



State Universities Retirement System of Illinois

Actuarial Valuation Report as of
June 30, 2023





November 7, 2023

Board of Trustees
State Universities Retirement System of Illinois
1901 Fox Drive
Champaign, Illinois 61820

Dear Members of the Board:

At your request, we present the report of the actuarial valuation of the State Universities Retirement System of Illinois ("SURS") as of June 30, 2023. GRS has prepared this report exclusively for the Trustees of the State Universities Retirement System of Illinois; GRS is not responsible for reliance upon this report by any other party. This report may be provided to parties other than SURS only in its entirety and only with the permission of the Trustees.

This actuarial valuation provides information on the funding status and the contribution requirements of SURS. This actuarial valuation includes a determination of the statutory State contribution requirement (the "Statutory Contribution") for the fiscal year ending June 30, 2025, and provides estimates of Statutory contributions for subsequent years under Section 15-155 of the SURS Article of the Illinois Pension Code as amended by the provisions of Public Act ("PA") 100-0023 and 100-0587. SURS is currently not moving forward with the implementation of the Optional Hybrid Plan (OHP) created under PA 100-0023. Additional clarifying legislation is needed for SURS to be able to do so. Therefore, provisions related to the OHP are not reflected in this actuarial valuation. Information required by Governmental Accounting Standards Board ("GASB") Statement Nos. 67 and 68 is provided in a separate report. This report should not be relied on for any purpose other than the purpose described herein.

This actuarial valuation is based on the provisions of SURS in effect as of June 30, 2023, data on the SURS membership and information on the asset value of the trust fund as of that date. The actuarial valuation was based upon the information furnished by SURS staff, concerning SURS benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by SURS.

Public Act 103-0080, effective June 9, 2023, created a line of duty disability benefit for police officers injured in the line of duty on or after January 1, 2022 and was first reflected in the actuarial valuation as of June 30, 2023.

50% of the total disability rates were assumed to be line of duty related and the remaining 50% of the total disability rates were assumed to be non-duty related for police officers (as a result of the newly

created line of duty disability benefit which required this assumption). The actuarial cost method (Projected Unit Credit, as required by statute) and the asset smoothing method (also as required by statute) and all other assumptions and methods used in this actuarial valuation are unchanged from the prior June 30, 2022 actuarial valuation of SURS. Economic and demographic actuarial assumptions are based on recommendations from the experience study report covering the period June 30, 2017 through June 30, 2020.

The actuarial assumptions were adopted by the Board pursuant to Section 15-155 of 40 ILCS 5 of the Illinois Pension Code. In our opinion, the actuarial assumptions are reasonable for the purpose of the measurement. The combined effect of the assumptions is expected to have no significant bias (i.e. not significantly optimistic or pessimistic). All actuarial assumptions and methods used in the valuation follow the guidance in the applicable Actuarial Standards of Practice. Additional information about the actuarial assumptions is included in Appendix G of this report entitled Actuarial Methods and Assumptions.

To the best of our knowledge, this actuarial statement is complete and accurate, fairly presents the actuarial position of SURS as of June 30, 2023, and has been prepared in accordance with generally accepted actuarial principles and practices, with the Actuarial Standards of Practice issued by the Actuarial Standards Board and with applicable statutes.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; 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, contribution amounts or applicable law. Due to the limited scope of the actuary's assignment, the actuary did not perform an analysis of the potential range of such future measurements in this report.

Actuarial valuations do not affect the ultimate cost of the Plan, only the timing of contributions into the Plan. Plan funding occurs over time. If the contribution levels over a period of years are lower or higher than necessary, it is normal and expected practice for adjustments to be made to future contribution levels to take account of this variance, with a view to funding the plan over time.

Although prior year statutory contribution requirements were met, the statutory funding method generates a contribution requirement that is less than a reasonable actuarially determined contribution.

Meeting the statutory requirement does not mean that the undersigned agree that adequate actuarial funding has been achieved; we recommend the development of and adherence to a funding policy that funds the normal cost of the plan, as well as an amortization payment that would seek to pay off the total unfunded accrued liability by 2045 or sooner if possible.

This report was prepared using our proprietary valuation model and related software and spreadsheet models used to calculate the statutory contributions in each future year through 2045 under the SURS statutory funding policy. In our professional judgment, the models used have the capability to provide




results that are consistent with the purposes of the valuation and have no material limitations or known weaknesses. We performed tests to ensure that the models reasonably represent that which is intended to be modeled.

The signing actuaries are independent of the plan sponsor.

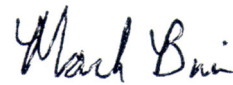
Amy Williams, Mark Buis and Kevin Noelke are Members of the American Academy of Actuaries (“MAAA”) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Respectfully submitted,

Gabriel, Roeder, Smith & Company



Amy Williams, ASA, FCA, MAAA
Senior Consultant



Mark Buis, FSA, EA, FCA, MAAA
Senior Consultant



Kevin Noelke, ASA, FCA, MAAA
Consultant

AW/MB/KN:dj



Table of Contents

Pages

Summary of the Actuarial Valuation

1-2	Executive Summary
3-10	Summary of the Actuarial Valuation
10-13	Recommendations
13	GASB Disclosure
13	Future Considerations
14	Actuarial Standards of Practice (ASOP) 4 Disclosures
15-19	Risk Associated with Measuring the Accrued Liability and Contributions
20-21	Low-Default-Risk Obligation Measure

Appendix A: Asset Information

22	Table 1 – Statement of Plan Net Position
23	Table 2 – Statement of Changes in Plan Net Position

Appendix B: Membership Data

24-28	Table 3A-3E – Summary of Data Characteristics
29	Table 4 – Distribution of Full-Time Active Members by Age and Years of Service
30	Table 5 – Distribution of Benefit Recipients by Age

Appendix C: Actuarial Determinations

31	Table 6 – Summary of Actuarial Values
32	Table 7 – Defined Benefit Plan Development of the Actuarial Value of Assets
33	Table 8 – Analysis of Change in Actuarial Accrued Liability and Actuarial Value of Assets
34	Table 9 – Analysis of Change in Unfunded Actuarial Accrued Liability
35	Table 10 – Analysis of Actuarial (Gains) and Losses
36	Table 11 – Funded Ratio and Illustrative Contributions under Funding Policy of Net Normal Cost Plus Level Percentage of Payroll Amortization of Unfunded Liability

Appendix D: Actuarial Projections

37	Table 12 – Baseline Projections
38	Graph 1 – Projected Funded Ratio Based on Statutory Contributions
39	Graph 2 – Projected Actuarial Accrued Liabilities
40	Graph 3 – Projected Benefit Payments
41	Graph 4 – Projected Cash Flows
42	Graph 5 – Projected Non-Investment Cash Flows as a Percent of Assets
43	Table 13 – Projected Statutory Contributions Before Impact of Bonds Issued in 2004
44	Table 14 – Projected Statutory Contributions Including Impact of Bonds Issued in 2004
45	Graph 6 – Projected Statutory Contributions vs. Contributions under Alternate Policy



Table of Contents

Appendix E: Additional Projection Details

- 46 Table 15 – Projections Including Impact of Bonds Issued in 2004 (Does Not Reflect Recognition of Deferred Asset Gains and Losses in Projected Actuarial Value of Assets)
- 47 Table 16 – Development of Market and Actuarial Value of Assets as of June 30, 2023, after Bonds (Valuation Basis) and before Bonds (Hypothetical Basis)
- 48 Table 17 – Projections Before Impact of Bonds Issued in 2004 (Reflects Recognition of Deferred Asset Gains and Losses in Projected Actuarial Value of Assets)
- 49 Table 18 – Projections Before Impact of Bonds Issued in 2004 (Does Not Reflect Recognition of Deferred Asset Gains and Losses in Projected Actuarial Value of Assets)
- 50 Table 19 – Additional Details – Total Normal Cost Dollars
- 51 Table 20 – Additional Details – Normal Cost Rates
- 52 Table 21 – Additional Details – Number of Members, Contributions and Payroll
- 53 Table 22 – Additional Details – Present Value of Future Benefits and Benefit Payments
- 54 Table 23 – Additional Details – Actuarial Accrued Liability and Employer Normal Cost Dollars
- 55 Table 24 – Additional Details – Payroll and Payroll in Excess of Governor’s Pay
- 56 Table 25 – Additional Details – Statutorily Required Employer Contributions

Appendix F: Historical Schedules

- 57 Table 26 – Historical Schedule of Funding Status
- 58 Table 27 – Historical Comparison of ARC and State Contributions
- 59 Table 28 – Historical Schedule of Contributions

Appendix G: Actuarial Methods and Assumptions

- 60 Projected Unit Credit Method
- 60-61 Funding Policy to Calculate Statutory Contributions
- 61 Statutory Contributions Related to the Optional Hybrid Plan
- 61-62 Phase In of the Financial Impact of Assumption Changes
- 62 Contribution Related to Pay in Excess of Governor’s Pay
- 63 Asset Valuation Method
- 64-74 Actuarial Methods and Assumptions

Appendix H: Summary of Benefit Provisions of SURS

Appendix I: Glossary of Terms

Appendix J: Stress Testing Scenarios



SUMMARY OF THE ACTUARIAL VALUATION

Executive Summary

(\$ in Millions)

Actuarial Valuation Date:	June 30, 2022		June 30, 2023	
Fiscal Year Ending:	June 30, 2024		June 30, 2025	
Estimated Statutory Contribution:		% of Payroll ⁷		% of Payroll ⁷
· Defined Benefit Plan Contribution Amount ¹	\$ 2,091.135	40.41%	\$ 2,167.649	39.30%
· Retirement Savings Plan Contribution Amount ¹	94.893	1.83%	100.345	1.82%
· Total Qualified Plan Contribution Amount	\$ 2,186.028	42.24%	\$ 2,267.994	41.12%
· Excess Benefit Arrangement (EBA) Contribution Amount ²	17.300	0.33%	18.300	0.33%
· Deferred Compensation Plan (DCP) Administrative Expense	0.500	0.01%	0.490	0.01%
· Combined State and Employer Contribution Amount	\$ 2,203.828	42.59%	\$ 2,286.784	41.46%
Estimated Statutory Contribution from Other Sources:				
· Federal/Trust Contribution Amount ⁶	\$ 65.500		\$ 70.500	
· Employer Contribution Amount Related to - Compensation in Excess of Governor's	\$ 4.993		\$ 3.474	
Net State Contribution:				
· Net Dollar Amount (Including EBA Contribution)	\$ 2,133.335	41.23%	\$ 2,212.810	40.12%
Actuarially Determined Contribution (ADC): ^{3,4}				
· Defined Benefit Plan Contribution Amount	\$ 2,527.245	48.84%	\$ 2,617.835	47.47%
· Defined Benefit Plan Contribution Amount as % of ADC	82.74%		82.80%	
Membership				
· Number of				
- Active Members (full time and part time)	73,307		74,645	
- Members Receiving Payments ³	71,458		72,580	
- Inactive Members	98,551		100,738	
- Total	243,316		247,963	
· Covered Capped Payroll Provided as of Valuation Date (Total)	\$ 4,714.667		\$ 5,013.132	
· Covered Capped Payroll Provided as of Valuation Date (DB)	3,567.480		3,791.363	
· Projected Capped Payroll for Fiscal Year (Total)	5,174.795		5,515.213	
· Defined Benefit Plan Capped Payroll ⁵	3,613.383		3,744.813	
· Annualized Benefit Payments for Year Ended on the Valuation Date ³	2,870.951		2,976.876	

¹ RSP contributions are net of RSP forfeitures of \$8,394,000 for fiscal year 2024 and of \$8,978,000 for fiscal year 2025. Projected Retirement Savings Plan (RSP) contribution is updated based on the most recent actuarial valuation. Contribution amount for SURS defined benefit plans is the total qualified plan statutory contribution minus the RSP contribution.

² Amounts provided by SURS.

³ Excludes RSP.

⁴ 30-year initial closed period (21 years remaining as of June 30, 2023, applicable to the fiscal year 2025 contribution). Amount is updated to reflect actual employee contributions received during the year ending on the valuation date.

⁵ Payroll for the year ending on the valuation date. Defined benefit payroll is based on the employee contributions in the financial statements for the fiscal year and an employee contribution rate of 8.00%.

⁶ Pay increases in excess of 6% during FAS period for fiscal year 2024 and 2025 are included in the Federal/Trust Contribution Amount.

⁷ Percent of projected capped payroll.



Executive Summary

(\$ in Millions)

Actuarial Valuation Date:	June 30, 2022	June 30, 2023
Assets ¹		
· Market Value of Assets (MVA)	\$ 22,523.123	\$ 23,193.248
· Actuarial Value of Assets (AVA)	22,554.752	23,381.241
· SURS Reported Market Value Rate of Return	-1.36%	5.34%
· Estimated Return on MVA	-2.92%	5.99%
· Estimated Return on AVA	7.68%	6.69%
· Ratio – AVA to MVA	100%	101%
Actuarial Information ²		
· FY 2023/2024 Total Normal Cost Rate	20.54%	19.99%
· FY 2023/2024 Employer Normal Cost Rate ³	12.53%	11.98%
· FY 2023/2024 Employer Normal Cost Amount	\$ 463.918	\$ 472.041
· Actuarial Accrued Liability (AAL)	49,869.932	51,050.783
· Unfunded Actuarial Accrued Liability (UAAL)	27,315.180	27,669.542
· Funded Ratio based on AVA	45.23%	45.80%
· UAAL as % of Defined Benefit Plan Capped Payroll	755.94%	738.88%
· Funded Ratio based on MVA	45.16%	45.43%
· Defined Benefit Plan Capped Payroll ³	3,613.383	3,744.813

¹ Amounts provided by SURS.

² Excludes RSP.

³ Payroll for the year ending on the valuation date. Defined benefit payroll is based on the employee contributions in the financial statements for the fiscal year and an employee contribution rate of 8.00%.



Summary of the Actuarial Valuation

At your request, we have performed an actuarial valuation of the State Universities Retirement System of Illinois (“SURS”) as of June 30, 2023.

The purposes of this actuarial valuation are as follows:

- To determine the funding status of SURS as of the valuation date based on the market value of assets and the actuarial value of assets; and
- To develop the level of contributions required under Section 15-155 of the SURS Article of the Illinois Pension Code as amended by the provisions of PA 100-0023 and PA 100-0587, (1) for the fiscal year ending June 30, 2025, and (2) to estimate contributions required under that Section for subsequent years of the funding period ending in the year 2045.

Accounting information required under Governmental Accounting Standards Board (“GASB”) Statement Nos. 67 and 68 is presented in a separate report.

Report Highlights

The Statutory contribution (including the employer contribution and federal and trust fund contributions) for FY 2025 is \$2.287 billion (\$2.268 billion excluding the EBA contribution and the Deferred Compensation Plan (DCP) projected administrative expense) and includes the State’s projected FY 2025 normal cost of \$461.1 million, an unfunded liability contribution of \$1.707 billion, a contribution to fund benefits from the Excess Benefit Arrangement (“EBA”) of \$18.3 million, a contribution to fund the administrative expenses of the DCP of \$0.5 million and the Retirement Savings Plan (“RSP”) contribution of \$100.3 million. The 2022 actuarial valuation had projected the Statutory contribution would increase, from \$2.186 billion for FY 2024 to \$2.235 billion for FY 2025 (excluding EBA and DCP administrative expense contributions). The primary reason for the slight increase in the Statutory contribution of about \$33 million over the projected amount from the prior actuarial valuation is due to higher projected payroll than expected from the 2022 actuarial valuation.

Over the past 10 years, SURS experienced investment gains on a market value basis (compared to the actuarial assumption) in fiscal years 2014, 2017, 2018 and 2021. However, SURS incurred investment losses (or shortfalls in return compared to the actuarial assumption) in fiscal years 2015, 2016, 2019, 2020, 2022 and 2023. The market return for the year ending June 30, 2023, was approximately 5.34% and was -1.36% in FY 2022. The average market value investment return over the most recent 10 years has been approximately 7.6%.

The funded ratio increased slightly from 45.2% as of June 30, 2022, to 45.4% as of June 30, 2023, based on the market value of assets, and increased from 45.2% as of June 30, 2022, to 45.8% as of June 30, 2023, based on the actuarial value of assets. The approximately \$188.0 million in net deferred asset losses will be recognized in the actuarial value of assets over the next four years.

The ratio of the market value of assets of the SURS defined benefit plan to the annual deductions (consisting of benefit payments, refunds of contributions and administrative expenses) and sometimes referred to as the liquidation ratio is about 7.5.



Summary of the Actuarial Valuation

This means that less than eight years of retiree benefit payments can be paid from current assets. The ability to make such payments beyond that period is heavily dependent upon future State and employer contributions and future investment return.

Actuarial Assumptions

The asset valuation method was changed from market value of assets to actuarial value of assets effective with the actuarial valuation as of June 30, 2009, as required by statute.

50% of the total disability rates were assumed to be line of duty related and the remaining 50% of the total disability rates were assumed to be non-duty related for police officers (as a result of the legislation enacted in fiscal year 2023 that created a line of duty disability benefit which required this assumption). All other assumptions were first adopted by the Board for use with the actuarial valuation as of June 30, 2021 and were based on the recommendations from the experience study review performed for the period from June 30, 2017 through June 30, 2020 and remain unchanged from the prior actuarial valuation as of June 30, 2022. An experience review will be completed for the three-year period June 30, 2020, through June 30, 2023 prior to the next actuarial valuation.

The assumption for members electing the accelerated pension benefit payment options is 0%. The rationale for this assumption can be found in a separate letter issued to the Board. Buyout election statistics can be found on page 73.

A complete description of the assumptions can be found in Appendix G of the report.

In addition, we have assumed that the Statutory contribution will be calculated as a level percentage of pensionable payroll. Pensionable payroll for members hired on or after January 1, 2011 is limited by the pay cap for Tier 2 members. The basis for this assumption comes from 40 ILCS 5/1-160 (b-5) for Tier 2.

SURS Benefits

Public Act 103-0080 created a line of duty disability benefit for police officers injured in the line of duty on or after January 1, 2022. All other benefit provisions valued in this June 30, 2023 actuarial valuation are identical to those valued in the prior actuarial valuation as of June 30, 2022.

SURS has established the Deferred Compensation Plan (DCP), a defined contribution plan, in accordance with Public Act 100-0769. The DCP is an optional benefit to any member who chooses to participate.

Projected administrative expenses for this plan are included in the Statutory contribution. Other costs are not reflected in this valuation.

Experience During 2023

The System assets earned approximately 5.34% on a market value basis during FY 2023, which was less than the investment return assumption of 6.50% for FY 2023. The System assets earned 6.69% on an actuarial value of assets basis during FY 2023, due to recognition of a portion of current year asset losses and net deferred investment gains from prior years under the asset smoothing method. Because 6.69% is more than the assumed rate of investment return of 6.50% for FY 2023, there was an asset gain of \$41.5 million on the actuarial value of assets.



Summary of the Actuarial Valuation

The experience of the population determines the liability gain or loss for the year. There was a net loss of \$344.5 million from actuarial liabilities, which is comprised of a loss of approximately \$50.6 million from demographic experience, and a loss of \$293.9 million from higher than expected pay increases.

From last year to this year, there were demographic losses from termination, disabilities and active and retiree mortality experience and a gain from retirements. Other assumptions not easily attributable to one of the other categories generated an actuarial loss.

The SURS defined benefit programs experienced an overall actuarial loss of \$303.0 million.

See Table 10 (page 35), Appendix C, for detail of the gains and losses by source.

The changes in disability benefit provisions that were legislated for police officers increased the actuarial liabilities by \$0.1 million.

The estimated reduction in the actuarial liabilities due to the buyouts during fiscal year 2023 is \$10.9 million.

There was a contribution made during fiscal year 2023 of \$38.8 million from the Pension Stabilization Fund in addition to the fiscal year 2023 statutory contribution.

Statutory Appropriations for the 2025 Fiscal Year and Beyond

Section 15-155, which governs the development of Employer/State contributions to SURS, provides that:

1. Employer/State contributions are determined under the following process:
 - a) The overall objective of the statute is to achieve a funded ratio of 90% by the end of fiscal year ("FY") 2045.
 - b) The Employer/State contribution for FY 2012 and each year thereafter to and including FY 2045 is to be based on a (theoretically) constant percentage of the payroll¹ of active members of SURS based on the actuarial value of assets at the actuarial valuation date and assuming the actuarial value of assets earns the assumed investment return in the future.

