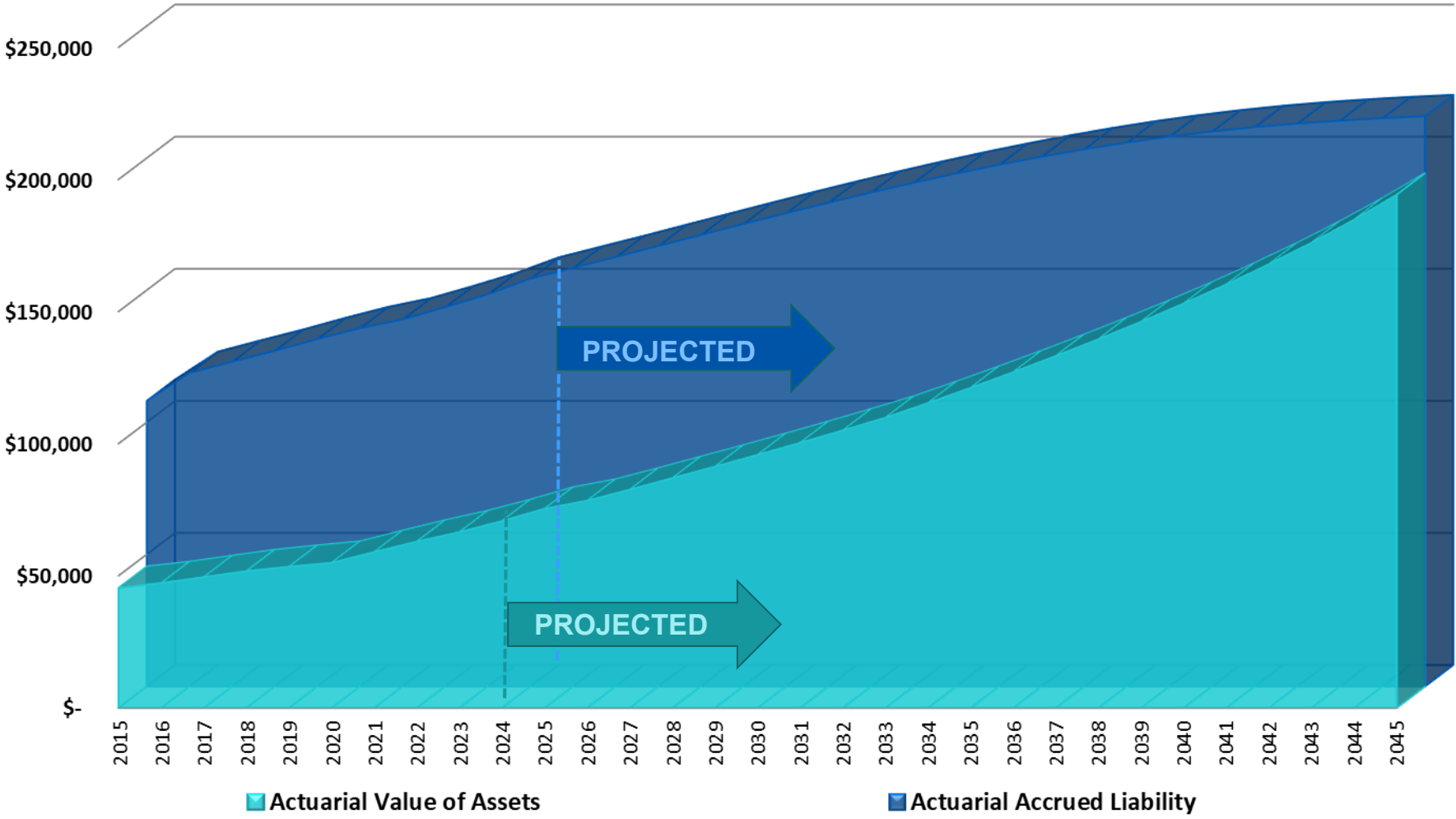
	Statutory Funding Contribution
FY 2025 State Contribution	\$6,204
Expected Increase	215
Investment Gain (FVA Basis)	(17)
Assumption Change Impact	14
All Other Net Actuarial Factors*	<u>80</u>
FY 2026 State Contribution	\$6,496

*\* The net impact of changes in active counts, projected payroll pattern, and the one-time additional contribution of \$115M per Public Act 103-0006*

Note that results in the table above could be observed to be slightly different based upon the order that the factors are observed. For this purpose, we have performed this reconciliation in the order as shown above.