¹ We have assumed the contribution would be based on pensionable payroll. Pensionable payroll for members hired on or after January 1, 2011, is limited by the pay cap.

- i. Requires any change in an actuarial assumption that increases or decreases the required State contribution to be implemented in equal annual amounts over a five-year period beginning in the State fiscal year in which the change first applies to the required State contribution.
 - o For changes that first applied in FY 2014, FY 2015, FY 2016 or FY 2017, the impact is calculated based on a five-year period and the applicable portion is recognized during the remaining fiscal years in that five-year period.

Summary of the Actuarial Valuation

- ii. Required the State to make additional contributions to SURS in FY 2018, FY 2019 and FY 2020 equal to 2% of the total payroll of each employee who participates in the Optional Hybrid Plan or who participates in the Tier 2 Plan in lieu of the Optional Hybrid Plan.
 - iii. Requires employers to make contributions as follows:
 - Requires employers to contribute the employer normal cost of the portion of an employee's earnings that exceeds the amount of salary set for the governor, for academic years beginning on or after July 1, 2017. (Applicable to Tier 1 and Tier 2 employees.)
 - Requires employers to contribute for each employee of the employer who participates in the Optional Hybrid Plan or participates in the Tier 2 Plan in lieu of the Optional Hybrid Plan.
 - 1) The employer normal cost for Fiscal Years 2018, 2019 and 2020.
 - 2) The employer normal cost plus two percent of pay for Fiscal Years 2021 and thereafter.
 - 3) Beginning in FY 2018, the amount for that fiscal year to amortize any unfunded actuarial accrued liability attributable to the defined benefits of the employer's employees who first became participants on or after the implementation date of the Optional Hybrid Plan and the employer's employees who were previously Tier 2 participants but elected to participate in the Optional Hybrid Plan, determined as a level percentage of payroll over a 30-year rolling amortization period.
 - 4) For academic years beginning on or after July 1, 2018, and for earnings paid under a contract or collective bargaining agreement entered into, amended or renewed on or after the effective date of the amendatory Act, if a participant's earnings for any academic year with the same employer as the previous academic year used to determine the final average salary increased by more than 3.00%, then the participant's employer shall pay the System the present value of the increase in benefits resulting from the portion of the increase in earnings that is in excess of 3.00%. Prior to the effective date of Public Act 100-0587, the payment from employers was for pay increases in excess of 6.00%.
 - c) After 2045, the Employer/State contribution rate is to be sufficient to maintain the funding level at 90%.
 - Employers continue to make the required normal cost and unfunded liability contributions.
 - The financial impact of changes in actuarial assumptions continue to be phased in over a five-year period.
2. During the period of amortization of the 2003 bond issue, the Employer/State contribution in any fiscal year may not exceed the difference between:
- a) The contribution, as developed in the preceding number 1., assuming that the special contribution (from the bond proceeds) has not been made; and
 - b) The debt service on the bond issue for the fiscal year.

Summary of the Actuarial Valuation

- Pursuant to Public Act 97-0694, Section 15-165, the dollar amount of the proposed Employer/State contribution required for a fiscal year shall be certified to the Governor no later than November 1 for the fiscal year commencing on the following July 1. The required amounts are budgeted pursuant to the continuing appropriations process. The State Actuary is required to review the actuarial assumptions and actuarial valuation and issue a preliminary report. After the Board considers the State Actuary's report, the certification is finalized no later than January 15.

SURS is currently not moving forward with the implementation of the Optional Hybrid Plan (OHP) created under PA 100-0023. Additional clarifying legislation is needed for SURS to be able to do so. Therefore, contributions related to the OHP are not included in the actuarial valuation, including contributions for employer normal cost, additional 2% of payroll contributions and unfunded liability contributions. Estimates of Statutory contributions through 2045, assuming that 55% of academic and 75% of non-academic future new members elect the Tier 2 Plan, 45% of academic and 25% of non-academic future new members elect RSP and all other actuarial assumptions are realized, are set out in Table 14 (page 44).

The Statutory contributions set out in this report represent the contribution amount determined consistent with the State Statute. The net State appropriation certified to the Governor is the total calculated in this report for the qualified plan, plus an estimated amount to fund the annual benefit payments payable from the Excess Benefit Arrangement (EBA), adjusted by contributions from federal and trust funds and employers. The estimated contributions from the federal and trust funds for FY 2025 is \$70,500,000, as estimated by SURS.

Asset Information

Prior to the actuarial valuation as of June 30, 2009, the market value, without adjustment, was used for all actuarial purposes. Legislation in 2009 required that first effective for the actuarial valuation as of June 30, 2009, contribution projections would be calculated based on the actuarial value of assets. Funding status determinations and the contribution requirements were calculated based on the actuarial value of assets.

The market value of the assets of the System that is available for benefits increased from \$22,523.1 million as of June 30, 2022, to \$23,193.2 million as of June 30, 2023. The actuarial value of assets as of June 30, 2023, is \$23,381.2 million, which is \$188.0 million more than the market value of assets. This difference is due to the continuing recognition of deferred investment gains and losses. Twenty percent of each of these gains and losses are recognized each year. The \$188.0 million, which is the value of net deferred losses, will be smoothed into the actuarial value of assets over the next four years. The remaining unrecognized net asset gains from FY 2021 will be smoothed in over the next two years, and the remaining asset losses from FY 2020, FY 2022 and FY 2023 will be smoothed in over the next one, three and four years, respectively.

The detailed determinations of asset values utilized in this valuation and asset growth in the last year are set out in Appendix A and Table 7 (page 32) of Appendix C.

Funding Status

The funding status of SURS is measured by the Funded Ratio. The Funded Ratio is the ratio of the assets available for benefits compared to the actuarial accrued liability of the System. Thus, it reflects the



Summary of the Actuarial Valuation

portion of benefits earned to date by SURS members, which are covered by current System assets.

A funded ratio of 100% would mean that all of the benefits earned to date by SURS members are covered by assets and assumed future investment returns. By monitoring changes in the funded ratio each year, we can determine whether or not funding progress is being made.

As shown below, the SURS funded ratio increased slightly from 45.2% as of June 30, 2022, to 45.4% as of June 30, 2023, based on the market value of assets, and increased from 45.2% as of June 30, 2022, to 45.8% as of June 30, 2023, based on the actuarial value of assets. There are net deferred losses that will be smoothed into the actuarial value of assets over the next four years. As a result of the approximately \$188.0 million in net deferred losses and the funding policy, the funded ratio is projected to increase over the next two years, decrease slightly after the third year, and then increase thereafter, if all assumptions are realized and all employer contributions are made on a timely basis.

Fiscal Year	Funded Ratio	
	AVA	MVA
2019	42.3 %	42.5 %
2020	42.2	41.2
2021	43.9	48.6
2022	45.2	45.2
2023	45.8	45.4

Short Condition Test

The following table shows a comparison, for fiscal years 2014 through 2023, of the percentage of actuarial accrued liabilities that are covered by the actuarial value of assets. The employer financed liabilities for current active and inactive members are 0% funded by the assets. Only a portion of the retiree liabilities are funded by current assets and the percentage covered increased from 45.5% as of June 30, 2022, to 46.8% as of June 30, 2023.

Summary of the Actuarial Valuation

Percentage of Actuarial Accrued Liabilities Covered by Net Assets							
(in Millions)							
Fiscal Year	Actuarial Accrued Liabilities for				% of Liabilities Covered by		
	Member Acc Contrib. (1)	Members Receiving Benefits (2)	Act/Inact Employer Portion (3)	Net Actuarial Value of Assets	(1)	(2)	(3)
2014	\$ 6,094.9	\$ 24,388.6	\$ 6,946.0	\$ 15,844.7	100.0%	40.0%	0.0%
2015	6,196.6	26,042.4	7,281.7	17,104.6	100.0%	41.9%	0.0%
2016	6,145.8	27,342.2	7,435.3	17,701.6	100.0%	42.3%	0.0%
2017	6,348.8	28,226.0	7,278.6	18,594.3	100.0%	43.4%	0.0%
2018	6,516.3	30,710.7	8,031.7	19,347.9	100.0%	41.8%	0.0%
2019	6,594.1	31,856.5	7,993.4	19,661.9	100.0%	41.0%	0.0%
2020	6,651.0	32,862.0	8,067.5	20,091.7	100.0%	40.9%	0.0%
2021	6,843.1	33,661.7	8,393.6	21,484.8	100.0%	43.5%	0.0%
2022	6,800.0	34,632.8	8,437.2	22,554.8	100.0%	45.5%	0.0%
2023	6,844.1	35,360.2	8,846.4	23,381.2	100.0%	46.8%	0.0%

Actuarial Funding and Statutory Funding

Measuring the Statutory Contribution against a funding policy under which the sum of the normal cost and amortization of the unfunded accrued liability is contributed helps evaluate the funding adequacy of the current Statutory funding method. The rationale for contributions based on an accrual pattern of normal cost plus amortization of the unfunded liability is to have benefits accrued within the same generation that has earned them as well as to ensure that all benefit obligations will be met. Table 14 illustrates an “alternative policy contribution” which is the sum of the employer normal cost and an initial 30-year closed period (21 years remaining as of the actuarial valuation as of June 30, 2023, applicable to the fiscal year 2025 contribution) level percentage of defined benefit plan capped payroll amortization payment in order to fully pay of the unfunded liability by 2045. The alternative funding policy would require higher contributions in the near term compared to the Statutory funding policy. However, as shown in Graph 1 (page 38) and Graph 6 (page 45), the funded ratio would increase more quickly and require lower contributions than under the Statutory policy after approximately 12 years. The Statutory contributions are projected to continue to increase at a faster rate than under the alternative funding policy in order to meet the ultimate funding objective of a 90% funded ratio in 2045.

Based on projections assuming that the Statutory contributions are made every year (as shown in Table 12, page 37) and an investment return of 6.50% each year, the funded ratio is projected to begin to increase from about 45% funded to 90% funded at 2045. The funded ratio is not projected to exceed 60% until 2037, 70% until 2041 and is projected to increase to 90% during the four-year period from 2041 until 2045. If the Statutory contributions are not made or investment return is less than the assumption of 6.50%, the funded ratio will be lower and the cash flow strain will be higher. If another significant market downturn occurred while the System’s funded ratio is low, the System could be required to liquidate assets in order to pay benefits which could have a further adverse effect on the funded status of the System.



Summary of the Actuarial Valuation

The projected actuarial accrued liability of current retirees, current active and inactive members and future members is expected to increase from \$51.051 billion as of the end of FY 2023 to \$55.571 billion as of the end of FY 2034 and decrease to \$53.677 billion as of the end of FY 2045 (as shown in Graph 2, page 39, and Table 23, page 54). There is a projected decrease in the actuarial accrued liability after FY 2034 due to the increasing number of Tier 2 participants and the decreasing number of Tier 1 participants. Total benefit payments are projected to increase from \$3.075 billion in fiscal year 2023 to \$4.350 billion in fiscal year 2045. Graph 3 (page 40, and Table 22, page 53) shows projected benefit payments separately for retirees as of June 30, 2023, active and inactive members as of June 30, 2023, and future members.

Graph 4 (page 41) shows there is significant net cash outflow required from the System. A significant portion of the annual projected total investment return is needed to pay annual benefit payments through FY 2037. Graph 5 (page 42) shows projected non-investment cash flows as a percent of assets. Non-investment cash outflows are projected to be more than 3.5 percent of assets through 2034 and more than 2.0 percent of assets through 2040.

Additional Projection Details

At the request of the State Actuary, we have included exhibits with additional projection details that can be found in Appendix E. The additional projections illustrate the impact on contributions and funded status if deferred asset gains and losses are not recognized.

Recommendations

The calculations in this report were prepared based on the methods required by the Statutory funding policy including the asset smoothing method that was adopted for the first time in the June 30, 2009 actuarial valuation. GRS does not endorse this funding policy because the Statutory funding policy defers funding for these benefits into the future and places a higher burden on future generations of taxpayers.

We recommend the following changes:

1. Implementing a funding policy that contributes normal cost plus closed period amortization as a level percentage of defined benefit plan capped payroll of the unfunded liability. (Policy which recognizes unfunded liability at the valuation date and not projected liability in the year 2045.)
2. If the current Statutory funding policy is retained, we recommend:
 - a. Eliminating the maximum contribution cap;
 - b. Calculating contributions as a level percentage of defined benefit plan pensionable payroll only instead of total payroll (including RSP payroll); and
 - c. Eliminating smoothing of the change in the contribution requirement due to assumption changes.
3. Implementing an asset corridor to constrain the actuarial value of assets within a certain percentage of the market value of assets (for example, 20%).
4. Changing the actuarial cost method for calculating liabilities from the Projected Unit Credit method to the Entry Age Normal method.
5. Considering whether a decrease in total active membership is expected to occur in the future, and if so, incorporating this into the projections used to calculate the Statutory contribution requirements.

Summary of the Actuarial Valuation

Change Funding Policy to a More Standard Actuarial Method

We recommend a funding policy that contributes normal cost plus closed period amortization as a level percentage of defined benefit plan capped payroll for paying off the current unfunded accrued liability (i.e., the amortization period declines by one year with each actuarial valuation) such that the funded ratio is projected to be 100% funded by 2045 or earlier. A closed amortization period methodology (with 21 years remaining as of the June 30, 2023 actuarial valuation) pays off the unfunded accrued liability in full by the end of the period in 2045. The Fiscal Year 2025 contribution would be \$2,718.180 (\$2,617.835 million for the SURS contribution and \$100.345 million for RSP) under this alternate funding policy. The current Statutory contribution does not comply with this recommendation. Underfunding the System creates the risk that ultimately benefit obligations cannot be met from the trust, and will require a greater amount of funding from other State resources. In addition, continually underfunding the System also creates more of a funding need from contributions since less is available from investment return – thereby creating a more expensive plan. Projected contributions under the current Statutory policy and the recommended policy are shown in Graph 6 on page 45 and projected funded ratios are shown in Graph 1 on page 38.

Eliminate Maximum Contribution Cap

If the current statutory funding policy is not changed, we recommend that the provision that establishes a maximum contribution cap be eliminated. The contribution cap is based on the projected hypothetical contributions if the proceeds from the 2003 bond issue had not been received. The cap is projected to lower contributions during certain fiscal years 2025 through 2033 compared to if no maximum contribution methodology was in place.

Calculate Defined Benefit Plan Contributions Based on Defined Benefit Payroll Only

Currently, the Statutory contributions to the SURS defined benefit plan are calculated based on a level percentage of total pensionable payroll, including RSP payroll. We recommend that the contributions be calculated as a level percentage of defined benefit plan pensionable payroll only.

Implement an Asset Corridor

In addition, we recommend that an asset corridor on the actuarial value of assets be implemented, in case there is another significant market downturn similar to Fiscal Year 2009. The following table compares the ratio of the actuarial value of assets to the market value of assets since Fiscal Year 2009. Using an actuarial value of assets that is significantly higher than the market value of assets delays funding to the System by further deferring contributions into the future. The plan is already in serious funding jeopardy, and we cannot recommend an asset valuation method that does not include a corridor, because it could add additional risk to the funding of the benefit obligations if another downturn occurred.

Summary of the Actuarial Valuation

(\$ in Millions)				
Year	Actuarial Value of Assets	Market Value of Assets	Ratio of Actuarial Value	
2009	\$ 14,281.998	\$ 11,032.973	129 %	
2010	13,966.643	12,121.542	115	
2011	13,945.680	14,274.003	98	
2012	13,949.905	13,705.143	102	
2013	14,262.621	15,037.102	95	
2014	15,844.714	17,391.323	91	
2015	17,104.607	17,462.968	98	
2016	17,701.646	17,005.630	104	
2017	18,594.326	18,484.820	101	
2018	19,347.886	19,321.076	100	
2019	19,661.891	19,717.348	100	
2020	20,091.675	19,617.016	102	
2021	21,484.799	23,768.313	90	
2022	22,554.752	22,523.123	100	
2023	23,381.241	23,193.248	101	

Change the Actuarial Cost Method to the Entry Age Normal Method

The current actuarial cost method is the Projected Unit Credit method, which is required by statute. The Projected Unit Credit method recognizes costs such that the normal cost for an individual member increases as a percentage of payroll throughout his/her career. The Entry Age Normal cost method is the most commonly used method in the public sector. It is also the method required to be used for financial reporting under GASB Statement Nos. 67 and 68. The Entry Age Normal method recognizes costs as a level percentage of payroll over a member's career. We recommend a change to the Entry Age Normal method. The actuarial accrued liability under the Entry Age Normal method is about \$1.2 billion higher as of the current actuarial valuation date than under the Projected Unit Credit method.

Number of Projected Future Active Members

The statutory contribution is based on performing an open group projection through the year 2045. The projection is based on assuming that new active members are hired to replace the current members who leave active membership (through termination, retirement, death or disability). The number of active members has decreased by about 8% between 2013 and 2023, which is an average annualized decrease of about 0.9%.

Currently, the actuarial valuation assumes that the total number of active members in the future will be equal to the number of active members in the current actuarial valuation. Given the decrease in the number of active members over the past 10 years, if SURS expects to continue to see a similar decline of the active population in the near term, the Board may want to consider an update to the population projection assumption to include a decreasing population in the near term before reaching an equilibrium number of active members long term.



Summary of the Actuarial Valuation

Total Active Members (Full and Part Time)						
June 30	Traditional & Portable	RSP	Total	Annual Change in Membership	% Annual Change in Membership	Earnings (\$ in Millions)
2013	70,556	10,746	81,302			\$4,078.1
2014	69,436	11,409	80,845	(457)	-0.6%	4,131.0
2015	69,381	11,928	81,309	464	0.6%	4,280.5
2016	66,245	11,880	78,125	(3,184)	-3.9%	4,218.4
2017	64,117	11,852	75,969	(2,156)	-2.8%	4,184.5
2018	62,844	12,106	74,950	(1,019)	-1.3%	4,264.3
2019	62,589	12,531	75,120	170	0.2%	4,356.6
2020	63,206	13,129	76,335	1,215	1.6%	4,583.9
2021	60,397	13,046	73,443	(2,892)	-3.8%	4,639.1
2022	60,281	13,026	73,307	(136)	-0.2%	4,714.7
2023	61,509	13,136	74,645	1,338	1.8%	5,013.1
Total Change (10 years)				(6,657)	-0.9%	
Total Change (5 years)				(305)	-0.1%	
Total Change (3 years)				(1,690)	-0.7%	

We recognize that the State Statute governs the funding policy of the System. The purpose of these comments is to highlight the difference between the Statutory appropriation methodology and the recommended actuarial funding policy and to highlight the risks and additional costs of continuing to underfund the System. We believe that the State Statute would allow the Board to change the assumption regarding the projected number of future active members.

GASB Disclosure

A separate actuarial valuation report with calculations completed in accordance with the provisions of GASB Statement Nos. 67 and 68 has been issued.

Future Considerations

Changes (such as the phase-in of assumption changes, five-year asset smoothing and the addition of the new benefit tiers) have had the effect of reducing the Statutory contribution amounts that would have otherwise been made. However, the change in the investment return assumption and other changes to more closely align the actuarial assumptions with current market expectations have increased the contribution amounts that would otherwise have been made. Assuming the statutory contributions are received (and the actuarial assumptions are met including a 6.50% investment rate of return, each year through 2045), SURS is currently projected to have contributions sufficient to increase the funded ratio from the current level of 45.8% to 90.0% by 2045. While capital market assumptions have improved over the past year, policy makers should be aware that if return expectations decrease (similar to expectations in 2021 and 2022), average future returns may be lower than 6.50%.

Summary of the Actuarial Valuation

This is a severely underfunded plan and the ability of the plan to reach 90% funding by 2045 is heavily dependent on the plan sponsor contributing the statutory contributions each and every year until 2045. We are not able to assess the plan sponsor's ability to make contributions when due.

Actuarial Standards of Practice (ASOP) 4 Disclosures

General Implications of Contribution Allocation Procedure or Funding Policy on Future Expected Plan Contributions and Funded Status

Given the plan's contribution allocation procedure, if all actuarial assumptions are met (including the assumption of the plan earning 6.50% on the actuarial value of assets and the active member group size remaining unchanged), it is expected that:

1. The combined State and employer contribution rate will be level as a percentage of total capped payroll through 2045 (after all assumption changes and deferred asset gains and losses are fully recognized);
2. The unfunded liability will increase for the next three years and then decrease in dollar amount;
3. The unfunded actuarial accrued liabilities will never be fully amortized; and
4. The funded status of the plan will increase gradually towards a 90% funded ratio in 2045.