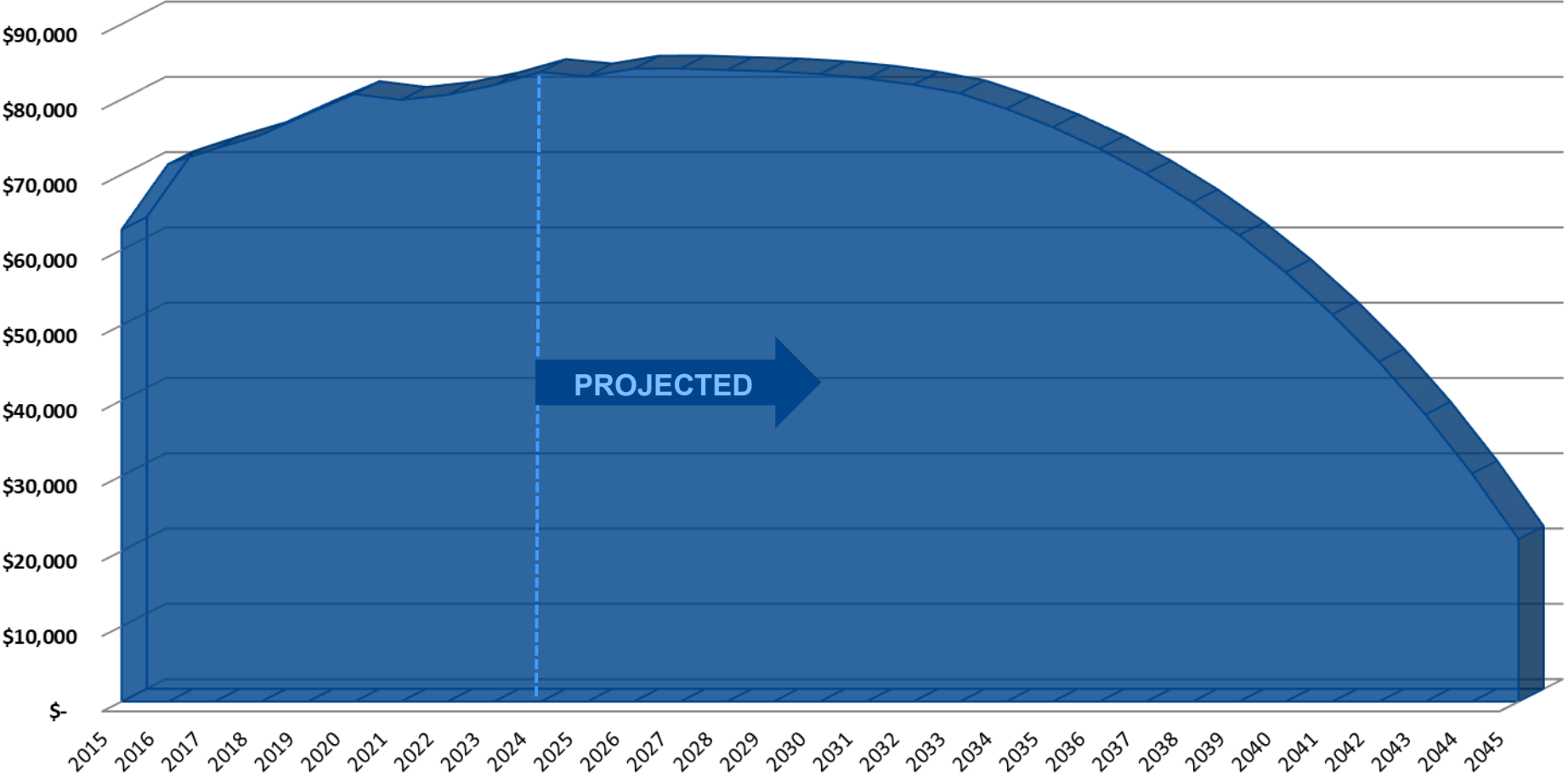
# Assets and Liabilities



\$ Millions

Projected results are based on current assumptions used for the June 30, 2024, valuation, including a level active population.