Limitations of Funded Status Measurements

Unless otherwise indicated, a funded status measurement presented in this report is based upon the actuarial accrued liability and the actuarial value of assets. Unless otherwise indicated, with regard to any funded status measurements presented in this report:

1. The measurement is inappropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations; in other words, of transferring the obligations to an unrelated third party in an arm's length market value type transaction.
2. The measurement is dependent upon the actuarial cost method which, in combination with the plan's amortization policy, affects the timing and amounts of future contributions. The amounts of future contributions will most certainly differ from those assumed in this report due to future actual experience differing from assumed experience based upon the actuarial assumptions. A funded status measurement in this report of 100% is not synonymous with no required future contributions. If the funded status were 100%, the plan would still require future normal cost contributions (i.e., contributions to cover the cost of the active membership accruing an additional year of service credit).
3. The measurement would produce a different result if the market value of assets were used instead of the actuarial value of assets.

Limitation of Project Scope: Actuarial standards do not require the actuary to evaluate the ability of the plan sponsor or other contributing entity to make required contributions to the plan when due. Such an evaluation was not within the scope of this project and is not within the actuary's domain of expertise. Consequently, the actuary performed no such evaluation.



Summary of the Actuarial Valuation

Risks Associated with Measuring the Accrued Liability and Contributions

The determination of the accrued liability and the statutory and actuarially determined contribution requires the use of assumptions regarding future economic and demographic experience. Risk measures, as illustrated in this report, are intended to aid in the understanding of the effects of future experience differing from the assumptions used in the course of the actuarial valuation. Risk measures may also help with illustrating the potential volatility in the accrued liability and the statutory and actuarially determined contribution that result from the differences between actual experience and the actuarial assumptions.

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

The three areas of risk that may reasonably be anticipated to significantly affect the SURS' future financial condition include:

1. **Investment Risk** – actual investment returns may differ from the expected returns;
2. **Contribution Risk** – actual contributions may differ from expected future contributions. For example, actual contributions may not be made in accordance with the plan's funding policy or material changes may occur in the anticipated number of covered employees, covered payroll or other relevant contribution factor;
3. **Salary and Payroll Risk** – actual salaries and total payroll may differ from expected, resulting in actual future accrued liability and contributions differing from expected;

The effects of certain trends in experience can generally be anticipated. For example, if the investment return since the most recent actuarial valuation is less (or more) than the assumed rate, the cost of the plan can be expected to increase (or decrease).

As shown on Table 10, investment risk is a main driver in the change in the unfunded actuarial accrued liability from year to year for SURS, which also impacts the annual statutory contribution requirement. The use of asset smoothing helps dampen the annual volatility due to this risk. Because the funded ratio is less than 50%, SURS is currently less impacted by investment risk than it will be when the assets and funded ratio are projected to be higher (closer to 2045).

Due to the current funded status and statutory contribution policy, SURS is subject to higher contribution risk than many plans. Under the statutory contribution policy, contributions are calculated as a level percentage of payroll such that the funded ratio is projected to be 90% in 2045. As shown on Graph 6, annual statutory contributions are projected to increase from over \$2 billion to almost \$4 billion by 2045.



Summary of the Actuarial Valuation

Adverse experience (especially closer to 2045), could increase the contributions to even higher levels.

There is also contribution risk for SURS associated with the assumptions related to projecting the actuarial accrued liability, benefits and payroll to 2045 (as required under the statutory funding policy). To the extent that certain assumptions differ from actual experience, significant changes in contributions could occur. Examples of such assumptions include: the number of total active members remains the same as the number as of the date of the most recent actuarial valuation, the percentage of new hires that elect the RSP or the SURS defined benefit plans and the assumed new hire demographics.

The statutory contribution may be considered as a minimum contribution that complies with State statute. Contributions above this minimum level would improve the plan's funding level and would be expected to enhance benefit security. The timely receipt of contributions is critical to support the financial health of the plan. Users of this report should be aware that contributions made in accordance with the funding policy do not necessarily guarantee benefit security.

As shown on Table 10 and in the stress testing, salary and payroll risk is another main driver in the change in the unfunded actuarial accrued liability from year to year for SURS, which also impacts the annual statutory contribution requirement.

Although there are other areas of risk, such as demographic experience (including mortality, retirement, termination and disability) differing from the assumptions used in the actuarial valuation, as shown in Table 10, demographic gains and losses have been mostly offsetting and not a significant driver in the change in unfunded liability for SURS. In addition, there is asset/liability mismatch risk; however, we believe for SURS that it is a component of investment risk.

Plan Maturity Measures

Risks facing a pension plan evolve over time. A young plan with virtually no investments and paying few benefits may experience little investment risk. An older plan with a large number of members in pay status and a significant trust may be much more exposed to investment risk. Generally accepted plan maturity measures include the following:

	2020	2021	2022	2023
Ratio of the market value of assets to total payroll	4.28	5.12	4.78	4.63
Ratio of actuarial accrued liability to payroll	10.38	10.54	10.58	10.18
Ratio of actives to retirees and beneficiaries	1.10	1.05	1.03	1.03
Ratio of net non-investment cash flow to market value of assets	-3.3%	-2.6%	-2.5%	-2.8%
Approximate modified duration of the present value of future benefits	13.33	13.29	13.16	13.10

Payroll used in the above table includes RSP payroll.

Ratio of Market Value of Assets to Payroll

The relationship between assets and payroll is a useful indicator of the potential volatility of contributions. For example, if the market value of assets is 2.0 times the payroll, a return on assets 5% different than assumed would equal 10% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in plan sponsor contributions as a percentage of payroll.



Summary of the Actuarial Valuation

Ratio of Actuarial Accrued Liability to Payroll

The relationship between actuarial accrued liability and payroll is a useful indicator of the potential volatility of contributions for a fully funded plan. A funding policy that targets a funded ratio of 100% is expected to result in the ratio of assets to payroll and the ratio of liability to payroll converging over time.

The ratio of liability to payroll may also be used as a measure of sensitivity of the liability itself to changes in assumptions or to actuarial gains and losses. For example, if the actuarial accrued liability is 2.5 times the payroll, a change in liability 2% other than assumed would equal 5% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in liability (and also plan sponsor contributions) as a percentage of payroll.

Ratio of Actives to Retirees and Beneficiaries

A young plan with many active members and few retirees will have a high ratio of active to retirees. A mature open plan may have close to the same number of actives to retirees resulting in a ratio near 1.0. A super-mature or closed plan may have significantly more retirees than actives resulting in a ratio below 1.0.

Ratio of Net Cash Flow to Market Value of Assets

A positive net cash flow means contributions exceed benefits and expenses. A negative cash flow means existing funds are being used to make payments. A certain amount of negative net cash flow is generally expected to occur when benefits are prefunded through a qualified trust. Large negative net cash flows as a percent of assets may indicate a super-mature plan or a need for additional contributions.

Duration of the Present Value of Future Benefits

The duration of the present value of future benefits may be used to approximate the sensitivity to a 1% change in the assumed rate of return. For example, duration of 10 indicates that the liability would increase approximately 10% if the assumed rate of return were lowered 1% from its current level.

Additional Risk Assessment

Based on the recommendation from the State Actuary in their 2021 report, we are providing an estimate to the change in the statutory contribution of potential reductions in the discount rate. Public Act 100-0023 requires any change in an actuarial assumption that increases or decreases the required State contribution to be implemented in equal annual amounts over a five-year period beginning in the State fiscal year in which the change first applies to the required State contribution. A 50 basis point decrease in the investment return assumption/discount rate from 6.50% to 6.00% is estimated to increase the statutory contribution by about 2% for the first year of the five-year phase in. The statutory contribution will continue to increase as the full impact of the assumption change is phased in. More details on the impact can be found in the stress testing analysis performed for SURS.

Additional risk assessment is outside the scope of the annual actuarial valuation. Additional assessment may include scenario tests, sensitivity tests, stochastic modeling, stress tests and a comparison of the present value of accrued benefits at low-risk discount rates with the actuarial accrued liability.

Summary of the Actuarial Valuation

Risk Measures Summary (\$ in Millions)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			Market		Market				
	Accrued	Market	Value		Value	Retiree	RetLiab /	AAL /	Assets /
Valuation	Liabilities	Value of	Unfunded	Valuation	Funded	Liabilities	AAL	Payroll	Payroll
Date (6/30)	(AAL)	Assets	AAL	Payroll	Ratio	(RetLiab)	(6)/(1)	(1)/(4)	(2)/(4)
					(2)/(1)				
2015	\$ 39,521	\$ 17,463	\$ 22,058	\$ 4,281	44.2%	\$ 26,042	65.9%	923.3%	408.0%
2016	40,923	17,006	23,918	4,218	41.6%	27,342	66.8%	970.1%	403.1%
2017	41,853	18,485	23,369	4,184	44.2%	28,226	67.4%	1,000.2%	441.7%
2018	45,259	19,321	25,938	4,264	42.7%	30,711	67.9%	1,061.3%	453.1%
2019	46,444	19,717	26,727	4,357	42.5%	31,857	68.6%	1,066.1%	452.6%
2020	47,580	19,617	27,963	4,584	41.2%	32,862	69.1%	1,038.0%	428.0%
2021	48,898	23,768	25,130	4,639	48.6%	33,662	68.8%	1,054.1%	512.4%
2022	49,870	22,523	27,347	4,715	45.2%	34,633	69.4%	1,057.8%	477.7%
2023	51,051	23,193	27,858	5,013	45.4%	35,360	69.3%	1,018.3%	462.6%

	(10)	(11)	(12)	(13)	(14)	(15)	(16)
				Non-			
	Portfolio	Std Dev %	Unfunded	Investment	NICF /	Market	5-Year
Valuation	StdDev	of Pay	/ Payroll	Cash Flow	Assets	Rate of	Trailing
Date (6/30)				(NICF)	(13)/(2)	Return	Average
2015			515.3%	\$ (432)	-2.5%	2.9%	
2016			567.0%	(474)	-2.8%	0.1%	13.6%
2017			558.5%	(515)	-2.8%	11.9%	11.1%
2018			608.3%	(664)	-3.4%	8.3%	6.5%
2019			613.5%	(734)	-3.7%	6.0%	8.9%
2020	10.9%	46.6%	610.0%	(643)	-3.3%	2.8%	5.8%
2021	11.9%	61.0%	541.7%	(612)	-2.6%	24.7%	10.5%
2022	11.5%	54.9%	580.0%	(560)	-2.5%	-2.9%	7.4%
2023	10.9%	50.4%	555.7%	(660)	-2.8%	6.0%	6.9%

(5). The Funded ratio is the most widely known measure of a plan's financial strength, but the trend in the funded ratio is much more important than the absolute ratio. The funded ratio should trend to 100%. As it approaches 100%, it is important to re-evaluate the level of investment risk in the portfolio and potentially to re-evaluate the assumed rate of return.

(6) and (7). The ratio of Retiree liabilities to total accrued liabilities gives an indication of the maturity of the system. As the ratio increases, cash flow needs increase, and the liquidity needs of the portfolio change. A ratio on the order of 50% indicates a maturing system.

(8) and (9). The ratios of liabilities and assets to payroll gives an indication of both maturity and volatility. Many systems have ratios between 500% and 700%. Ratios significantly above that range may indicate difficulty in supporting the benefit level as a level % of payroll.



Summary of the Actuarial Valuation

- (10) and (11). The portfolio standard deviation measures the volatility of investment return. When multiplied by the ratio of assets to payroll it gives the effect of a one standard deviation asset move as a percent of payroll. This figure helps users understand the difficulty of dealing with investment volatility and the challenges volatility brings to sustainability. This ratio is likely to increase as the plan approaches full funding which is expected to lead to increasing volatility of contribution rates.
- (12). The ratio of unfunded liability to payroll gives an indication of the plan sponsor's ability to actually pay off the unfunded liability. A ratio above approximately 300% or 400% may indicate difficulty in discharging the unfunded liability within a reasonable time frame.
- (13) and (14). The ratio of Non-Investment Cash Flow to assets is an important measure of sustainability. A positive net cash flow means contributions exceed benefits and expenses. A negative cash flow means existing funds are being used to make payments. A certain amount of negative net cash flow is generally expected to occur when benefits are prefunded through a qualified trust. Large negative net cash flows as a percent of assets may indicate a super-mature plan or a need for additional contributions.
- (15) and (16). Investment return is probably the largest single risk that most systems face. The year-by-year return and the 5-year geometric average both give an indication of the reasonableness of the system's assumed return. Of course, past performance is not a guarantee of future results. Market rate shown is based on actuarial estimation methods and differs modestly from figures reported by SURS.

Summary of the Actuarial Valuation

Low-Default-Risk Obligation Measure

INTRODUCTION

In December 2021, the Actuarial Standards Board (ASB) adopted a revision to Actuarial Standard of Practice (ASOP) No. 4, Measuring Pension Obligations and Determining Pension Plan Costs or Contributions. The revised ASOP No. 4 requires the calculation and disclosure of a liability referred to by the ASOP as the “Low-Default-Risk Obligation Measure” (LDROM).

What is the LDROM?

The LDROM is a particular measure of the benefits earned (or costs accrued if appropriate under the actuarial cost method used for this purpose) as of the measurement date.

How is the LDROM Calculated?

The LDROM is calculated using an immediate gain actuarial cost method, one in which gains and losses become part of the unfunded actuarial accrued liabilities. Examples would be Entry Age Normal Cost, Projected Unit Credit and Traditional Unit Credit. It is based upon a discount rate or discount rates derived from low-default-risk fixed income securities whose cash flows are reasonably consistent with the pattern of benefits expected to be paid in the future.

What Does the LDROM Tell Me?

The LDROM gives an approximate measure of the cost as of the measurement date of securing benefits by constructing a Low Default Risk Bond portfolio whose cash flows match the pattern of benefits expected to be paid in the future. The LDROM is very dependent upon market interest rates at the time of the LDROM measurement. The lower the market interest rates, the higher the LDROM, and vice versa.

Is the LDROM the “right” liability that should be reported?

No single number, including the LDROM, can provide all of the information necessary to understand the financial condition of a pension plan. The rationale that the ASB cited for the calculation and disclosure of the LDROM was included in the Transmittal Memorandum of ASOP No. 4 and is presented below:

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

COMPARING THE ACCRUED LIABILITIES AND THE LDROM

The LDROM results presented in this report are based on the Projected Unit Credit (PUC) actuarial cost method and discount rates based upon the June 2023 (end of month) FTSE Pension Discount Curve (PDC). The PDC is calculated based on a universe of AA rated corporate bonds from the FTSE US Broad Investment-Grade Bond Index (USBIG®) of varying maturities and the yields of the Treasury model curve.

The 1-, 5-, 10-, 20- and 30-year rates follow: 5.76%, 4.64%, 4.68%, 5.22% and 4.85%.



Summary of the Actuarial Valuation

The funding actuarial accrued liability is based on the PUC actuarial cost method and discount rate (the expected long-term rate of return on assets) of 6.50%.

Presented below is a comparison of the funding actuarial accrued liability and the LDROM as of June 30, 2023 for SURS:

\$ in millions	
Funding Valuation Actuarial Accrued Liability (PUC)	\$ 51,051
LDROM (PUC)	61,677
Difference	(10,616)

The difference between the funding actuarial accrued liability and the LDROM (\$10.6 billion) is one illustration of the potential savings in contributions (on a present value basis) due to the additional investment earnings that SURS anticipates from taking on the risk in its well-diversified portfolio (which would not be earned by investing in low-default-risk fixed income securities).

The funded status based on the LDROM is lower than the funded status based on the funding actuarial accrued liability. Since plan assets are not invested in a portfolio of low-default-risk fixed income securities, LDROM does not provide relevant information on the statutory contribution requirements. (The funded status and statutory contributions are based on the funding valuation actuarial accrued liability using a discount rate of 6.50%.) Benefit security for members of the plan relies on a combination of the current assets in the plan, the future investment returns generated on those assets, and the promise of future contributions from the plan sponsor.

The LDROM liability contained in this report was provided solely to comply with the requirements of ASOP 4 section 3.11 and should not be used for any other purpose. This measure may not be appropriate for assessing the need for or amount of future contributions. This measure may not be appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligation if the portfolio market interest rates used to settle the benefit obligations are significantly different than those used in the LDROM liability measurement.

APPENDICES

APPENDIX A

ASSET INFORMATION

Table 1

Statement of Plan Net Position

as of June 30, 2022 and June 30, 2023

	Defined Benefit Plan	
	2022	2023
Assets		
Cash and short-term investments	\$ 1,061,255,469	\$ 237,096,814
Receivables		
Members	10,649,398	12,060,620
Non-employer contributing entity	-	-
Federal, trust funds, and other	7,206,887	6,670,893
Pending investment sales	157,904,664	28,349,977
Interest and dividends	61,533,285	65,494,336
Total receivables	237,294,234	112,575,826
Prepaid expenses	248,928	213,682,809
Investments, at fair value		
Equity investments	7,827,398,404	8,298,495,950
Fixed income investments	5,206,315,692	5,547,651,496
Real estate investments	2,091,471,758	2,600,700,821
Alternative investments	6,153,566,562	6,249,490,239
Total investments	21,278,752,416	22,696,338,506
Securities lending collateral	197,353,020	3,287,942,382
Capital assets, at cost, net of accum deprec	15,259,838	22,237,138
Total assets	22,790,163,905	26,569,873,475
Liabilities		
Benefits payable	18,257,707	16,345,740
Refunds payable	7,567,132	3,891,456
Securities lending collateral	197,002,904	3,287,946,154
Payable to brokers for unsettled trades	29,639,357	56,010,310
Reverse repurchase agreements	-	-
Investment expenses payable	9,398,697	6,502,729
Administrative expenses payable	5,174,703	5,929,185
Total liabilities	267,040,500	3,376,625,574
Plan Net Position	\$ 22,523,123,405	\$ 23,193,247,901

Table 2

Statement of Changes in Plan Net Position for Years Ended June 30, 2022 and June 30, 2023

	Defined Benefit Plan	
	2022	2023
Additions		
Contributions		
Employer	\$ 57,906,329	\$ 63,759,762
Non-employer contributing entity ¹	2,078,152,813	2,074,951,940
Member	<u>289,070,662</u>	<u>299,585,024</u>
Total Contributions	2,425,129,804	2,438,296,726
Investment Income		
Net appreciation		
in fair value of investments	(993,854,105)	1,000,441,425
Interest	180,085,919	181,395,783
Dividends	233,414,277	261,258,010
Securities lending	<u>6,360,276</u>	<u>3,901,358</u>
Gross Investment Income	(573,993,633)	1,446,996,576
Less investment expense		
Asset management expense	111,067,193	116,960,634
Securities lending expense	<u>572,138</u>	<u>314,311</u>
Net investment income	<u>(685,632,964)</u>	<u>1,329,721,631</u>
Total additions	1,739,496,840	3,768,018,357
Deductions		
Benefits	2,879,643,912	2,995,372,248
Refunds of contributions	82,458,931	79,236,365
Administrative expense	<u>22,583,852</u>	<u>23,715,248</u>
Total deductions	2,984,686,695	3,098,323,861
Net increase (decrease)	(1,245,189,855)	669,694,496
Plan Net Position		
Beginning of year	<u>23,768,313,260</u>	<u>22,523,123,405</u>
Impact of adoption of new accounting standards	-	430,000
Plan Net Position		
End of year	<u>\$ 22,523,123,405</u>	<u>\$ 23,193,247,901</u>

¹ Includes a contribution from the Pension Stabilization Fund of \$58,138,900 for 2022 and \$38,759,300 for 2023.