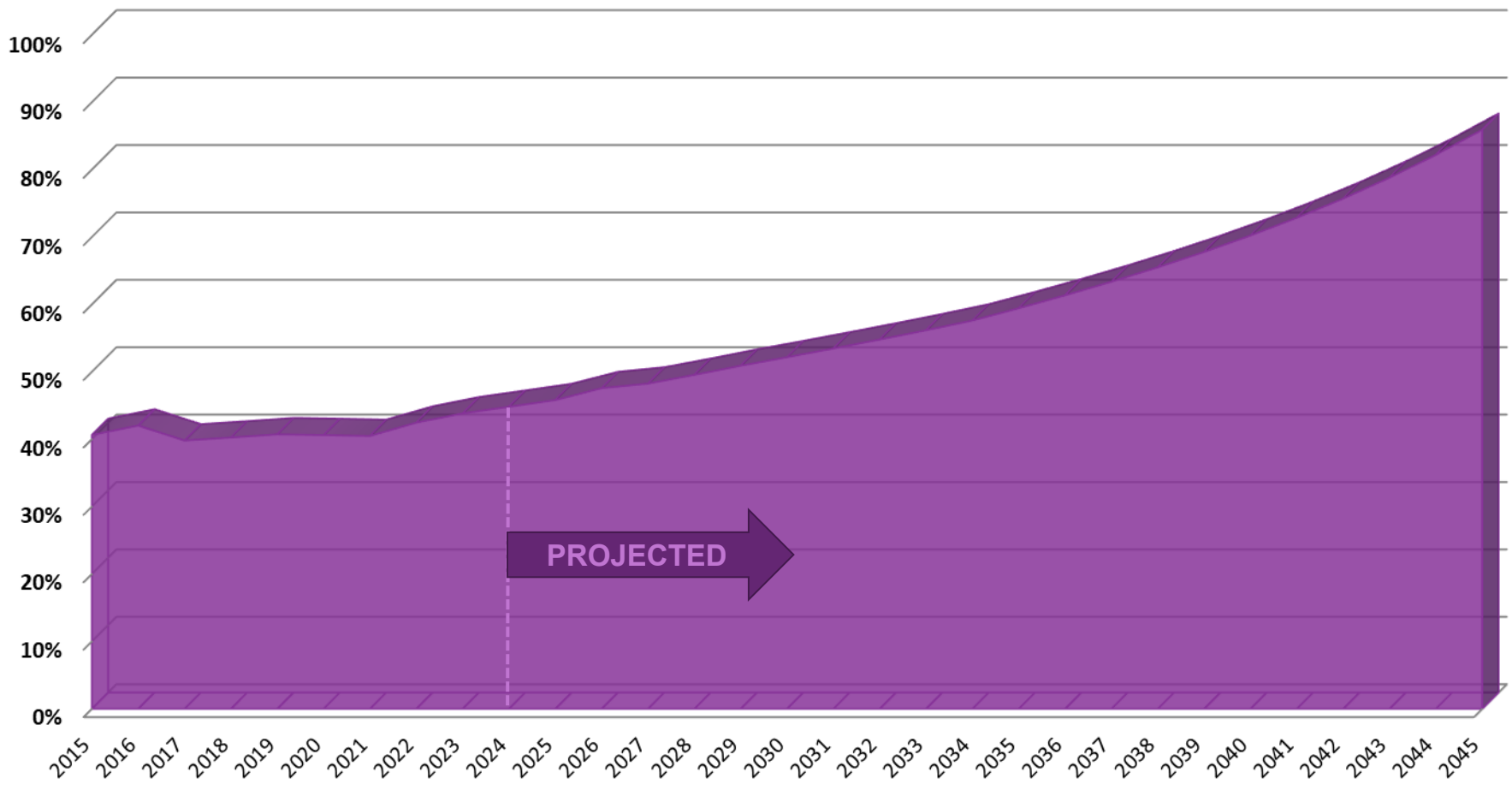
# Unfunded Actuarial Accrued Liability



\$ Millions

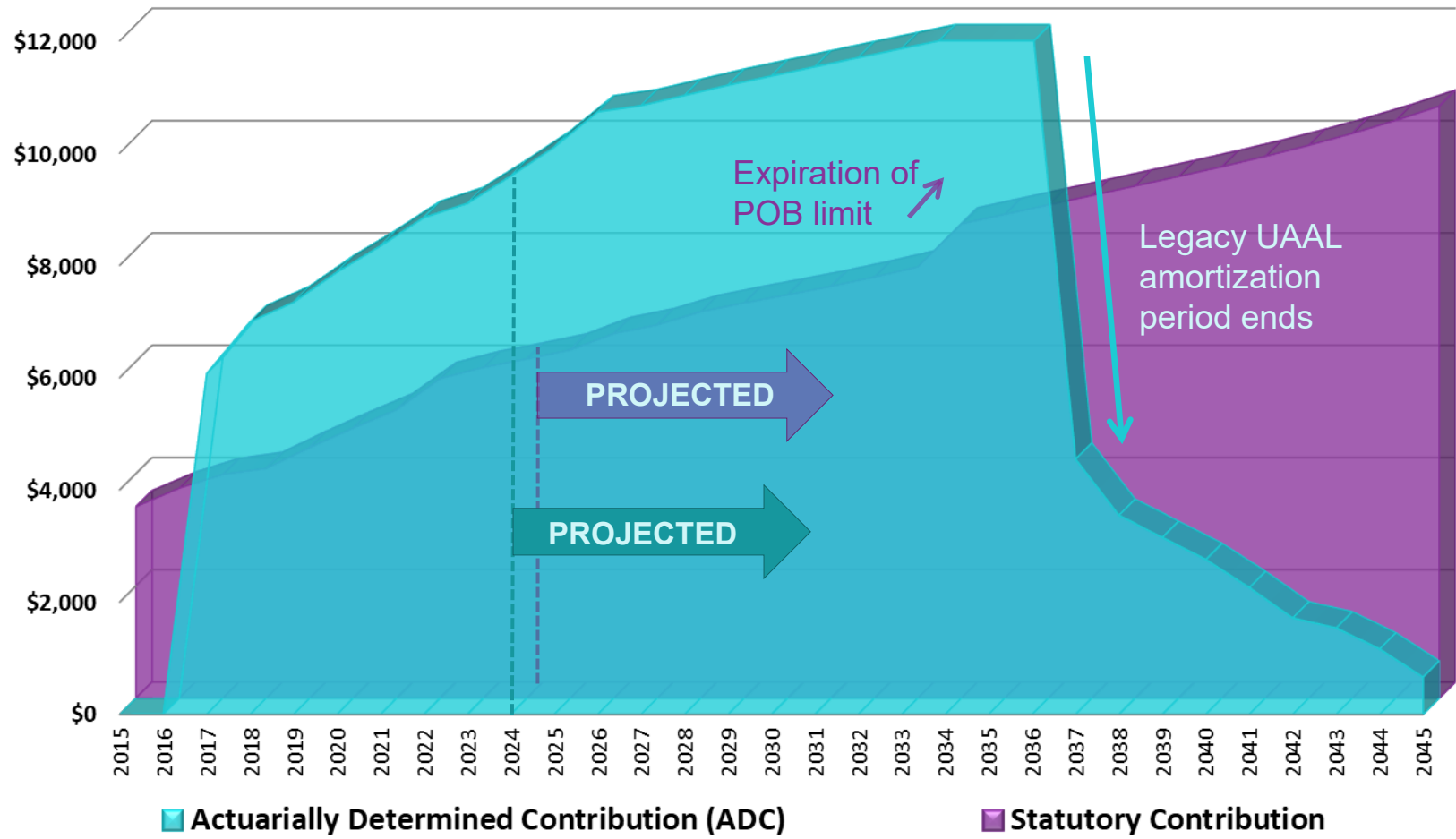
Projected results are based on current assumptions used for the June 30, 2024, valuation, including a level active population.

# Funded Ratio



Projected results are based on current assumptions used for the June 30, 2024 valuation, including a level active population.

# State Contributions



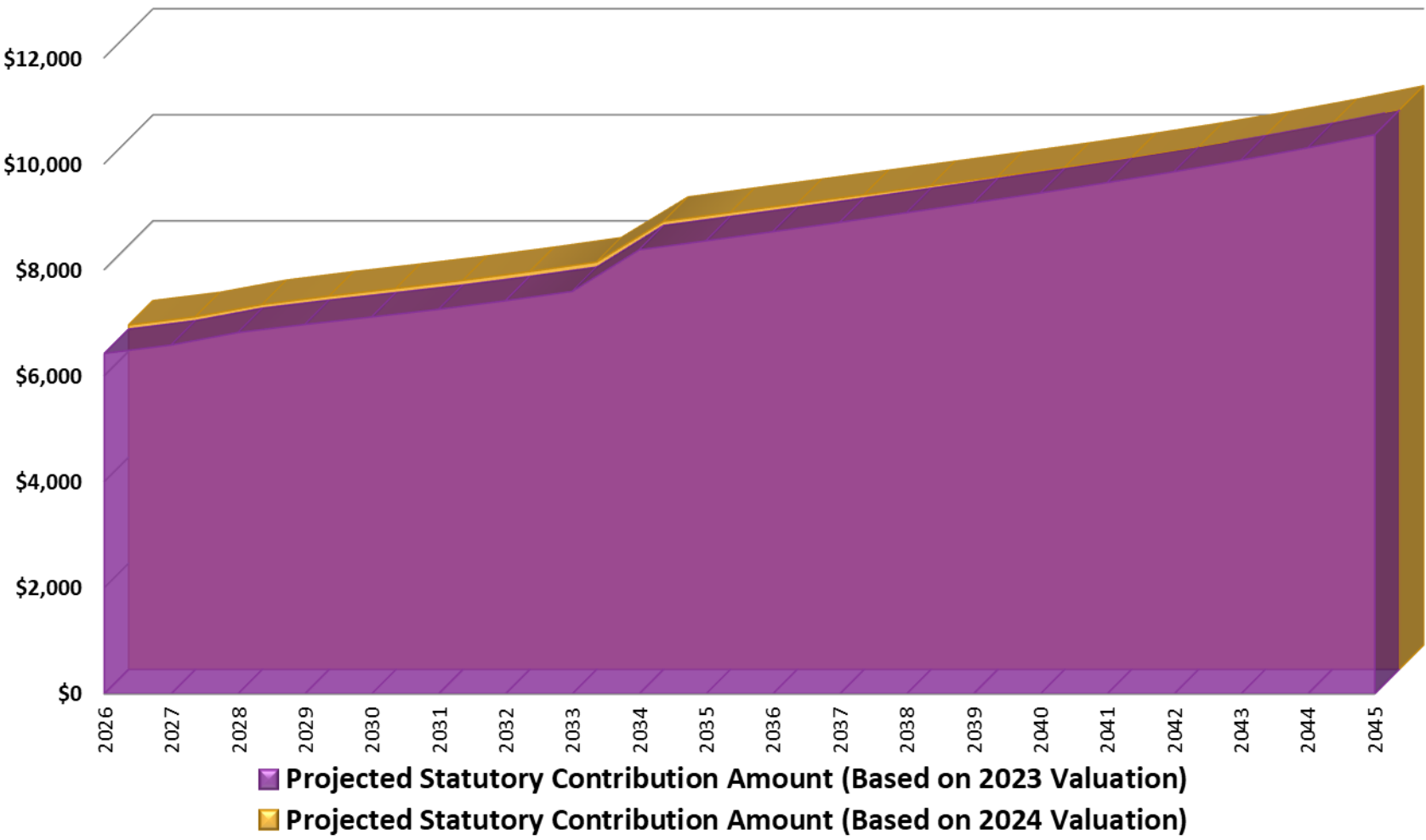
\$ Millions

Note: The Board-Adopted Actuarial Funding Policy is the ADC

- The cumulative Statutory contribution from FY 2026 through FY 2045 is \$177 billion
- The cumulative ADC contribution from FY 2026 through FY 2045 is \$158 billion

Projected results are based on current assumptions used for the June 30, 2024, valuation, including a level active population.

# Current Year vs. Prior Year Valuation



\$ Millions

Projected results are based on assumptions used for the respective June 30, 2023 and June 30, 2024 valuations, including a level active population.