APPENDIX B

MEMBERSHIP DATA

Table 3A

Summary of Data Characteristics – Active, Inactive, Retired

(\$ in Millions)

	June 30, 2022		June 30, 2023	
	Number	Earnings	Number	Earnings
Active Members				
Full time				
Traditional SURS	40,304	\$2,310.2	40,820	\$2,455.2
Portable SURS	17,094	1,235.4	17,552	1,311.2
RSP	12,645	1,143.0	12,749	1,217.7
Total Full Time ¹	70,043	\$4,688.6	71,121	\$4,984.1
Part time				
Traditional SURS	2,367	\$ 17.3	2,588	\$ 19.6
Portable SURS	516	4.6	549	5.3
RSP	381	4.2	387	4.1
Total Part Time	3,264	\$ 26.1	3,524	\$ 29.0
Total	73,307	\$4,714.7	74,645	\$5,013.1
Inactive Members				
Traditional SURS	73,697		75,007	
Portable SURS	14,132		14,717	
RSP	10,722		11,014	
Total ²	98,551		100,738	
	Number	Annual Benefits	Number	Annual Benefits
Benefit Recipients				
Retirement				
Traditional SURS	52,509	\$ 2,294.1	52,876	\$ 2,354.7
Portable SURS	8,601	336.8	9,091	367.7
Total Retirement	61,110	\$ 2,630.9	61,967	\$ 2,722.4
Survivor				
Traditional SURS	9,102	\$ 210.1	9,351	\$ 223.2
Portable SURS	358	7.8	389	8.6
Total Survivor	9,460	\$ 217.9	9,740	\$ 231.8
Disability				
Traditional SURS	707	\$ 16.7	684	\$ 16.7
Portable SURS	181	5.4	189	5.9
Total Disability	888	\$ 22.1	873	\$ 22.6
Total	71,458	\$ 2,871.0	72,580	\$ 2,976.9
Total Participants				
Total Traditional SURS	178,686		181,326	
Total Portable SURS	40,882		42,487	
Total RSP	23,748		24,150	
Total	243,316		247,963	

¹ Includes 659 police officers (including RSP) as of June 30, 2022, and 643 as of June 30, 2023.

² Based on SURS service plus reciprocal service, 22,882 defined benefit members are vested as of June 30, 2022, and 22,731 as of June 30, 2023.

Values may not add due to rounding.



Table 3B

Summary of Data Characteristics – Full Time Active

(\$ in Millions)

	June 30, 2022		June 30, 2023	
	Number	Earnings	Number	Earnings
Active Members				
Full time				
Continuing Full Time Actives and Full Time Actives from Inactive and Part Time status - Tier 1				
Traditional SURS	20,598	\$ 1,426.2	19,250	\$ 1,422.1
Portable SURS	8,040	698.0	7,512	693.3
RSP	4,555	445.8	4,299	442.5
Total	33,193	\$ 2,570.0	31,061	\$ 2,557.9
Continuing Full Time Actives and Full Time Actives from Inactive and Part Time status - Tier 2				
Traditional SURS	15,545	\$ 783.8	16,824	\$ 913.8
Portable SURS	7,687	490.0	8,314	553.3
RSP	7,078	644.8	7,357	711.0
Total	30,310	\$ 1,918.5	32,495	\$ 2,178.2
New Actives - Tier 1				
Traditional SURS	361	\$ 9.7	437	\$ 12.2
Portable SURS	81	2.7	87	3.6
RSP	40	1.4	38	1.8
Total	482	\$ 13.8	562	\$ 17.6
New Actives - Tier 2				
Traditional SURS	3,800	\$ 90.6	4,309	\$ 107.1
Portable SURS	1,286	44.7	1,639	61.0
RSP	972	51.1	1,055	62.4
Total	6,058	\$ 186.3	7,003	\$ 230.5
Total Actives - Tier 1				
Traditional SURS	20,959	\$ 1,435.8	19,687	\$ 1,434.2
Portable SURS	8,121	700.7	7,599	696.9
RSP	4,595	447.2	4,337	444.3
Total	33,675	\$ 2,583.7	31,623	\$ 2,575.4
Total Actives - Tier 2				
Traditional SURS	19,345	\$ 874.3	21,133	\$ 1,020.9
Portable SURS	8,973	534.6	9,953	614.3
RSP	8,050	695.8	8,412	773.4
Total	36,368	\$ 2,104.8	39,498	\$ 2,408.6
Total Actives - Tier 1 and Tier 2				
Traditional SURS	40,304	\$ 2,310.2	40,820	\$ 2,455.2
Portable SURS	17,094	1,235.4	17,552	1,311.2
RSP	12,645	1,143.0	12,749	1,217.7
Total	70,043	\$ 4,688.6	71,121	\$ 4,984.1

Values may not add due to rounding.



Table 3C

Summary of Data Characteristics – Part Time Active/Inactive

(\$ in Millions)

	June 30, 2022		June 30, 2023	
	Number	Earnings	Number	Earnings
Active Members				
Part time				
Total Actives - Tier 1				
Traditional SURS	593	\$ 3.8	563	\$ 4.1
Portable SURS	139	1.1	157	1.3
RSP	62	0.6	70	0.5
Total	794	\$ 5.4	790	\$ 6.0
Total Actives - Tier 2				
Traditional SURS	1,774	\$ 13.5	2,025	\$ 15.5
Portable SURS	377	3.5	392	4.0
RSP	319	3.6	317	3.5
Total	2,470	\$ 20.7	2,734	\$ 23.1
Total Actives - Tier 1 and Tier 2				
Traditional SURS	2,367	\$ 17.3	2,588	\$ 19.6
Portable SURS	516	4.6	549	5.3
RSP	381	4.2	387	4.1
Total	3,264	\$ 26.1	3,524	\$ 29.0
Inactive Members				
Total Inactives - Tier 1				
Traditional SURS	53,171		52,099	
Portable SURS	8,766		8,591	
RSP	6,547		6,275	
Total	68,484		66,965	
Total Inactives - Tier 2				
Traditional SURS	20,526		22,908	
Portable SURS	5,366		6,126	
RSP	4,175		4,739	
Total	30,067		33,773	
Total Inactives - Tier 1 and Tier 2				
Traditional SURS	73,697		75,007	
Portable SURS	14,132		14,717	
RSP	10,722		11,014	
Total	98,551		100,738	

Values may not add due to rounding.



Table 3D

Summary of Data Characteristics – Academic/Non-Academic

(\$ in Millions)

	June 30, 2022				June 30, 2023			
	Academic		Non-Academic		Academic		Non-Academic	
	Number	Earnings	Number	Earnings	Number	Earnings	Number	Earnings
Full time								
Traditional SURS	13,356	\$ 881.1	26,948	\$ 1,460.1	13,145	\$ 881.1	27,675	\$ 1,574.1
Portable SURS	5,886	536.3	11,208	718.3	5,933	536.3	11,619	775.0
RSP	5,407	615.7	7,238	552.6	5,345	615.7	7,404	602.0
Total	24,649	\$ 2,033.1	45,394	\$ 2,730.9	24,423	\$ 2,033.1	46,698	\$ 2,951.0
Part time								
Traditional SURS	1,853	\$ 881.1	514	\$ 3.8	1,959	\$ 14.9	629	\$ 4.8
Portable SURS	408	536.3	108	1.0	406	3.9	143	1.4
RSP	331	615.7	50	0.8	323	3.3	64	0.8
Total	2,592	\$ 2,033.1	672	\$ 5.7	2,688	\$ 22.0	836	\$ 7.0
Inactive								
Traditional SURS	38,175		35,522		38,304		36,703	
Portable SURS	6,281		7,851		6,384		8,333	
RSP	5,681		5,041		5,711		5,303	
Total	50,137		48,414		50,399		50,339	
	Number	Annual Benefit	Number	Annual Benefit	Number	Annual Benefit	Number	Annual Benefit
Benefit Recipients								
Traditional SURS	27,873	\$ 1,354.4	34,444	\$ 1,166.5	28,170	\$ 1,387.6	34,741	\$ 1,207.0
Portable SURS	3,919	173.1	5,221	176.9	4,130	189.6	5,539	192.6
Total	31,792	1,527.5	39,665	1,343.4	32,300	1,577.2	40,280	1,399.7
Total Participants								
Total Traditional SURS	81,257		97,428		81,578		99,748	
Total Portable SURS	16,494		24,388		16,853		25,634	
Total RSP	11,419		12,329		11,379		12,771	
Total	109,170		134,145		109,810		138,153	

Values may not add due to rounding.



Table 3E
Summary of Data Characteristics –
Actives by Tier and Academic/Non-Academic
(\$ in Millions)

	June 30, 2022				June 30, 2023				
	Academic		Non-Academic		Academic		Non-Academic		
	Number	Earnings	Number	Earnings	Number	Earnings	Number	Earnings	
Full time - Tier 1									
Traditional SURS	8,535	\$ 625.3	12,424	\$ 810.5	8,002	\$ 625.3	11,685	\$ 809.0	
Portable SURS	3,609	363.9	4,512	336.8	3,407	361.9	4,192	335.1	
RSP	2,556	282.9	2,039	164.2	2,415	280.0	1,922	164.3	
Total	14,700	\$ 1,272.2	18,975	\$ 1,311.6	13,824	\$ 1,267.1	17,799	\$ 1,308.3	
Full time - Tier 2									
Traditional SURS	4,821	\$ 224.7	14,524	\$ 649.6	5,143	\$ 255.8	15,990	\$ 765.1	
Portable SURS	2,277	153.2	6,696	381.5	2,526	174.4	7,427	439.9	
RSP	2,851	307.5	5,199	388.3	2,930	335.7	5,482	437.7	
Total	9,949	\$ 685.4	26,419	\$ 1,419.4	10,599	\$ 765.9	28,899	\$ 1,642.7	
Full time - Total									
Traditional SURS	13,356	\$ 850.0	26,948	\$ 1,460.1	13,145	\$ 881.1	27,675	\$ 1,574.1	
Portable SURS	5,886	517.1	11,208	718.3	5,933	536.3	11,619	775.0	
RSP	5,407	590.5	7,238	552.6	5,345	615.7	7,404	602.0	
Total	24,649	\$ 1,957.6	45,394	\$ 2,730.9	24,423	\$ 2,033.1	46,698	\$ 2,951.0	
Part time - Tier 1									
Traditional SURS	493	\$ 3.1	100	\$ 0.6	444	\$ 3.2	119	\$ 0.9	
Portable SURS	113	0.9	26	0.2	113	1.0	44	0.4	
RSP	54	0.4	8	0.1	60	0.4	10	0.1	
Total	660	\$ 4.5	134	\$ 1.0	617	\$ 4.6	173	\$ 1.4	
Part time - Tier 2									
Traditional SURS	1,360	\$ 10.4	414	\$ 3.2	1,515	\$ 11.7	510	\$ 3.9	
Portable SURS	295	2.7	82	0.8	293	3.0	99	1.0	
RSP	277	2.9	42	0.7	263	2.9	54	0.7	
Total	1,932	\$ 16.0	538	\$ 4.7	2,071	\$ 17.5	663	\$ 5.6	
Part time - Total									
Traditional SURS	1,853	\$ 13.5	514	\$ 3.8	1,959	\$ 14.9	629	\$ 4.8	
Portable SURS	408	3.6	108	1.0	406	3.9	143	1.4	
RSP	331	3.3	50	0.8	323	3.3	64	0.8	
Total	2,592	\$ 20.5	672	\$ 5.7	2,688	\$ 22.0	836	\$ 7.0	

Values may not add due to rounding.



Table 4
Distribution of Full-Time Active Members by Age and Years of Service
as of June 30, 2023

Age	Years of Service									Totals
	Under 1	1-4	5-9	10-14	15-19	20-24	25-29	30 & Over		
Under 20	21	15	-	-	-	-	-	-	-	36
	\$ 167,581	\$ 302,439	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 470,020
20-24	512	978	15	-	-	-	-	-	-	1,505
	\$ 6,095,749	\$ 35,033,842	\$ 591,445	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 41,721,037
25-29	856	3,490	550	4	-	-	-	-	-	4,900
	\$ 11,859,305	\$ 169,906,380	\$ 29,162,044	\$ 232,928	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 211,160,657
30-34	771	4,004	1,987	331	10	-	-	-	-	7,103
	\$ 13,540,320	\$ 241,593,291	\$ 122,633,622	\$ 19,959,619	\$ 471,689	\$ -	\$ -	\$ -	\$ -	\$ 398,198,541
35-39	547	3,246	2,757	1,481	422	14	-	-	-	8,467
	\$ 10,574,658	\$ 217,270,378	\$ 198,311,305	\$ 108,299,014	\$ 30,923,106	\$ 927,740	\$ -	\$ -	\$ -	\$ 566,306,200
40-44	482	2,554	2,613	2,042	1,426	395	13	-	-	9,525
	\$ 8,753,815	\$ 170,140,191	\$ 191,249,585	\$ 162,762,103	\$ 118,556,452	\$ 31,724,902	\$ 1,062,605	\$ -	\$ -	\$ 684,249,652
45-49	330	1,924	2,083	1,729	1,767	1,250	301	3	-	9,387
	\$ 5,950,438	\$ 123,285,687	\$ 150,611,100	\$ 145,557,601	\$ 163,868,900	\$ 114,119,052	\$ 25,715,867	\$ 231,393	\$ -	\$ 729,340,037
50-54	326	1,698	1,723	1,485	1,775	1,600	952	180	-	9,739
	\$ 5,799,121	\$ 106,709,639	\$ 110,687,849	\$ 115,784,360	\$ 164,163,640	\$ 158,801,578	\$ 88,235,283	\$ 15,961,159	\$ -	\$ 766,142,630
55-59	219	1,268	1,477	1,286	1,469	1,399	969	418	-	8,505
	\$ 4,659,692	\$ 76,899,487	\$ 91,784,433	\$ 93,848,596	\$ 122,737,221	\$ 136,971,803	\$ 106,224,410	\$ 42,646,873	\$ -	\$ 675,772,515
60-64	121	873	1,159	1,049	1,154	1,029	762	471	-	6,618
	\$ 2,176,449	\$ 52,759,380	\$ 69,925,097	\$ 69,520,749	\$ 90,796,308	\$ 93,495,197	\$ 78,537,123	\$ 60,593,711	\$ -	\$ 517,804,015
65 & Over	70	558	921	833	953	800	553	648	-	5,336
	\$ 937,530	\$ 28,970,674	\$ 45,938,504	\$ 46,581,823	\$ 67,320,451	\$ 67,750,512	\$ 53,591,508	\$ 81,837,537	\$ -	\$ 392,928,540
Total Count	4,255	20,608	15,285	10,240	8,976	6,487	3,550	1,720	-	71,121
Total Payroll	\$ 70,514,659	\$ 1,222,871,389	\$ 1,010,894,985	\$ 762,546,793	\$ 758,837,766	\$ 603,790,783	\$ 353,366,798	\$ 201,270,673	\$ -	\$ 4,984,093,845

Includes the use of capped payroll for defined benefit plan members hired on or after January 1, 2011. Includes RSP.



Table 5
Distribution of Benefit Recipients by Age
as of June 30, 2023

<u>Age</u>	<u>Number</u>	<u>Annual Benefit</u>
Retirees and Survivors		
Under 50	422	\$ 3,488,999
50-54	344	13,668,665
55-59	2,812	101,154,825
60-64	7,544	282,171,342
65-69	12,952	502,136,107
70-74	15,967	640,338,364
75-79	13,552	594,907,753
80-84	9,307	442,609,111
85-89	5,447	243,949,100
90 & Over	<u>3,360</u>	<u>129,851,458</u>
Total	71,707	\$ 2,954,275,724
Disabilitants		
Under 50	107	\$ 3,083,087
50-54	126	3,580,929
55-59	138	4,018,988
60-64	189	4,685,191
65-69	168	4,552,713
70-74	79	1,542,957
75-79	34	635,933
80-84	19	293,723
85-89	8	104,531
90 & Over	<u>5</u>	<u>101,965</u>
Total	873	\$ 22,600,017

Excludes RSP.



APPENDIX C

ACTUARIAL DETERMINATIONS

Table 6
Summary of Actuarial Values
as of June 30, 2023
(\$ in Millions)

	Actuarial Present Value of Projected Benefits (APV)	Projected Unit Credit Values		Gross NC % of Pay ¹
		Actuarial Accrued Liability (AAL)	Gross Normal Cost (NC) ¹	
1. Active Members				
a. Retirement	\$16,536.0	\$ 11,000.9	\$595.2	14.96%
b. Death	246.8	154.9	10.5	0.26%
c. Disability	278.8	156.8	18.1	0.45%
d. Termination	1,955.0	1,153.3	142.3	3.57%
Total - Active Members	\$19,016.5	\$ 12,465.9	\$766.1	19.25%
2. Benefit Recipients				
a. Retirement	\$32,997.0	\$32,997.0	\$ 0.0	
b. Survivor	2,079.2	2,079.2	0.0	
c. Disability	284.1	284.1	0.0	
Total - Benefit Recipients	\$35,360.2	\$35,360.2	\$ 0.0	
3. Other Inactive	\$ 3,224.6	\$ 3,224.6		
4. Grand Total	\$57,601.4	\$51,050.8	\$766.1	19.25%
5. Operating Expense			\$ 29.5	0.74%
6. Fiscal Year 2024 Total Normal Cost ²			\$795.6	19.99%
7. Expected Pay During Fiscal Year 2024 for Defined Benefit Plans ¹				\$ 3,980.1
8. Present Value of Future Salaries (PVFS) ¹				\$ 32,815.3

¹ For members currently active as of June 30, 2023, in the Traditional and Portable defined benefit plans and includes the use of capped payroll for members hired on or after January 1, 2011.

² The normal cost as a percent of capped pay is 11.86% for Tier 2 members and 26.94% of payroll for Tier 1 members.

Excludes RSP.

Values may not add due to rounding.



Table 7
Defined Benefit Plan Development of the Actuarial Value of Assets
for the Year Ending June 30, 2023

	2022	2023	2024	2025	2026	2027
Beginning of Year:						
(1) Market Value of Assets	\$ 23,768,313,260	\$ 22,523,123,405				
(1a) Adjustment as of June 30, 2022		430,000				
(2) Actuarial Value of Assets	21,484,798,600	22,554,752,340				
(2a) Adjustment as of June 30, 2022		430,000				
End of Year:						
(3) Market Value of Assets	22,523,123,405	23,193,247,901				
(4) Net of Contributions and Disbursements	(559,556,891)	(660,027,135)				
(5) Total Investment Return						
=(3)-(1)-(1a)-(4)	(685,632,964)	1,329,721,631				
(6) Projected Rate of Return	6.50%	6.50%				
(7) Projected Investment Return						
=([(1)+(1a)]x(6)+[(1+(6)] ⁵ -1)x(4)	1,527,041,048	1,442,917,778				
(8) Investment Return in						
Excess of Projected Return	(2,212,674,012)	(113,196,147)				
(9) Excess Investment Return Recognized						
This Year (5 year recognition)						
(9a) From This Year	(442,534,802)	(22,639,229)				
(9b) From One Year Ago	691,825,575	(442,534,802)	\$ (22,639,229)			
(9c) From Two Years Ago	(153,482,516)	691,825,575	(442,534,802)	\$ (22,639,229)		
(9d) From Three Years Ago	(30,001,418)	(153,482,516)	691,825,575	(442,534,802)	\$ (22,639,229)	
(9e) From Four Years Ago	36,662,744	(30,001,419)	(153,482,517)	691,825,577	(442,534,804)	\$ (22,639,231)
(9f) Total Phased-In Return	102,469,583	43,167,609	73,169,027	226,651,546	(465,174,033)	(22,639,231)
(10) Change in Actuarial Value of Assets						
=(4)+(7)+(9f)	1,069,953,740	826,058,252				
End of Year:						
(3) Market Value of Assets	22,523,123,405	23,193,247,901				
(11) Final Actuarial Value of Assets	22,554,752,340	23,381,240,592				
(12) Difference Between Market & Actuarial Values	(31,628,935)	(187,992,691)				
(13) Actuarial Value Rate of Return	7.68 %	6.69 %				
(14) Estimated Market Value Rate of Return	(2.92)%	5.99 %				
(15) Ratio of Actuarial Value to Market Value	100 %	101 %				
(16) SURS Reported Market Value Rate of Return	(1.36)%	5.34 %				

Excludes RSP.