# Summary of GASB Accounting Results

## GASB Information as of June 30 (\$ in millions)

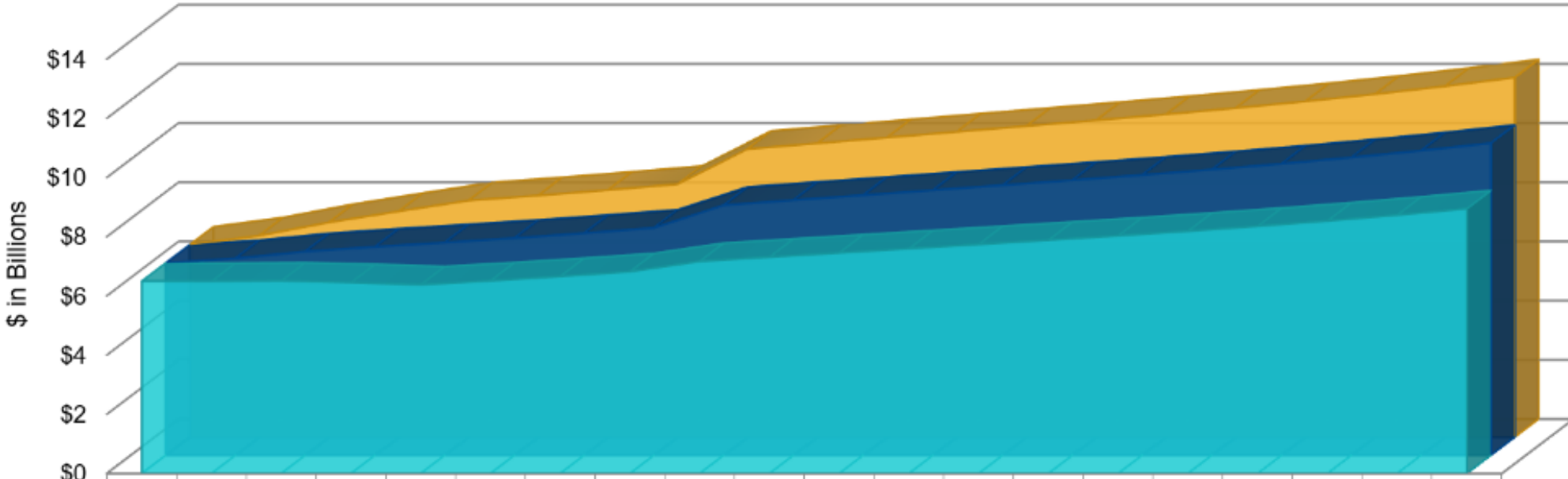
	2024	2023
Long-Term Expected Rate of Return	7.00%	7.00%
Municipal Bond Index	3.93%	3.65%
Single Equivalent Discount Rate	7.00%	7.00%
Total Pension Liability	\$157,290	\$151,485
Plan Fiduciary Net Position	<u>71,425</u>	<u>66,505</u>
Net Pension Liability	\$85,866	\$84,981
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	45.4%	43.9%
Total Pension Expense	\$6,899	\$7,060

Note: Totals may not add to the dollar due to rounding

# Sensitivity Projections

- The projected Statutory State contributions are determined based on an underlying assumption that the State will contribute the required amounts for all future years
  - Baseline projections of State contributions are also based on future investment returns of 7.0% per year
- To test the sensitivity of this assumption, we created projections based on the following scenarios:
  - Asset shock during FY 2025 (+14% / -14% return compared to baseline)
  - 10-year period of lower and higher asset return (+1% / -1% return each year compared to baseline)
- Projected results reflect an assumed level active population through FY 2045