Table 8
Analysis of Change in
Actuarial Accrued Liability and Actuarial Value of Assets
for the Year Ending June 30, 2023
(\$ in Millions)

1. Actuarial (Gain)/Loss on Actuarial Accrued Liability ("AAL")		
(a) AAL 6/30/2022		\$ 49,869.9
(b) Normal Cost FY 2023	\$ 767.5	
(c) Benefits and Admin Expenses Paid FY 2023	(3,098.3)	
(d) Interest on (a), (b), and (c) at 6.50%	3,167.0	
(e) Expected AAL 6/30/2023 (a+b+c+d)		50,706.1
(f) Actual AAL 6/30/2023 Before Assumption and Method Changes		51,050.7
(g) Actuarial (Gain)/Loss on AAL (f-e)		<u>\$ 344.5</u>
(h) Impact of Benefit Changes ¹		0.1
(i) Impact of Change in Actuarial Assumptions and Methods		0.0
(j) Actual AAL After Changes (f+h+i)		<u>\$ 51,050.8</u>
2. Actuarial (Gain)/Loss on Assets		
(a) Actuarial Value of Assets 6/30/2022		\$ 22,554.8
(b) Contributions FY 2023	2,438.3	
(c) Benefits and Administrative Expenses	(3,098.3)	
(d) Interest on (a), (b), and (c) at 6.50%	1,444.9	
(e) Expected Assets 6/30/2023 (a+b+c+d)		\$ 23,339.7
(f) Actual Actuarial Value of Assets 6/30/2023		23,381.2
(g) Actuarial (Gain)/Loss on Assets (e-f)		<u>\$ (41.5)</u>
3. Total Actuarial (Gain)/Loss		
(a) (Gain)/Loss on AAL		\$ 344.5
(b) (Gain)/Loss on Assets		(41.5)
(c) Net (Gain)/Loss (a+b)		<u>\$ 303.0</u>

Excludes RSP.

Values may not add due to rounding.

¹*Under Public Act 103-0080, a line of duty disability benefit was added for police officers.*



Table 9
Analysis of Change in
Unfunded Actuarial Accrued Liability
for the Year Ending June 30, 2023
(\$ in Millions)

1. Unfunded Actuarial Accrued Liability (UAAL) at 06/30/2022	\$	27,315.2
2. Contributions		
a. Contributions equal to normal cost plus interest on UAAL		
i Interest on 1)	\$	1,775.5
ii Member contributions		299.6
iii Employer/State normal cost		467.9
iv Interest on ii and iii		24.6
v Total due	\$	2,567.5
b. Contributions paid based on funding policy		
i Member contributions	\$	299.6
ii Employer/State contributions		2,138.7 ¹
iii Interest on i and ii		78.0
iv Total paid	\$	2,516.3
c. Expected increase in UAAL (2a.v-2b.iv)		
		51.2
3. Expected UAAL at 06/30/2023 (1+2c)		27,366.4
4. (Gains)/Losses		
a. Investment income	\$	(41.5)
b. Salary increases		293.9
c. Demographic and other		50.6
d. Total	\$	303.0
5. Plan Provision Changes ²		0.1
6. Assumption Changes		-
7. Total Change in UAAL (2c + 4d + 5 + 6)		354.3
8. UAAL at 06/30/2023 (1 + 7)	\$	27,669.5

¹ Includes a contribution of \$38,759,300 from the Pension Stabilization Fund.

² Under Public Act 103-0080, a line of duty disability benefit was added for police officers.

Excludes RSP.

Values may not add due to rounding.



Table 10

Analysis of Actuarial (Gains) and Losses

(\$ in Millions)

	Amount of (Gain) or Loss			
	FY 2020	FY 2021	FY 2022	FY 2023
Investment Return ¹	\$ 233.5	\$ (668.9)	\$ (250.9)	\$ (41.5)
Salary Increase	5.4	(88.5)	22.9	293.9
Age and Service Retirement	6.0	9.6	15.2	(62.9)
General Employment Termination	22.3	28.8	0.1	0.4
Disability Incidence	(1.7)	(2.0)	3.4	2.9
In Service Mortality	1.2	3.8	1.5	0.5
Benefit Recipient ²	13.3	(61.8)	(7.4)	108.2
Other ³	56.0	62.8	47.7	1.5
Total Actuarial (Gain)/Loss	\$ 336.0	\$ (716.2)	\$ (167.5)	\$ 303.0
BOY Actuarial Accrued Liability (AAL)	\$ 46,443.9	\$ 47,580.5	\$ 48,898.5	\$ 49,869.9
(Gain)/Loss as a % of BOY AAL	0.7%	(1.5)%	(0.3)%	0.6%
Total Non-Investment (Gain)/Loss	\$ 102.5	\$ (47.3)	\$ 83.4	\$ 344.5
(Gain)/Loss as a % of BOY AAL	0.2%	(0.1)%	0.2%	0.7%

Excludes RSP.

¹ Gain/Loss is based on actuarial value of assets.

² Benefit recipient (gain)/loss includes gains and losses due to mortality and unexpected changes in benefit amounts from year to year. Unexpected changes may occur when benefits that are initially paid as preliminary estimates are finalized. Mortality gains and losses include deviations in the assumed demographics of future beneficiaries compared to the actual demographics of new beneficiaries.

There is an additional load of 5% on the liabilities of retirees who are currently receiving benefits as a preliminary estimate for whom Staff provided a best formula benefit and a 10% load on the liabilities of retirees who are currently receiving benefits as a preliminary estimate for whom Staff has not provided a best formula benefit.

³ Includes other experience such as deviations between actual and expected benefit payments and refunds that were not easily attributable to one of the categories above.



Table 11

Funded Ratio and Illustrative Contributions under Funding Policy of Net Normal Cost Plus Level Percentage of Payroll Amortization of Unfunded Liability
 (\$ in Millions)

Fiscal Year	DB Payroll ¹	Actuarial Value of Assets (AVA)	Actuarial Accrued Liability (AAL)	Unfunded Actuarial Accrued Liability (UAAL)	Funded Ratio	Total Normal Cost	Member Contributions ²	Amortization of UAAL (30-year open) ³	Net State Contribution (30-year open) ³	Amortization of UAAL (30-year closed) ⁴	Net State Contribution (30-year closed) ⁴	Net State 30-year closed with 1 year Interest Adjustment ⁴
2015	\$3,606.537	\$17,104.607	\$39,520.687	\$22,416.080	43.28 %	\$730.020	\$267.682	\$1,160.318	\$1,622.656			
2016	3,513.108	17,701.646	40,923.301	23,221.655	43.26	739.549	278.884	1,205.004	1,665.669	\$1,350.394	\$1,811.060	\$1,942.361
2017	3,458.320	18,594.326	41,853.348	23,259.022	44.43	719.225	278.643	1,248.309	1,688.891	\$1,424.261	\$1,864.843	\$2,000.044
2018	3,470.226	19,347.886	45,258.751	25,910.865	42.75	701.871	282.726	1,250.317	1,669.462	1,442.888	1,862.033	1,997.030
2019	3,506.650	19,661.891	46,443.937	26,782.046	42.33	730.265	280.018	1,392.034	1,842.281	1,789.119	2,239.366	2,390.524
2020	3,642.617	20,091.675	47,580.470	27,488.795	42.23	729.332	282.367	1,414.304	1,861.269	1,852.066	2,299.031	2,454.215
2021	3,638.244	21,484.799	48,898.480	27,413.681	43.94	739.676	288.476	1,451.626	1,902.826	1,852.066	2,303.266	2,458.736
2022	3,613.383	22,554.752	49,869.932	27,315.180	45.23	765.300	289.071	1,449.109	1,925.338	1,901.545	2,377.774	2,532.330
2023	3,744.813	23,381.241	51,050.783	27,669.542	45.80	767.538	299.585	1,443.902	1,911.855	1,905.047	2,373.000	2,527.245
2024						795.584	323.543	1,462.634	1,934.675	1,986.020	2,458.061	2,617.835

¹ Defined benefit payroll for Fiscal Year 2022 and after is based on the employee contributions in the financial statements for the fiscal year and an employee contribution rate of 8.00%. Defined Benefit Plan payroll prior to Fiscal Year 2022 is rolled forward with one year of salary scale at 3.00% (3.25% from 2018 through 2020, 3.75% prior to fiscal year 2018) and uses capped payroll for members hired on and after January 1, 2011.

² Projected for Fiscal Year 2024 and actual for years prior to Fiscal Year 2024.

³ A 30-year open period amortization policy is not a funding policy recommended by GRS. This illustrative contribution was included at the request of the Governor’s Office. The amortization payment was calculated as a level percentage of total uncapped payroll (assumed to increase by 3.00% each year, 3.25% for fiscal years 2018 through 2021 and 3.75% for years prior to Fiscal Year 2019).

⁴ GRS recommends the development of and adherence to a funding policy that funds the normal cost of the plan as well as an amortization payment that would seek to pay off the total unfunded accrued liability by 2045 or sooner if possible, which is a 21-year closed amortization period for Fiscal Year 2024. (The statutory contribution would apply to Fiscal Year 2025; therefore, a one-year interest adjustment was applied). The amortization payment was calculated as a level percentage of defined benefit plan pensionable (capped) payroll.

APPENDIX D

ACTUARIAL PROJECTIONS

Table 12

Baseline Projections – Actuarial Valuation June 30, 2023

Assumes Contributions Based on Table 14 & Investment Return of 6.50% Each Year

(\$ in Millions)

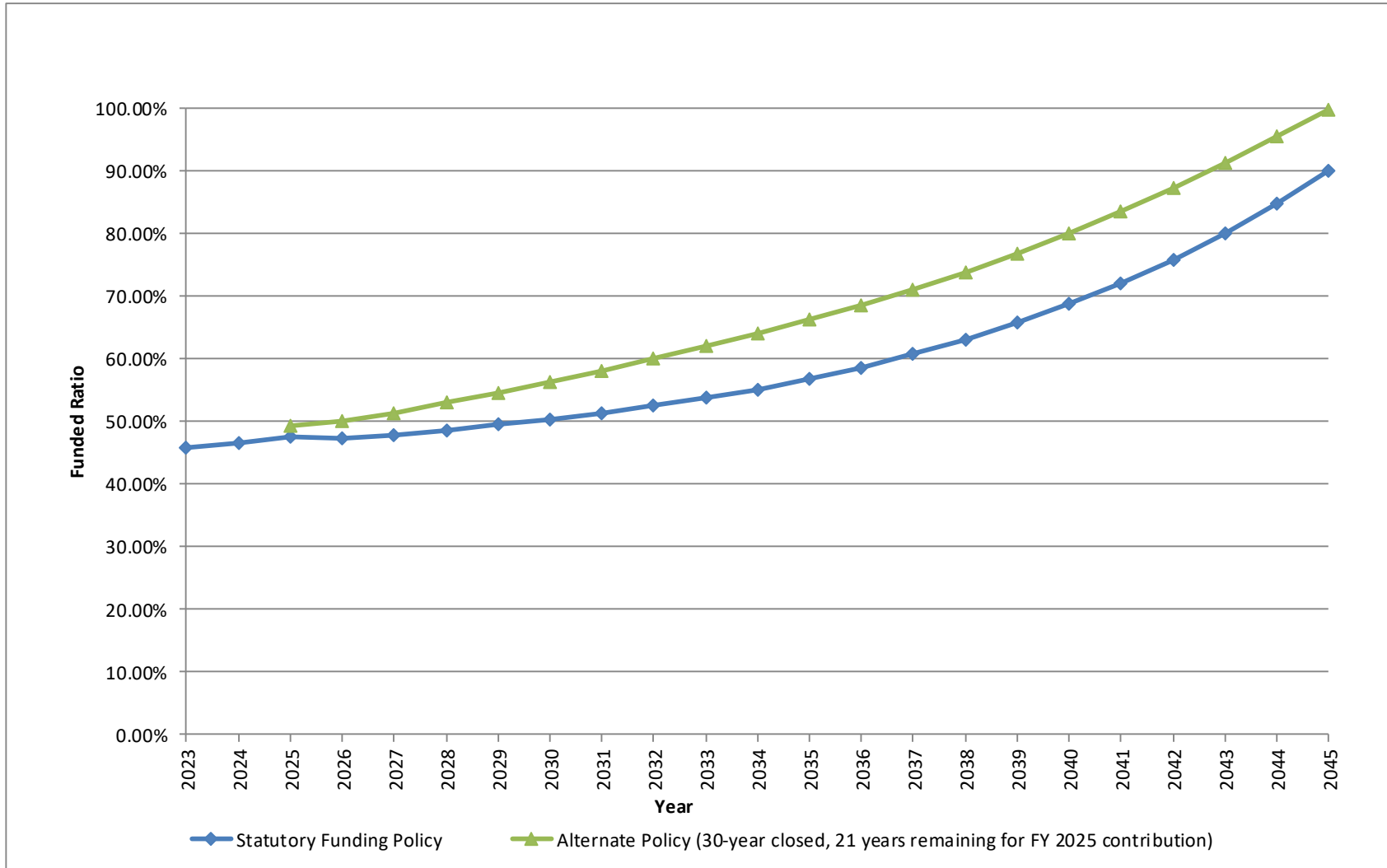
Fiscal Year Ending	Total Payroll ¹	RSP Payroll	DB Payroll ¹	SURS Contributions ²	Member Contributions	Benefits	Expenses	Assets EOY	AAL	Funding Ratio	UAAL	Debt Service	Maximum Contribution ³	SURS Contribution % of Total Payroll
2023	\$ 5,013.132	\$ 1,221.769	\$ 3,791.363	\$ 2,138.712	\$ 299.585	\$ 3,074.609	\$ 23.715	\$ 23,381.241	\$ 51,050.783	45.80 %	\$ 27,669.542	\$ 153.373	\$ 2,118.006	42.66 %
2024	5,382.053	1,342.820	4,039.233	2,091.135	323.543	3,249.077	29.500	24,070.436	51,806.626	46.46	27,736.190	164.417	2,096.719	38.85
2025	5,515.213	1,421.755	4,093.458	2,167.649	327.886	3,343.550	30.385	24,938.192	52,506.349	47.50	27,568.157	174.604	2,171.006	39.30
2026	5,658.846	1,506.046	4,152.800	2,213.938	332.639	3,450.573	31.297	25,097.082	53,133.516	47.23	28,036.434	179.149	2,216.074	39.12
2027	5,810.804	1,589.564	4,221.239	2,251.405	338.121	3,547.178	32.235	25,682.729	53,695.214	47.83	28,012.485	183.195	2,254.124	38.75
2028	5,968.351	1,671.425	4,296.926	2,348.121	344.184	3,644.163	33.203	26,335.536	54,187.910	48.60	27,852.374	191.634	2,348.121	39.34
2029	6,126.027	1,753.426	4,372.600	2,409.366	350.245	3,740.161	34.199	27,000.137	54,608.795	49.44	27,608.658	199.325	2,409.366	39.33
2030	6,285.100	1,835.804	4,449.295	2,465.270	356.389	3,838.383	35.225	27,669.547	54,951.280	50.35	27,281.733	211.160	2,465.270	39.22
2031	6,448.400	1,920.777	4,527.623	2,523.973	362.663	3,929.885	36.281	28,354.005	55,217.684	51.35	26,863.679	221.997	2,523.973	39.14
2032	6,615.215	2,007.772	4,607.443	2,590.063	369.056	4,018.031	37.370	29,065.665	55,406.805	52.46	26,341.140	226.944	2,590.063	39.15
2033	6,786.763	2,097.284	4,689.479	2,663.809	375.627	4,098.852	38.491	29,821.906	55,522.167	53.71	25,700.261	226.249	2,663.809	39.25
2034	6,961.712	2,189.253	4,772.460	2,751.423	382.274	4,169.367	39.646	30,650.617	55,570.723	55.16	24,920.106	NA	2,964.557	39.52
2035	7,141.627	2,284.598	4,857.030	2,822.530	389.048	4,233.951	40.835	31,545.689	55,554.754	56.78	24,009.065	NA	3,041.172	39.52
2036	7,322.303	2,380.864	4,941.439	2,893.937	395.809	4,294.434	42.060	32,515.927	55,474.201	58.61	22,958.274	NA	3,118.110	39.52
2037	7,505.383	2,479.542	5,025.840	2,966.294	402.570	4,347.563	43.322	33,574.749	55,332.448	60.68	21,757.699	NA	3,196.073	39.52
2038	7,691.900	2,580.540	5,111.360	3,040.010	409.420	4,397.823	44.621	34,732.328	55,128.939	63.00	20,396.611	NA	3,275.499	39.52
2039	7,883.980	2,683.853	5,200.128	3,115.924	416.530	4,340.997	45.960	36,108.093	54,971.478	65.69	18,863.385	NA	3,357.294	39.52
2040	8,079.917	2,790.308	5,289.609	3,193.362	423.698	4,368.052	47.339	37,631.250	54,777.900	68.70	17,146.650	NA	3,440.731	39.52
2041	8,281.548	2,898.155	5,383.393	3,273.051	431.210	4,383.277	48.759	39,326.226	54,560.243	72.08	15,234.017	NA	3,526.593	39.52
2042	8,487.481	3,007.688	5,479.793	3,354.441	438.931	4,388.109	50.222	41,216.842	54,330.347	75.86	13,113.505	NA	3,614.287	39.52
2043	8,698.397	3,118.904	5,579.493	3,437.799	446.917	4,382.940	51.728	43,328.393	54,100.083	80.09	10,771.690	NA	3,704.103	39.52
2044	8,911.901	3,232.098	5,679.804	3,522.181	454.952	4,369.816	53.280	45,684.510	53,879.347	84.79	8,194.837	NA	3,795.021	39.52
2045	9,128.457	3,347.603	5,780.854	3,607.769	463.046	4,350.156	54.879	48,309.093	53,676.770	90.00	5,367.677	NA	3,887.238	39.52

Projections are based on 55% of academic and 75% of non-academic new hires electing Tier 2 and 45% of academic and 25% of non-academic new hires electing RSP and 74,645 total active members (71,121 full time and 3,524 part time) in each future year.

- ¹ Payroll shown is pensionable pay. It does not include amounts in excess of the pay caps applicable to members in Tier 2 participating in the Traditional and Portable plans.
- ² Excludes RSP contributions. Includes employer contributions.
- ³ Maximum contribution after the impact of debt service. Maximum contribution is equal to the SURS contribution shown on Table 17 (before the impact of the bonds issued in 2004) minus the debt service.

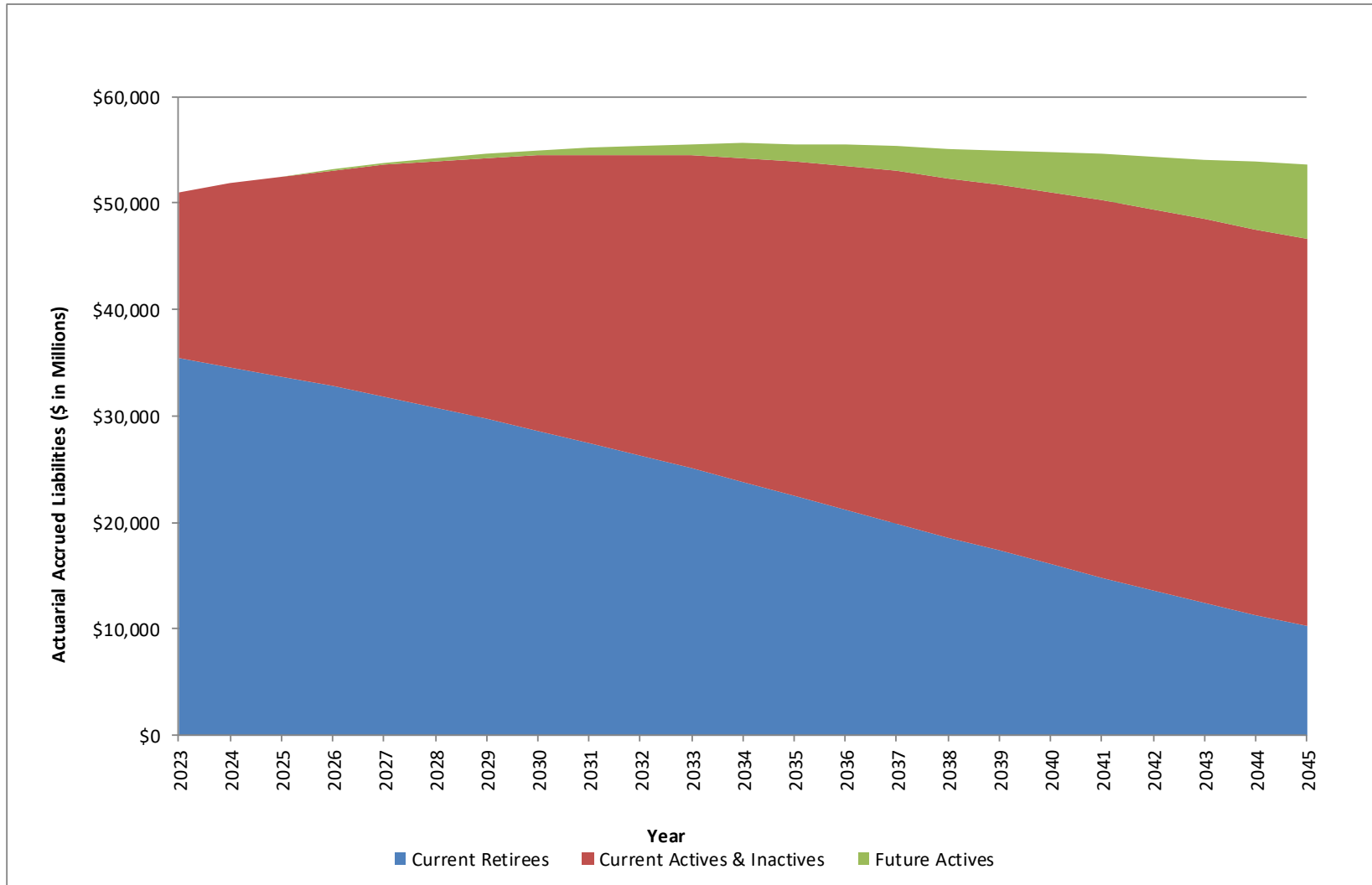


Graph 1
Projected Funded Ratio Based on Statutory Contributions
Actuarial Valuation as of June 30, 2023
 (\$ in Millions)

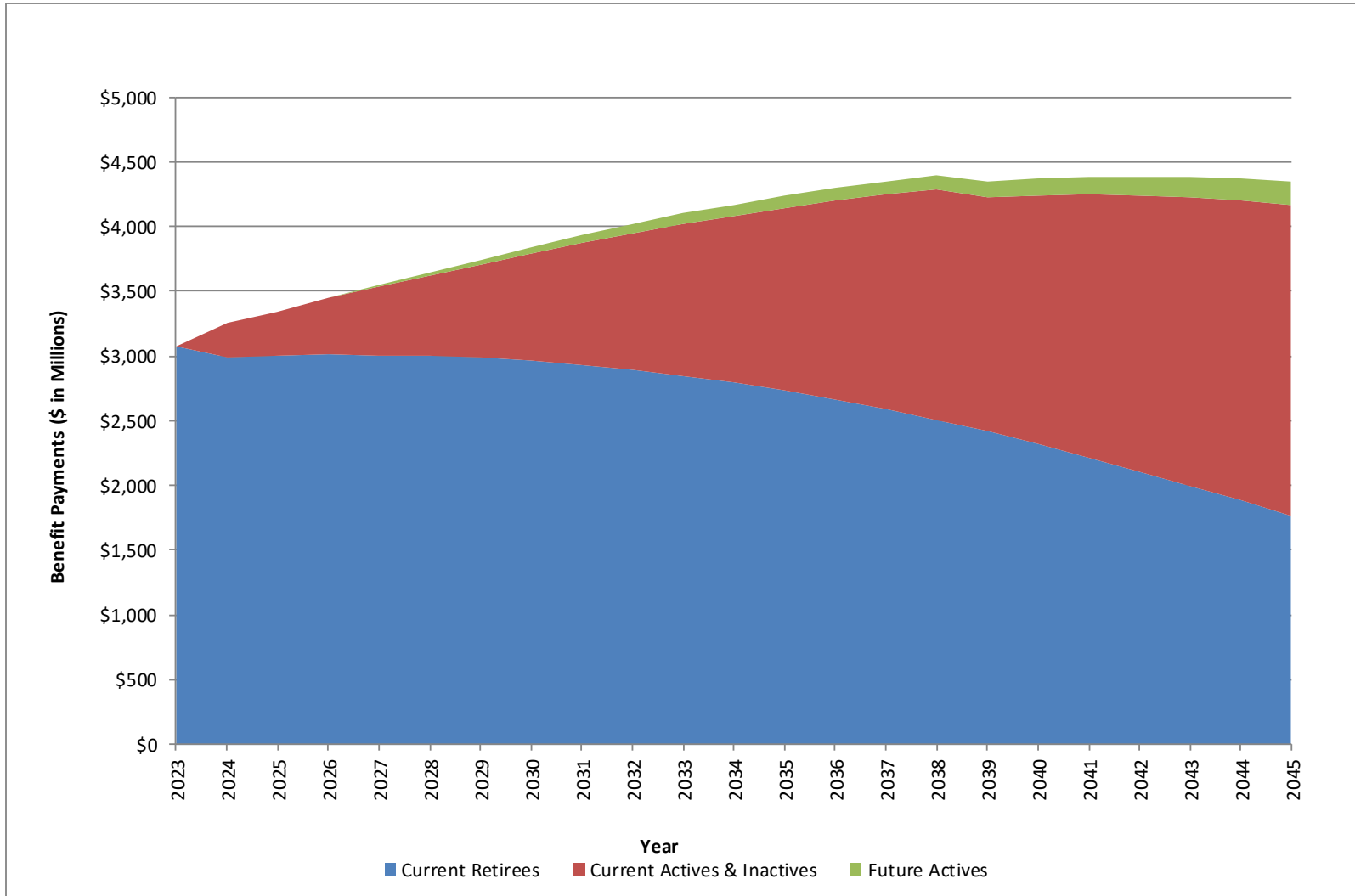


Graph 2

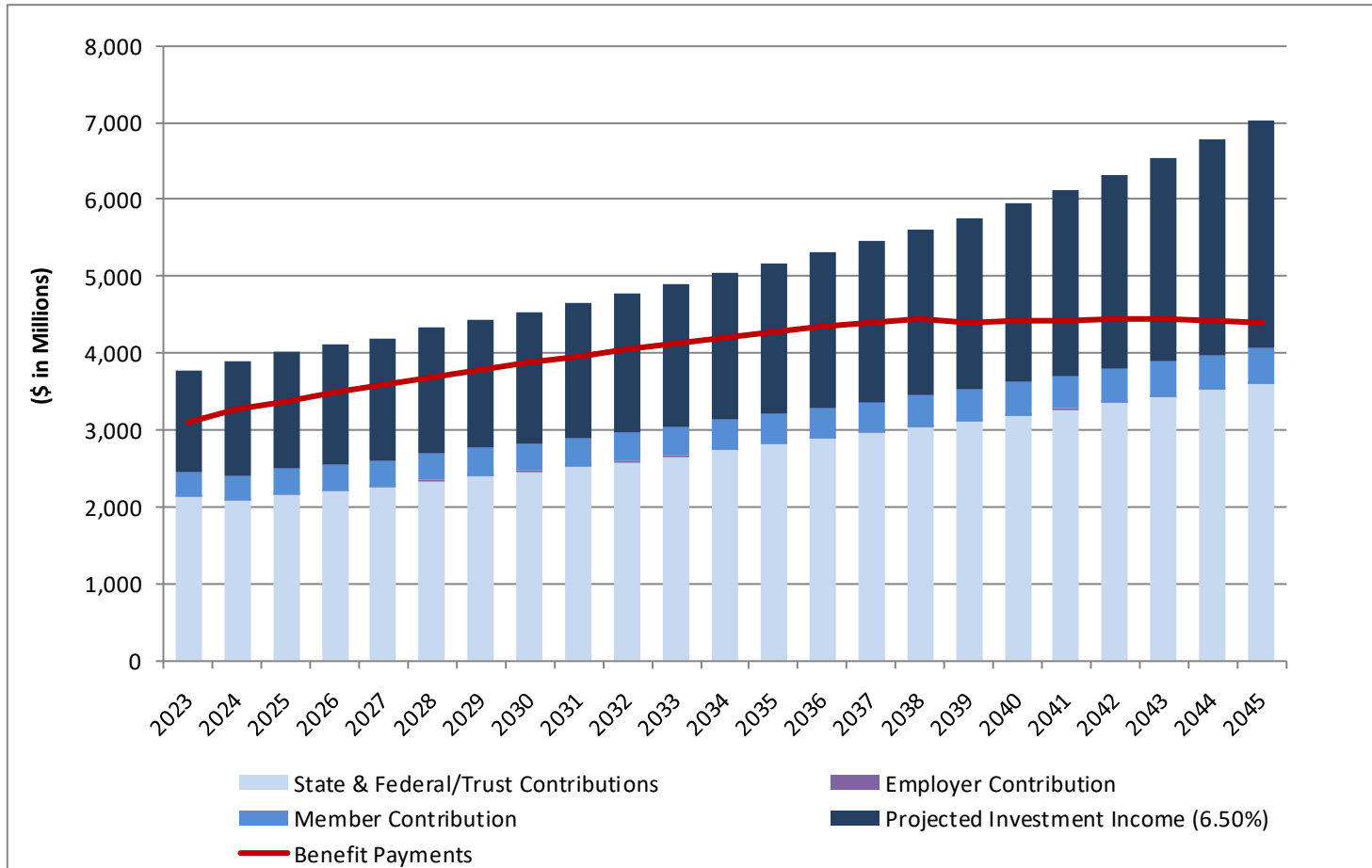
Projected Actuarial Accrued Liabilities Actuarial Valuation as of June 30, 2023 (\$ in Millions)



Graph 3 Projected Benefit Payments Actuarial Valuation as of June 30, 2023 (\$ in Millions)



Graph 4 Projected Cash Flows Actuarial Valuation as of June 30, 2023 (\$ in Millions)



Graph 5
Projected Non-Investment Cash Flows as a Percent of Assets
Actuarial Valuation as of June 30, 2023
 (\$ in Millions)

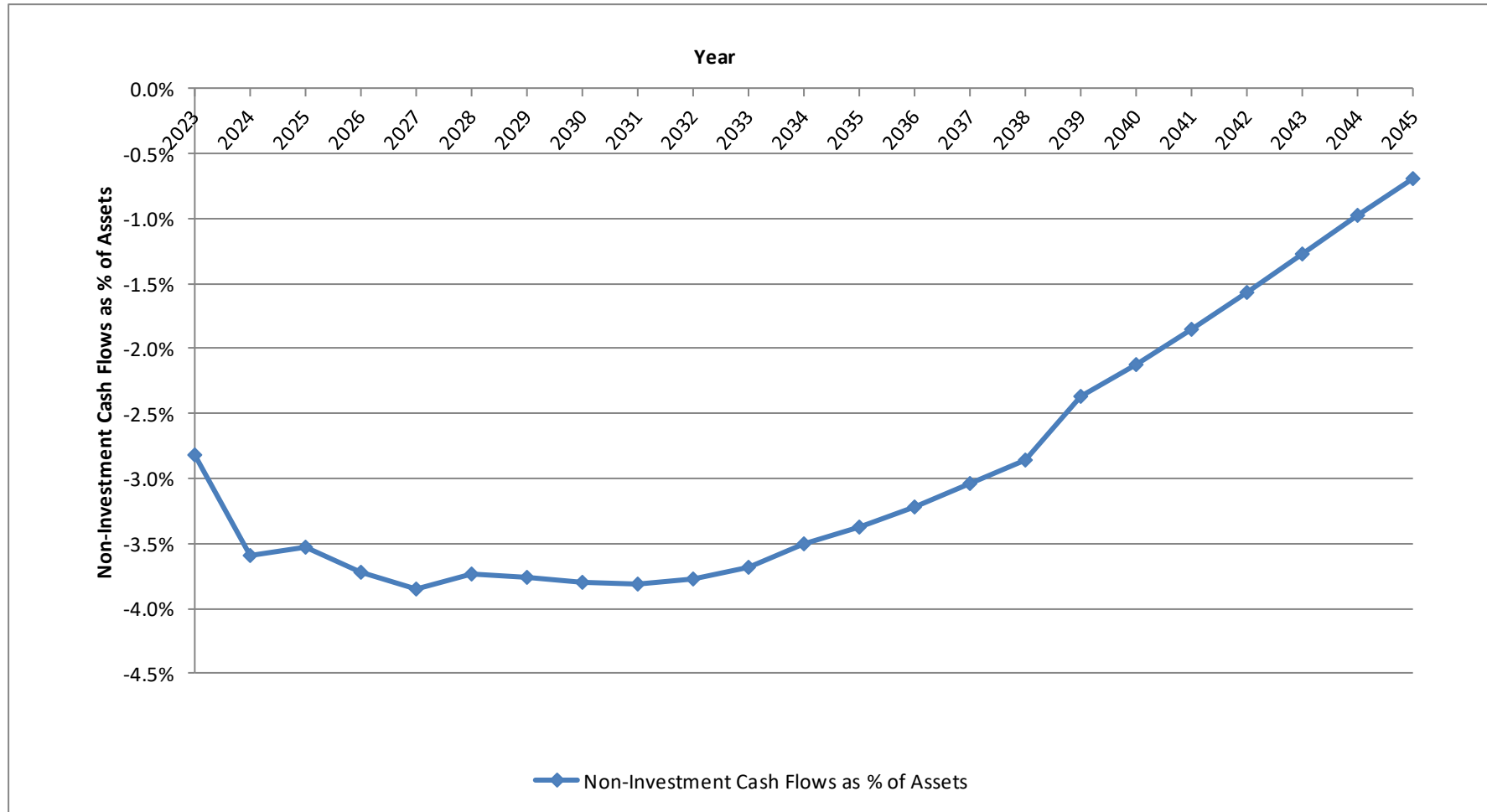


Table 13
Projected Statutory Contributions for the Actuarial Valuation as of June 30, 2023
Before Impact of Bonds Issued in 2004
(\$ in Millions)

FYE	SURS Cont. ¹	RSP Cont. ¹	Combined State and Employer Contribution	
			\$	% of Pay ²
2024	\$ 2,261.137	\$ 94.893	\$ 2,356.030	43.78 %
2025	2,345.610	100.345	2,445.955	44.35
2026	2,395.223	107.085	2,502.308	44.22
2027	2,437.318	112.992	2,550.310	43.89
2028	2,539.755	118.785	2,658.540	44.54
2029	2,608.691	124.588	2,733.279	44.62
2030	2,676.430	130.419	2,806.849	44.66
2031	2,745.970	136.433	2,882.403	44.70
2032	2,817.006	142.591	2,959.597	44.74
2033	2,890.058	148.927	3,038.985	44.78
2034	2,964.557	155.437	3,119.994	44.82
2035	3,041.172	162.186	3,203.358	44.85
2036	3,118.110	169.001	3,287.111	44.89
2037	3,196.073	175.986	3,372.059	44.93
2038	3,275.499	183.137	3,458.636	44.96
2039	3,357.294	190.451	3,547.745	45.00
2040	3,440.731	197.989	3,638.720	45.03
2041	3,526.593	205.625	3,732.218	45.07
2042	3,614.287	213.382	3,827.669	45.10
2043	3,704.103	221.258	3,925.361	45.13
2044	3,795.021	229.276	4,024.297	45.16
2045	3,887.238	237.458	4,124.696	45.19
Total	\$66,637.876	\$3,558.244	\$70,196.120	

¹ Assumes 75 percent of new hires elect Tier 2 and 25 percent elect to participate in the Retirement Savings Plan (RSP) for the Non-Academic members and 55 percent of new hires elect Tier 2 and 45 percent elect to participate in the Retirement Savings Plan (RSP) for the Academic members.

² Percent of pay amounts are calculated based on pensionable pay. Pensionable pay does not include amounts in excess of the pay caps applicable to members in Tier 2 participating in the Traditional and Portable plans.

Table 14
Projected Statutory Contributions for the Actuarial Valuation as of June 30, 2023
Including Impact of Bonds Issued in 2004
(\$ in Millions)

FYE	SURS Cont. ¹	RSP Cont. ¹	Combined State and Employer Contribution		Debt Service		SURS Alternate Policy Contribution ³		Projected % of Alternate Policy Contributed ⁴	Employer Contributions	Federal/Trust Fund Contributions ⁵	Qualified Plan State Contribution
			\$	% of Pay ²	\$	% of Pay ²	SURS Cont.	Total (w/RSP)				
2024	\$ 2,091.135	\$ 94.893	\$ 2,186.028	40.62 %	\$ 164.417	3.05 %	\$ 2,527.245	\$ 2,622.138	83.37 %	\$ 4.993	\$ 65.500	\$ 2,115.535
2025	2,167.649	100.345	2,267.994	41.12	174.604	3.17	2,617.835	2,718.180	83.44	3.474	70.500	2,194.020
2026	2,213.938	107.085	2,321.023	41.02	179.149	3.17	2,629.389	2,736.474	84.82	3.982	70.500	2,246.541
2027	2,251.405	112.992	2,364.397	40.69	183.195	3.15	2,626.976	2,739.968	86.29	3.601	70.500	2,290.296
2028	2,348.121	118.785	2,466.906	41.33	191.634	3.21	2,688.820	2,807.605	87.87	3.331	70.500	2,393.075
2029	2,409.366	124.588	2,533.954	41.36	199.325	3.25	2,708.860	2,833.448	89.43	3.111	70.500	2,460.343
2030	2,465.270	130.419	2,595.689	41.30	211.160	3.36	2,727.049	2,857.468	90.84	2.904	70.500	2,522.285
2031	2,523.973	136.433	2,660.406	41.26	221.997	3.44	2,745.419	2,881.852	92.32	2.695	70.500	2,657.711
2032	2,590.063	142.591	2,732.654	41.31	226.944	3.43	2,763.951	2,906.542	94.02	2.491	70.500	2,730.163
2033	2,663.809	148.927	2,812.736	41.44	226.249	3.33	2,782.347	2,931.274	95.96	2.273	70.500	2,810.463
2034	2,751.423	155.437	2,906.860	41.75			2,801.125	2,956.562	98.32	2.083	70.500	2,904.777
2035	2,822.530	162.186	2,984.716	41.79			2,820.355	2,982.541	100.07	1.914	70.500	2,982.802
2036	2,893.937	169.001	3,062.938	41.83			2,839.123	3,008.124	101.82	1.749	70.500	3,061.189
2037	2,966.294	175.986	3,142.280	41.87			2,856.649	3,032.635	103.62	1.591	70.500	3,140.689
2038	3,040.010	183.137	3,223.147	41.90			2,872.583	3,055.720	105.48	1.433	70.500	3,221.714
2039	3,115.924	190.451	3,306.375	41.94			2,886.720	3,077.171	107.45	1.280	70.500	3,305.095
2040	3,193.362	197.989	3,391.351	41.97			2,898.856	3,096.845	109.51	1.137	70.500	3,390.214
2041	3,273.051	205.625	3,478.676	42.01			2,907.910	3,113.535	111.73	1.010	70.500	3,477.666
2042	3,354.441	213.382	3,567.823	42.04			2,912.520	3,125.902	114.14	0.888	70.500	3,566.935
2043	3,437.799	221.258	3,659.057	42.07			2,907.706	3,128.964	116.94	0.783	70.500	3,658.274
2044	3,522.181	229.276	3,751.457	42.09			2,880.888	3,110.164	120.62	0.685	70.500	3,750.772
2045	3,607.769	237.458	3,845.227	42.12			2,783.489	3,020.947	127.29	0.600	70.500	3,844.627
Total	\$ 61,703.450	\$ 3,558.244	\$ 65,261.694		\$ 1,978.674		\$ 61,185.816	\$ 64,744.060		\$ 48.008	\$ 1,546.000	\$ 64,725.186

¹ Assumes 75% of new hires elect Tier 2 and 25 percent elect to participate in the Retirement Savings Plan (RSP) for the Non-Academic members and 55 percent of new hires elect Tier 2 and 45 percent elect to participate in the Retirement Savings Plan (RSP) for the Academic members.

² Percent of pay amounts are calculated based on pensionable pay. Pensionable pay does not include amounts in excess of the pay caps applicable to members in Tier 2 participating in the Traditional and Portable plans.

³ Alternate funding policy of normal cost plus 30-year closed period amortization of the unfunded liability as a level percentage of defined benefit plan capped payroll beginning in FY 2016 with 21 years remaining as of FY 2025.