# Sensitivity Projection of State Contributions –Scenario #1

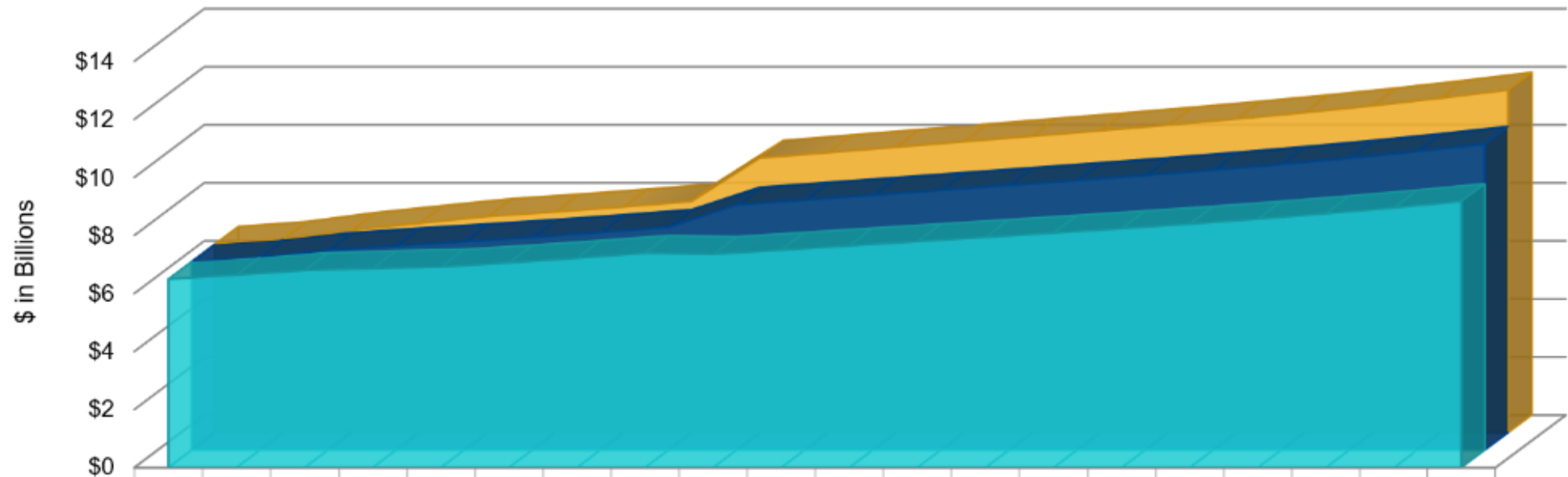


	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
■ 21% Return in FY2025	6.50	6.49	6.51	6.45	6.38	6.51	6.66	6.82	7.17	7.31	7.45	7.59	7.74	7.88	8.03	8.19	8.35	8.53	8.73	8.94
■ Baseline	6.50	6.65	6.88	7.04	7.19	7.34	7.50	7.68	8.45	8.62	8.79	8.95	9.12	9.29	9.47	9.65	9.85	10.06	10.29	10.55
■ -7% Return in FY2025	6.50	6.81	7.26	7.63	7.99	8.16	8.35	8.55	9.73	9.93	10.12	10.32	10.51	10.71	10.91	11.12	11.35	11.59	11.86	12.15

- The cumulative FY2026-FY2045 State contribution amounts would change by approximately \$22 billion if the FY2025 asset return differed by 14% compared to the baseline. Total contributions through 2045 are as follows:
  - 21% Return in FY2025, 7% thereafter: **\$148.23B**
  - Baseline (7% Return for all years): **\$169.89B**
  - -7% Return in FY 2025, 7% thereafter: **\$191.55B**



# Sensitivity Projection of State Contributions –Scenario #2



	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
■ 8% Returns for 10 Years	6.50	6.64	6.79	6.87	6.91	7.06	7.22	7.39	7.35	7.50	7.64	7.79	7.94	8.09	8.24	8.40	8.57	8.75	8.95	9.18
■ Baseline	6.50	6.65	6.88	7.04	7.19	7.34	7.50	7.68	8.45	8.62	8.79	8.95	9.12	9.29	9.47	9.65	9.85	10.06	10.29	10.55
■ 6% Returns for 10 Years	6.50	6.66	6.97	7.21	7.45	7.61	7.78	7.97	9.46	9.65	9.84	10.02	10.21	10.41	10.60	10.81	11.03	11.26	11.52	11.81

- The cumulative FY2026-FY2045 State contribution amounts would change by approximately \$15 billion if the 10-year asset returns differed by 1% compared to the baseline. Total contributions through 2045 are as follows:
  - 8% Returns for 10 Years, 7% thereafter: **\$153.78B**
  - Baseline (7% Return for all years): **\$169.89B**
  - 6% Returns for 10 Years, 7% thereafter: **\$184.77B**

# Appendix

- **FY 2026 State Contribution Certification Exhibit A**
- **FY 2026 THIS Fund Certification Exhibit B**