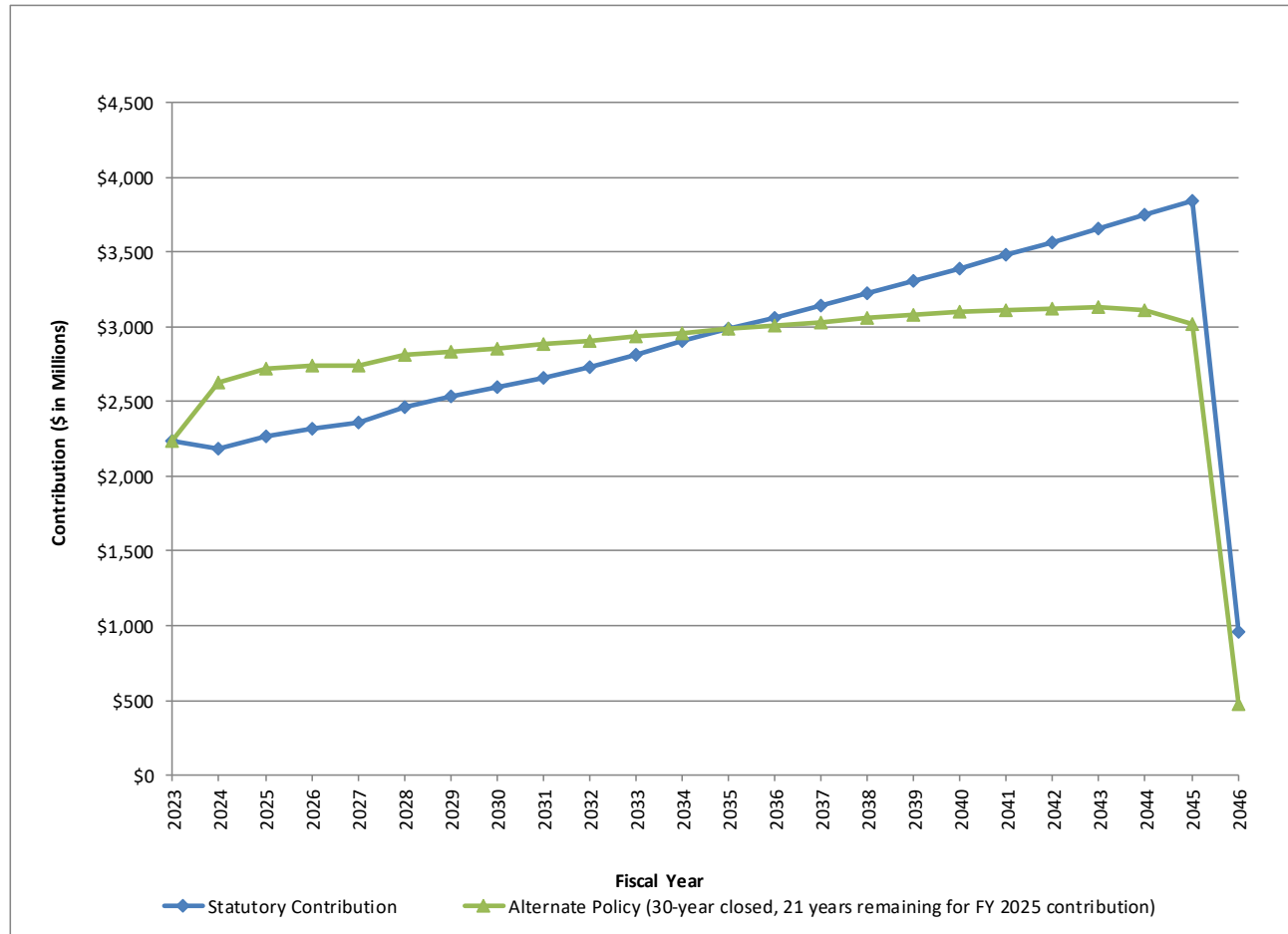
⁴ Compares the SURS Statutory contribution (targets a funded ratio of 90% in 2045) against an alternate funding policy (targets a funded ratio of 100% in 2045).

⁵ Federal/Trust fund contributions for fiscal years 2024 and 2025 were provided by SURS staff. Projected amounts for fiscal years 2026 and after are assumed to remain the same as the fiscal year 2025 amount.



Graph 6

Projected Statutory Contributions vs. Contributions under Alternate Policy (Net Normal Cost Plus Closed Period Level Percent of Pay Amortization) (21 years remaining in Amortization Period for FY 2025 Contribution) (\$ in Millions)



Alternate funding policy of net normal cost plus closed period amortization of the unfunded liability as a level percentage of defined benefit plan capped payroll that would seek to pay off the total unfunded accrued liability by 2045 or sooner if possible (21 years remaining for the FY 2025 contribution). Alternate funding policy contributions based on actual assets as of the current valuation and the alternate policy contribution being made.

APPENDIX E

ADDITIONAL PROJECTION DETAILS

Table 15

Projections – Does Not Reflect Recognition of Deferred Asset Gains and Losses in Projected Actuarial Value of Assets (Impact of Bonds Issued in 2004 Included)
Assumes Investment Return of 6.50% Each Year on Actuarial Value of Assets
(\$ in Millions)

Fiscal Year Ending	Total Payroll ¹	RSP Payroll	DB Payroll ¹	SURS Contributions ²	Member Contributions	Benefits	Expenses	Assets EOY	AAL	Funding Ratio	UAAL	Debt Service	Maximum Contribution ³	SURS Contribution % of Total Payroll
2023	\$ 5,013.132	\$ 1,221.769	\$ 3,791.363	\$ 2,138.712	\$ 299.585	\$ 3,074.609	\$ 23.715	\$ 23,381.241	\$ 51,050.783	45.80 %	\$ 27,669.542	\$ 153.373	\$ 2,118.006	42.66 %
2024	5,382.053	1,342.820	4,039.233	2,091.135	323.543	3,249.077	29.500	24,009.487	51,806.626	46.34	27,797.139	164.417	2,096.719	38.85
2025	5,515.213	1,421.755	4,093.458	2,167.649	327.886	3,343.550	30.385	24,663.605	52,506.349	46.97	27,842.744	174.604	2,171.006	39.30
2026	5,658.846	1,506.046	4,152.800	2,219.008	332.639	3,450.573	31.297	25,306.760	53,133.516	47.63	27,826.756	179.149	2,220.191	39.21
2027	5,810.804	1,589.564	4,221.239	2,273.021	338.121	3,547.178	32.235	25,952.455	53,695.214	48.33	27,742.759	183.195	2,273.021	39.12
2028	5,968.351	1,671.425	4,296.926	2,331.176	344.184	3,644.163	33.203	26,605.307	54,187.910	49.10	27,582.603	191.634	2,331.176	39.06
2029	6,126.027	1,753.426	4,372.600	2,390.135	350.245	3,740.161	34.199	27,267.597	54,608.795	49.93	27,341.198	199.325	2,390.135	39.02
2030	6,285.100	1,835.804	4,449.295	2,445.540	356.389	3,838.383	35.225	27,934.030	54,951.280	50.83	27,017.250	211.160	2,445.540	38.91
2031	6,448.400	1,920.777	4,527.623	2,503.729	362.663	3,929.885	36.281	28,614.789	55,217.684	51.82	26,602.895	221.997	2,503.729	38.83
2032	6,615.215	2,007.772	4,607.443	2,569.296	369.056	4,018.031	37.370	29,321.969	55,406.805	52.92	26,084.836	226.944	2,569.296	38.84
2033	6,786.763	2,097.284	4,689.479	2,642.503	375.627	4,098.852	38.491	30,072.883	55,522.167	54.16	25,449.284	226.249	2,642.503	38.94
2034	6,961.712	2,189.253	4,772.460	2,725.029	382.274	4,169.367	39.646	30,890.668	55,570.723	55.59	24,680.055	NA	2,942.703	39.14
2035	7,141.627	2,284.598	4,857.030	2,795.453	389.048	4,233.951	40.835	31,773.401	55,554.754	57.19	23,781.353	NA	3,018.753	39.14
2036	7,322.303	2,380.864	4,941.439	2,866.175	395.809	4,294.434	42.060	32,729.790	55,474.201	59.00	22,744.411	NA	3,095.124	39.14
2037	7,505.383	2,479.542	5,025.840	2,937.838	402.570	4,347.563	43.322	33,773.147	55,332.448	61.04	21,559.301	NA	3,172.511	39.14
2038	7,691.900	2,580.540	5,111.360	3,010.847	409.420	4,397.823	44.621	34,913.526	55,128.939	63.33	20,215.413	NA	3,251.352	39.14
2039	7,883.980	2,683.853	5,200.128	3,086.033	416.530	4,340.997	45.960	36,270.221	54,971.478	65.98	18,701.257	NA	3,332.544	39.14
2040	8,079.917	2,790.308	5,289.609	3,162.728	423.698	4,368.052	47.339	37,772.303	54,777.900	68.96	17,005.597	NA	3,415.366	39.14
2041	8,281.548	2,898.155	5,383.393	3,241.653	431.210	4,383.277	48.759	39,444.044	54,560.243	72.29	15,116.199	NA	3,500.595	39.14
2042	8,487.481	3,007.688	5,479.793	3,322.262	438.931	4,388.109	50.222	41,309.109	54,330.347	76.03	13,021.238	NA	3,587.642	39.14
2043	8,698.397	3,118.904	5,579.493	3,404.820	446.917	4,382.940	51.728	43,392.624	54,100.083	80.21	10,707.459	NA	3,676.796	39.14
2044	8,911.901	3,232.098	5,679.804	3,488.393	454.952	4,369.816	53.280	45,718.046	53,879.347	84.85	8,161.301	NA	3,767.044	39.14
2045	9,128.457	3,347.603	5,780.854	3,573.159	463.046	4,350.156	54.879	48,309.092	53,676.770	90.00	5,367.678	NA	3,858.582	39.14

¹ Payroll shown is pensionable pay. It does not include amounts in excess of the pay caps applicable to members in Tier 2 participating in the Traditional and Portable plans.

² Excludes RSP contributions. Includes employer contributions.

³ Maximum contribution after impact of debt service.



Table 16
Development of Market and Actuarial Value of Assets as of June 30, 2023
after Bonds (Valuation Basis) and before Bonds (Hypothetical Basis)

		After Bonds (Valuation Basis)	Before Bonds (Hypothetical)
1	Market Value at 6/30/2022 ²	\$22,523,553,405	\$20,005,986,769
2a	Employer and Non-Employer Contributing Entity Contributions ¹	2,138,711,702	2,271,378,294
2b	Member Contributions	299,585,024	299,585,024
2c	Benefits and Expenses	3,098,323,861	3,098,323,861
2d	Net Non-Investment Cash Flow	(660,027,135)	(527,360,543)
3	Investment Return (Based on Estimated Rate of 5.99%)	1,329,721,631	1,183,086,266
4	Expected Return (Based on Estimated Rate of 6.50%)	1,442,917,778	1,283,519,735
5	Market Value at 6/30/2023 (1+2d+3)	23,193,247,901	20,661,712,492
6	Expected Market Value at 6/30/2023 (1+2d+4)	23,306,444,048	20,762,145,961
7a	Actuarial Gain/(Loss) Current Year	(113,196,147)	(100,433,469)
7b	Actuarial Gain/(Loss) 1 Year Prior	(2,212,674,012)	(1,962,348,325)
7c	Actuarial Gain/(Loss) 2 Years Prior	3,459,127,877	3,062,643,460
7d	Actuarial Gain/(Loss) 3 Years Prior	(767,412,581)	(676,460,110)
7e	Actuarial Gain/(Loss) 4 Years Prior	(150,007,091)	(131,557,100)
8	Actuarial Value at 6/30/2022 ²	22,555,182,340	20,035,174,796
9	Actuarial Value at 6/30/2023 (8+2d+4+.2*(7a+7b+7c+7d+7e))	23,381,240,592	20,829,702,879

¹ Hypothetical contributions (before bonds) are equal to the total contributions of \$2,326,768,000 minus actual fiscal year 2023 RSP contributions of \$94,149,006 plus the actual fiscal year 2023 contribution of \$38,759,300 from the Pension Stabilization Fund.

² Based on restated plan net position as of June 30, 2022 reported for the June 30, 2023 actuarial valuation.

Table 17
Hypothetical Assets to Determine Maximum Contribution
Projections – Reflects Recognition of Deferred Asset Gains and Losses in Projected Actuarial Value of
Assets (Before Impact of Bonds Issued in 2004)
(\$ in Millions)

Fiscal Year Ending	Total Payroll ¹	RSP Payroll	DB Payroll ¹	SURS Contributions ²	Member Contributions	Benefits	Expenses	Assets EOY	AAL	Funding Ratio	UAAL	Debt Service	SURS Contribution % of Total Payroll
2023	\$ 5,013.132	\$ 1,221.769	\$ 3,791.363	\$ 2,271.378	\$ 299.585	\$ 3,074.609	\$ 23.715	\$ 20,829.703	\$ 51,050.783	40.80 %	\$ 30,221.080	NA	45.31 %
2024	5,382.053	1,342.820	4,039.233	2,261.137	323.543	3,249.077	29.500	21,521.300	51,806.626	41.54	30,285.326	NA	42.01
2025	5,515.213	1,421.755	4,093.458	2,345.610	327.886	3,343.550	30.385	22,382.189	52,506.349	42.63	30,124.160	NA	42.53
2026	5,658.846	1,506.046	4,152.800	2,395.223	332.639	3,450.573	31.297	22,618.226	53,133.516	42.57	30,515.290	NA	42.33
2027	5,810.804	1,589.564	4,221.239	2,437.318	338.121	3,547.178	32.235	23,237.327	53,695.214	43.28	30,457.887	NA	41.94
2028	5,968.351	1,671.425	4,296.926	2,539.755	344.184	3,644.163	33.203	23,928.947	54,187.910	44.16	30,258.963	NA	42.55
2029	6,126.027	1,753.426	4,372.600	2,608.691	350.245	3,740.161	34.199	24,642.821	54,608.795	45.13	29,965.974	NA	42.58
2030	6,285.100	1,835.804	4,449.295	2,676.430	356.389	3,838.383	35.225	25,376.921	54,951.280	46.18	29,574.359	NA	42.58
2031	6,448.400	1,920.777	4,527.623	2,745.970	362.663	3,929.885	36.281	26,141.456	55,217.684	47.34	29,076.228	NA	42.58
2032	6,615.215	2,007.772	4,607.443	2,817.006	369.056	4,018.031	37.370	26,943.504	55,406.805	48.63	28,463.301	NA	42.58
2033	6,786.763	2,097.284	4,689.479	2,890.058	375.627	4,098.852	38.491	27,795.290	55,522.167	50.06	27,726.877	NA	42.58
2034	6,961.712	2,189.253	4,772.460	2,964.557	382.274	4,169.367	39.646	28,712.224	55,570.723	51.67	26,858.499	NA	42.58
2035	7,141.627	2,284.598	4,857.030	3,041.172	389.048	4,233.951	40.835	29,706.936	55,554.754	53.47	25,847.818	NA	42.58
2036	7,322.303	2,380.864	4,941.439	3,118.110	395.809	4,294.434	42.060	30,789.000	55,474.201	55.50	24,685.201	NA	42.58
2037	7,505.383	2,479.542	5,025.840	3,196.073	402.570	4,347.563	43.322	31,972.700	55,332.448	57.78	23,359.748	NA	42.58
2038	7,691.900	2,580.540	5,111.360	3,275.499	409.420	4,397.823	44.621	33,269.168	55,128.939	60.35	21,859.771	NA	42.58
2039	7,883.980	2,683.853	5,200.128	3,357.294	416.530	4,340.997	45.960	34,798.918	54,971.478	63.30	20,172.560	NA	42.58
2040	8,079.917	2,790.308	5,289.609	3,440.731	423.698	4,368.052	47.339	36,492.260	54,777.900	66.62	18,285.640	NA	42.58
2041	8,281.548	2,898.155	5,383.393	3,526.593	431.210	4,383.277	48.759	38,374.854	54,560.243	70.33	16,185.389	NA	42.58
2042	8,487.481	3,007.688	5,479.793	3,614.287	438.931	4,388.109	50.222	40,471.788	54,330.347	74.49	13,858.559	NA	42.58
2043	8,698.397	3,118.904	5,579.493	3,704.103	446.917	4,382.940	51.728	42,809.733	54,100.083	79.13	11,290.350	NA	42.58
2044	8,911.901	3,232.098	5,679.804	3,795.021	454.952	4,369.816	53.280	45,413.704	53,879.347	84.29	8,465.643	NA	42.58
2045	9,128.457	3,347.603	5,780.854	3,887.238	463.046	4,350.156	54.879	48,309.093	53,676.770	90.00	5,367.677	NA	42.58

¹ Payroll shown is pensionable pay. It does not include amounts in excess of the pay caps applicable to members in Tier 2 participating in the Traditional and Portable plans.

² Excludes RSP contributions. Includes employer contributions.



Table 18

Hypothetical Assets to Determine Maximum Contribution

**Projections – Does Not Reflect Recognition of Deferred Asset Gains and Losses in Projected Actuarial Value of Assets
(Before Impact of Bonds Issued in 2004)**

**Assumes Investment Return of 6.50% Each Year on Actuarial Value of Assets
(\$ in Millions)**

Fiscal Year Ending	Total Payroll ¹	RSP Payroll	DB Payroll ¹	SURS Contributions ²	Member Contributions	Benefits	Expenses	Assets EOY	AAL	Funding Ratio	UAAL	Debt Service	SURS Contribution % of Total Payroll
2023	\$ 5,013.132	\$ 1,221.769	\$ 3,791.363	\$ 2,271.378	\$ 299.585	\$ 3,074.609	\$ 23.715	\$ 20,829.703	\$ 51,050.783	40.80 %	\$ 30,221.080	NA	45.31 %
2024	5,382.053	1,342.820	4,039.233	2,261.137	323.543	3,249.077	29.500	21,467.539	51,806.626	41.44	30,339.087	NA	42.01
2025	5,515.213	1,421.755	4,093.458	2,345.610	327.886	3,343.550	30.385	22,140.084	52,506.349	42.17	30,366.265	NA	42.53
2026	5,658.846	1,506.046	4,152.800	2,399.340	332.639	3,450.573	31.297	22,805.312	53,133.516	42.92	30,328.204	NA	42.40
2027	5,810.804	1,589.564	4,221.239	2,456.216	338.121	3,547.178	32.235	23,477.468	53,695.214	43.72	30,217.746	NA	42.27
2028	5,968.351	1,671.425	4,296.926	2,522.811	344.184	3,644.163	33.203	24,167.210	54,187.910	44.60	30,020.700	NA	42.27
2029	6,126.027	1,753.426	4,372.600	2,589.460	350.245	3,740.161	34.199	24,876.725	54,608.795	45.55	29,732.070	NA	42.27
2030	6,285.100	1,835.804	4,449.295	2,656.700	356.389	3,838.383	35.225	25,605.667	54,951.280	46.60	29,345.613	NA	42.27
2031	6,448.400	1,920.777	4,527.623	2,725.727	362.663	3,929.885	36.281	26,364.179	55,217.684	47.75	28,853.505	NA	42.27
2032	6,615.215	2,007.772	4,607.443	2,796.239	369.056	4,018.031	37.370	27,159.273	55,406.805	49.02	28,247.532	NA	42.27
2033	6,786.763	2,097.284	4,689.479	2,868.752	375.627	4,098.852	38.491	28,003.098	55,522.167	50.44	27,519.069	NA	42.27
2034	6,961.712	2,189.253	4,772.460	2,942.703	382.274	4,169.367	39.646	28,910.985	55,570.723	52.03	26,659.738	NA	42.27
2035	7,141.627	2,284.598	4,857.030	3,018.753	389.048	4,233.951	40.835	29,895.480	55,554.754	53.81	25,659.274	NA	42.27
2036	7,322.303	2,380.864	4,941.439	3,095.124	395.809	4,294.434	42.060	30,966.077	55,474.201	55.82	24,508.124	NA	42.27
2037	7,505.383	2,479.542	5,025.840	3,172.511	402.570	4,347.563	43.322	32,136.973	55,332.448	58.08	23,195.475	NA	42.27
2038	7,691.900	2,580.540	5,111.360	3,251.352	409.420	4,397.823	44.621	33,419.199	55,128.939	60.62	21,709.740	NA	42.27
2039	7,883.980	2,683.853	5,200.128	3,332.544	416.530	4,340.997	45.960	34,933.159	54,971.478	63.55	20,038.319	NA	42.27
2040	8,079.917	2,790.308	5,289.609	3,415.366	423.698	4,368.052	47.339	36,609.051	54,777.900	66.83	18,168.849	NA	42.27
2041	8,281.548	2,898.155	5,383.393	3,500.595	431.210	4,383.277	48.759	38,472.406	54,560.243	70.51	16,087.837	NA	42.27
2042	8,487.481	3,007.688	5,479.793	3,587.642	438.931	4,388.109	50.222	40,548.185	54,330.347	74.63	13,782.162	NA	42.27
2043	8,698.397	3,118.904	5,579.493	3,676.796	446.917	4,382.940	51.728	42,862.915	54,100.083	79.23	11,237.168	NA	42.27
2044	8,911.901	3,232.098	5,679.804	3,767.044	454.952	4,369.816	53.280	45,441.471	53,879.347	84.34	8,437.876	NA	42.27
2045	9,128.457	3,347.603	5,780.854	3,858.582	463.046	4,350.156	54.879	48,309.092	53,676.770	90.00	5,367.678	NA	42.27

¹ Payroll shown is pensionable pay. It does not include amounts in excess of the pay caps applicable to members in Tier 2 participating in the Traditional and Portable plans.