# Exhibit A

Summary of State Contributions under Illinois Pension Code and Board-Adopted Actuarial Funding Policy	Fiscal Year 2026
<b>Based on Statutory Funding Plan</b>	
• Benefit trust reserve	
– 50.54% of membership payroll <sup>1</sup>	\$6,695,382,824
– Less school districts contributions	
• (0.58% of membership payroll)	(76,838,015)
• (6.00% final average salary cap increases)	(9,845,000)
• (10.34% of membership payroll above the governor's salary)	(2,121,410)
– Less federal funds contribution	
• (10.34% of membership payroll from federal funds)	(27,396,727)
– Less phase-in of the effect of assumption changes	(83,664,008)
– State contribution	6,495,517,664
• Plus guaranteed minimum annuity reserve	200,000
• <b>Total state contribution (current law)</b>	<b>6,495,717,664</b>
<b>Based on Board-Adopted Actuarial Funding Policy<sup>2</sup></b>	
• Benefit trust reserve	
– Normal cost plus amortization	\$10,850,363,156
– Less school districts contributions	
• (0.58% of membership payroll)	(76,838,015)
• (6.00% final average salary cap increases)	(9,845,000)
• (10.34% of membership payroll above the governor's salary)	(2,121,410)
– Less federal funds contribution	
• (10.34% of membership payroll from federal funds)	(27,396,727)
– State contribution	\$10,734,162,004
• Less guaranteed minimum annuity reserve	200,000
• <b>Total state contribution</b>	<b>\$10,734,362,004</b>
<b>Total normal cost and employer normal cost rate and federal contribution rate</b>	
• Total normal cost rate (including administrative expenses)	19.34%
• Less member contribution rate	(9.00%)
• Employer normal cost rate	10.34%
• Federal contribution rate (employer normal cost rate, per Public Act 100-0340)	10.34%

<sup>1</sup> Expected Fiscal Year 2026 membership payroll is \$13,247,933,643

<sup>2</sup> Board-Adopted Actuarial Funding Policy is based on the entry age normal actuarial cost method, current asset valuation method and amortization policy as follows:

- 20-year closed amortization of the UAAL beginning Fiscal Year 2017
- Use layered amortization with new UAAL after FY 2017 being amortized over 20 years regardless of source
- Amortization payment increase at the rate of future State revenue growth (assumed to be 2.00%)
- Minimum total contribution is no less than the normal cost in any given year

# Exhibit B

Teacher Health Insurance Security (THIS) Fund Contribution Amount to be Certified by the Board		Fiscal Year 2026
<b>Expected State Contribution to THIS Fund</b>		
• Membership payroll		
– Total		\$13,247,933,643
– Less members who do not contribute to THIS Fund		(76,165,992)
– Members who do contribute to THIS Fund		13,171,767,651
• Member contribution rate (actual, from CMS)		0.90%
• Matching state contribution		\$118,545,909
• Adjustment for underestimating fiscal year 2024 THIS Fund member contributions		4,649,165
• <b>Total THIS Fund state contribution<sup>1</sup></b>		<b>123,195,074</b>

<sup>1</sup> This certification does not include other state contributions to THIS Fund which are not part of the statutory certification requirement

- Illinois Statute requires the TRS Board to certify the THIS Fund State contribution amount by November 15 each year
- State contribution amount is based on the projected 2026 payroll from the June 30, 2024 valuation

# Caveats

*This presentation is based on the preliminary results of the June 30, 2024, actuarial valuation performed for the Board of Trustees of the Teachers' Retirement System of the State of Illinois . The preliminary actuarial valuation report has information on the plan provisions, data, methods and assumptions used in the valuation. Use of the information in this presentation is subject to the caveats described in that document. The measurements in this presentation may not be appropriate for purposes other than those described in the actuarial valuation report.*

*Segal valuation results are based on proprietary actuarial modeling software. The actuarial valuation models generate a comprehensive set of liability and cost calculations that are presented to meet regulatory, legislative and client requirements. Deterministic cost projections are based on our proprietary forecasting model. Our Actuarial Technology and Systems unit, comprised of both actuaries and programmers, is responsible for the initial development and maintenance of these models. The models have a modular structure that allows for a high degree of accuracy, flexibility and user control. The client team programs the assumptions and the plan provisions, validates the models and reviews test lives and results, under the supervision of the responsible actuary.*