² Excludes RSP contributions. Includes employer contributions.



Table 19
Additional Details – Total Normal Cost Dollars
(\$ in Millions)

Fiscal Year Ending	Total Normal Cost ¹				Admin Expense				Normal Cost with Admin Expense			
	Tier 2				Tier 2				Tier 2			
	Tier 1	Current	Future	Total	Tier 1	Current	Future	Total	Tier 1	Current	Future	Total
2024	\$ 562.210	\$ 203.874	\$ 0.000	\$ 766.084	\$ 15.904	\$ 13.596	\$ 0.000	\$ 29.500	\$ 578.114	\$ 217.470	\$ 0.000	\$ 795.584
2025	531.359	197.467	29.753	758.579	15.135	13.052	2.198	30.385	546.494	210.519	31.951	788.964
2026	501.534	191.672	58.036	751.242	14.375	12.518	4.404	31.297	515.909	204.190	62.440	782.539
2027	472.519	187.124	85.284	744.927	13.598	12.056	6.581	32.235	486.116	199.180	91.865	777.161
2028	444.647	183.926	111.116	739.689	12.836	11.726	8.641	33.203	457.482	195.652	119.757	772.891
2029	417.020	181.583	136.487	735.090	12.075	11.484	10.639	34.199	429.095	193.068	147.126	769.289
2030	389.157	179.819	161.879	730.855	11.308	11.283	12.633	35.225	400.465	191.102	174.512	766.079
2031	361.120	178.463	187.500	727.083	10.530	11.104	14.648	36.281	371.649	189.567	202.148	763.364
2032	333.089	177.350	213.148	723.587	9.754	10.949	16.667	37.370	342.843	188.298	229.815	760.956
2033	305.768	176.327	238.949	721.044	8.997	10.808	18.686	38.491	314.765	187.135	257.636	759.536
2034	279.312	175.545	264.724	719.581	8.259	10.677	20.710	39.646	287.570	186.222	285.434	759.226
2035	253.068	175.164	290.370	718.602	7.525	10.558	22.752	40.835	260.593	185.722	313.122	759.437
2036	226.738	174.985	315.808	717.531	6.797	10.449	24.813	42.060	233.535	185.434	340.621	759.590
2037	200.374	174.784	341.292	716.450	6.075	10.335	26.912	43.322	206.449	185.118	368.204	759.771
2038	174.301	174.583	366.933	715.817	5.363	10.212	29.047	44.621	179.664	184.796	395.980	760.440
2039	149.324	174.463	392.660	716.447	4.677	10.082	31.201	45.960	154.001	184.545	423.862	762.408
2040	126.013	174.090	418.338	718.441	4.033	9.936	33.370	47.339	130.046	184.026	451.708	765.780
2041	105.199	173.311	444.032	722.542	3.448	9.766	35.545	48.759	108.647	183.077	479.577	771.301
2042	87.436	172.192	469.607	729.235	2.935	9.575	37.712	50.222	90.371	181.767	507.319	779.457
2043	72.308	170.716	495.178	738.202	2.487	9.364	39.878	51.728	74.795	180.080	535.055	789.930
2044	59.493	168.652	520.679	748.824	2.097	9.131	42.052	53.280	61.590	177.783	562.731	802.104
2045	48.622	165.741	546.303	760.666	1.758	8.865	44.256	54.879	50.380	174.606	590.559	815.545
2046	39.435	162.042	572.063	773.540	1.463	8.569	46.493	56.525	40.899	170.611	618.555	830.065

¹ Normal Cost excludes expense portion.

Values may not add due to rounding.



Table 20
Additional Details – Normal Cost Rates
(\$ in Millions)

Fiscal Year Ending	Expected Defined Benefit Plan Pay ¹				Total Normal Cost Rate ¹					Employer Normal Cost Rate		
	Tier 1	Tier 2		Total	Tier 1	Tier 2		Total	Combined Tier 2	Tier 1	Tier 2	Total
		Current	Future			Current	Future					
2024	\$ 2,145.673	\$ 1,834.396	\$ 0.000	\$ 3,980.069	26.94%	11.86%		19.99%	11.86%	18.93%	3.85%	11.98%
2025	2,008.081	1,731.642	291.625	4,031.348	27.21%	12.16%	10.96%	19.57%	11.98%	19.20%	3.97%	11.56%
2026	1,876.288	1,633.993	574.802	4,085.083	27.50%	12.50%	10.86%	19.16%	12.07%	19.49%	4.06%	11.15%
2027	1,749.770	1,551.429	846.876	4,148.075	27.78%	12.84%	10.85%	18.74%	12.14%	19.77%	4.13%	10.73%
2028	1,630.275	1,489.341	1,097.501	4,217.117	28.06%	13.14%	10.91%	18.33%	12.19%	20.05%	4.18%	10.32%
2029	1,514.329	1,440.241	1,334.269	4,288.839	28.34%	13.41%	11.03%	17.94%	12.26%	20.33%	4.25%	9.93%
2030	1,400.208	1,397.112	1,564.155	4,361.475	28.60%	13.68%	11.16%	17.56%	12.35%	20.59%	4.34%	9.55%
2031	1,288.155	1,358.368	1,791.990	4,438.513	28.85%	13.96%	11.28%	17.20%	12.43%	20.84%	4.42%	9.19%
2032	1,178.885	1,323.270	2,014.356	4,516.511	29.08%	14.23%	11.41%	16.85%	12.53%	21.07%	4.52%	8.84%
2033	1,074.207	1,290.373	2,231.061	4,595.641	29.30%	14.50%	11.55%	16.53%	12.63%	21.29%	4.62%	8.52%
2034	974.101	1,259.324	2,442.806	4,676.231	29.52%	14.79%	11.68%	16.24%	12.74%	21.51%	4.73%	8.23%
2035	877.087	1,230.649	2,651.893	4,759.629	29.71%	15.09%	11.81%	15.96%	12.85%	21.70%	4.84%	7.95%
2036	782.560	1,203.006	2,856.698	4,842.264	29.84%	15.41%	11.92%	15.69%	12.96%	21.83%	4.95%	7.68%
2037	690.619	1,174.785	3,059.227	4,924.631	29.89%	15.76%	12.04%	15.43%	13.07%	21.88%	5.06%	7.42%
2038	601.925	1,146.222	3,260.235	5,008.382	29.85%	16.12%	12.15%	15.18%	13.18%	21.84%	5.17%	7.17%
2039	518.489	1,117.758	3,459.180	5,095.427	29.70%	16.51%	12.25%	14.96%	13.29%	21.69%	5.28%	6.95%
2040	441.613	1,088.094	3,654.264	5,183.971	29.45%	16.91%	12.36%	14.77%	13.41%	21.44%	5.40%	6.76%
2041	373.037	1,056.636	3,845.851	5,275.524	29.12%	17.33%	12.47%	14.62%	13.52%	21.11%	5.51%	6.61%
2042	313.876	1,023.833	4,032.554	5,370.263	28.79%	17.75%	12.58%	14.51%	13.63%	20.78%	5.62%	6.50%
2043	262.879	989.934	4,215.630	5,468.443	28.45%	18.19%	12.69%	14.45%	13.74%	20.44%	5.73%	6.44%
2044	219.144	954.160	4,394.415	5,567.719	28.10%	18.63%	12.81%	14.41%	13.85%	20.09%	5.84%	6.40%
2045	181.564	915.525	4,570.617	5,667.706	27.75%	19.07%	12.92%	14.39%	13.95%	19.74%	5.94%	6.38%
2046	149.324	874.441	4,744.400	5,768.165	27.39%	19.51%	13.04%	14.39%	14.05%	19.38%	6.03%	6.38%

¹Expected pay for members in the defined benefit plans at June 30. Used to develop normal cost as a percent of pay.

Values may not add due to rounding.



Table 21
Additional Details – Number of Members, Contributions and Payroll
(\$ in Millions)

Fiscal Year Ending	RSP Total Active Members	Number of Defined Benefit Plan Active				Defined Benefit Plan Payroll ¹				Member Contributions			
		Tier 2				Tier 2				Tier 2			
		Tier 1	Current	Future	Total	Tier 1	Current	Future	Total	Tier 1	Current	Future	Total
2023	13,136	28,006	33,503	0	61,509	\$ 2,136.614	\$ 1,654.750	\$ 0.000	\$ 3,791.363				\$ 299.585
2024	14,400	25,030	29,540	5,675	60,245	2,030.822	1,726.405	282.006	4,039.233	\$ 162.669	\$ 138.285	\$ 22.589	323.543
2025	15,587	22,358	25,978	10,720	59,056	1,901.138	1,635.109	557.211	4,093.458	152.281	130.972	44.633	327.886
2026	16,757	19,862	22,763	15,263	57,888	1,775.538	1,548.460	828.802	4,152.800	142.220	124.032	66.387	332.639
2027	17,541	17,773	20,623	18,708	57,104	1,656.328	1,482.304	1,082.607	4,221.239	132.671	118.733	86.717	338.121
2028	18,116	15,952	19,076	21,500	56,528	1,542.257	1,432.713	1,321.956	4,296.926	123.535	114.760	105.889	344.184
2029	18,624	14,274	17,755	23,990	56,019	1,429.563	1,389.866	1,553.171	4,372.600	114.508	111.328	124.409	350.245
2030	19,084	12,726	16,601	26,234	55,561	1,318.935	1,351.540	1,778.820	4,449.295	105.648	108.258	142.483	356.389
2031	19,500	11,292	15,587	28,266	55,145	1,209.950	1,316.535	2,001.138	4,527.623	96.918	105.454	160.291	362.663
2032	19,880	9,987	14,678	30,100	54,765	1,104.629	1,284.433	2,218.381	4,607.443	88.481	102.883	177.692	369.056
2033	20,236	8,798	13,843	31,771	54,412	1,004.624	1,253.574	2,431.281	4,689.479	80.470	100.411	194.746	375.627
2034	20,557	7,710	13,093	33,283	54,086	908.201	1,225.170	2,639.089	4,772.460	72.747	98.136	211.391	382.274
2035	20,863	6,704	12,411	34,667	53,782	814.134	1,198.466	2,844.430	4,857.030	65.212	95.997	227.839	389.048
2036	21,145	5,778	11,772	35,950	53,500	722.507	1,171.893	3,047.039	4,941.439	57.872	93.869	244.068	395.809
2037	21,408	4,921	11,166	37,152	53,239	633.489	1,144.180	3,248.171	5,025.840	50.743	91.649	260.178	402.570
2038	21,651	4,139	10,599	38,257	52,995	548.237	1,116.763	3,446.360	5,111.360	43.914	89.453	276.053	409.420
2039	21,874	3,446	10,057	39,269	52,772	469.610	1,089.024	3,641.494	5,200.128	37.615	87.231	291.684	416.530
2040	22,082	2,835	9,528	40,200	52,563	397.222	1,058.895	3,833.492	5,289.609	31.818	84.817	307.063	423.698
2041	22,262	2,326	9,018	41,037	52,381	335.049	1,027.622	4,020.722	5,383.393	26.837	82.313	322.060	431.210
2042	22,428	1,900	8,521	41,795	52,216	281.114	994.834	4,203.845	5,479.793	22.517	79.686	336.728	438.931
2043	22,573	1,545	8,041	42,485	52,071	234.967	961.188	4,383.338	5,579.493	18.821	76.991	351.105	446.917
2044	22,708	1,251	7,561	43,127	51,939	195.262	924.491	4,560.051	5,679.804	15.640	74.052	365.260	454.952
2045	22,829	1,007	7,081	43,728	51,816	161.196	885.145	4,734.513	5,780.854	12.912	70.900	379.234	463.046

¹ Payroll shown is pensionable pay. It does not include amounts in excess of the pay caps applicable to members in the Tier 2 participating in the Traditional and Portable plans.

Values may not add due to rounding.



Table 22
Additional Details – Present Value of Future Benefits and Benefit Payments
(\$ in Millions)

Fiscal Year Ending	Present Value of Future Benefits						Benefit Payments					
	Current Retirees	Current Inactives	Tier 1 Actives	Tier 2 Actives		Total	Current Retirees	Current Inactives	Tier 1 Actives	Tier 2 Actives		Total
				Current	Future					Current	Future	
2023	\$ 35,360.221	\$ 3,224.634	\$ 15,408.188	\$ 3,608.308	\$ 0.000	\$ 57,601.351						\$ 3,074.609
2024	34,572.564	3,347.567	16,285.877	3,786.383	298.303	58,290.694	\$ 2,990.414	\$ 83.981	\$ 120.004	\$ 54.678	\$ 0.000	3,249.077
2025	33,721.660	3,459.757	17,161.285	3,970.617	619.710	58,933.029	3,002.088	102.135	177.497	59.916	1.914	3,343.550
2026	32,810.315	3,566.289	18,009.571	4,163.760	967.147	59,517.082	3,007.062	114.684	258.916	62.867	7.044	3,450.573
2027	31,841.314	3,667.991	18,829.523	4,371.178	1,336.764	60,046.770	3,005.529	126.073	339.800	61.181	14.595	3,547.178
2028	30,817.621	3,761.450	19,616.371	4,595.333	1,729.439	60,520.214	2,997.494	140.468	423.523	58.007	24.671	3,644.163
2029	29,742.969	3,842.981	20,364.084	4,838.177	2,147.477	60,935.688	2,982.395	157.911	511.005	53.995	34.855	3,740.161
2030	28,621.450	3,911.081	21,065.719	5,098.550	2,589.269	61,286.069	2,960.122	176.063	602.750	52.283	47.165	3,838.383
2031	27,457.631	3,963.842	21,716.712	5,378.301	3,055.277	61,571.763	2,930.472	195.215	696.015	49.883	58.300	3,929.885
2032	26,256.531	4,001.418	22,310.286	5,678.191	3,544.531	61,790.957	2,893.294	213.252	792.656	47.965	70.864	4,018.031
2033	25,023.806	4,024.015	22,846.470	5,994.286	4,058.309	61,946.886	2,848.287	230.134	885.654	51.128	83.649	4,098.852
2034	23,765.499	4,029.560	23,322.501	6,321.081	4,607.608	62,046.249	2,795.434	248.081	977.714	60.648	87.490	4,169.367
2035	22,487.961	4,017.647	23,732.471	6,658.547	5,194.208	62,090.834	2,734.812	265.347	1,071.711	70.871	91.210	4,233.951
2036	21,197.907	3,986.735	24,071.236	7,006.435	5,820.357	62,082.670	2,666.475	283.006	1,166.529	82.005	96.419	4,294.434
2037	19,902.318	3,935.951	24,335.950	7,364.113	6,487.320	62,025.652	2,590.585	300.315	1,259.624	94.411	102.628	4,347.563
2038	18,608.567	3,862.414	24,520.738	7,730.974	7,195.243	61,917.936	2,507.200	319.164	1,353.745	108.020	109.694	4,397.823
2039	17,323.961	3,864.389	24,625.500	8,106.485	7,945.295	61,865.630	2,416.852	241.361	1,442.929	122.726	117.129	4,340.997
2040	16,055.798	3,853.925	24,647.796	8,489.524	8,738.931	61,785.974	2,320.006	253.539	1,529.437	139.066	126.004	4,368.052
2041	14,811.263	3,831.394	24,590.587	8,878.506	9,576.107	61,687.857	2,217.236	264.574	1,607.882	157.418	136.167	4,383.277
2042	13,597.294	3,797.644	24,455.960	9,271.625	10,458.775	61,581.298	2,109.230	274.025	1,679.298	177.896	147.660	4,388.109
2043	12,420.415	3,753.042	24,246.848	9,667.004	11,388.627	61,475.936	1,996.828	282.415	1,742.994	200.455	160.248	4,382.940
2044	11,286.714	3,697.960	23,966.313	10,062.179	12,368.387	61,381.553	1,880.863	289.760	1,799.032	225.547	174.614	4,369.816
2045	10,201.640	3,632.425	23,618.625	10,453.393	13,399.386	61,305.469	1,762.336	296.420	1,846.433	254.269	190.698	4,350.156

Values may not add due to rounding.



Table 23
Additional Details – Actuarial Accrued Liability and Employer Normal Cost Dollars
(\$ in Millions)

Fiscal Year Ending	Actuarial Accrued Liability						Fiscal Year Ending	Employer Normal Cost Dollar		
	Current Retirees	Current Inactives	Tier 1 Actives	Tier 2 Actives		Total		Tier 1	Tier 2	Total
				Current	Future					
2023	\$ 35,360.221	\$ 3,224.634	\$ 11,321.197	\$ 1,144.731	\$ 0.000	\$ 51,050.783	2024	\$ 415.445	\$ 56.596	\$ 472.041
2024	34,572.564	3,347.567	12,513.426	1,373.069	0.000	51,806.626	2025	394.213	66.865	461.078
2025	33,721.660	3,459.757	13,691.981	1,604.221	28.730	52,506.349	2026	373.689	76.211	449.900
2026	32,810.315	3,566.289	14,832.339	1,841.352	83.221	53,133.516	2027	353.445	85.595	439.040
2027	31,841.314	3,667.991	15,933.406	2,090.923	161.580	53,695.214	2028	333.947	94.760	428.707
2028	30,817.621	3,761.450	16,990.876	2,356.670	261.293	54,187.910	2029	314.587	104.457	419.044
2029	29,742.969	3,842.981	17,998.293	2,641.393	383.159	54,608.795	2030	294.817	114.873	409.690
2030	28,621.450	3,911.081	18,947.755	2,944.545	526.449	54,951.280	2031	274.731	125.970	400.701
2031	27,457.631	3,963.842	19,833.753	3,268.458	694.000	55,217.684	2032	254.362	137.538	391.900
2032	26,256.531	4,001.418	20,648.678	3,614.231	885.947	55,406.805	2033	234.295	149.614	383.909
2033	25,023.806	4,024.015	21,392.408	3,978.137	1,103.801	55,522.167	2034	214.823	162.129	376.952
2034	23,765.499	4,029.560	22,062.171	4,355.042	1,358.451	55,570.723	2035	195.381	175.008	370.389
2035	22,487.961	4,017.647	22,651.382	4,745.482	1,652.282	55,554.754	2036	175.663	188.118	363.781
2036	21,197.907	3,986.735	23,153.868	5,149.604	1,986.087	55,474.201	2037	155.706	201.495	357.201
2037	19,902.318	3,935.951	23,565.736	5,566.962	2,361.481	55,332.448	2038	135.750	215.270	351.020
2038	18,608.567	3,862.414	23,880.336	5,997.176	2,780.446	55,128.939	2039	116.386	229.492	345.878
2039	17,323.961	3,864.389	24,097.573	6,440.035	3,245.520	54,971.478	2040	98.228	243.854	342.082
2040	16,055.798	3,853.925	24,215.600	6,894.413	3,758.164	54,777.900	2041	81.810	258.281	340.091
2041	14,811.263	3,831.394	24,238.861	7,358.567	4,320.158	54,560.243	2042	67.854	272.672	340.526
2042	13,597.294	3,797.644	24,171.605	7,830.590	4,933.214	54,330.347	2043	55.974	287.039	343.013
2043	12,420.415	3,753.042	24,018.631	8,308.479	5,599.516	54,100.083	2044	45.950	301.202	347.152
2044	11,286.714	3,697.960	23,784.657	8,789.397	6,320.619	53,879.347	2045	37.468	315.031	352.499
2045	10,201.640	3,632.425	23,475.341	9,268.924	7,098.440	53,676.770	2046	30.332	328.530	358.862

Values may not add due to rounding.



Table 24
Additional Details – Payroll and Payroll in Excess of Governor’s Pay
(\$ in Millions)

Fiscal Year Ending	Defined Benefit Plan Payroll ¹				Defined Benefit Plan Payroll in Excess of Governor’s Pay ²		
	Tier 1	Tier 2		Total	Tier 1	Tier 2	
		Current	Future			Current	Total
2023	\$ 2,136.614	\$ 1,654.750	\$ 0.000	\$ 3,791.363	\$ 40.034	\$ 0.000	\$ 40.034
2024	2,030.822	1,726.405	282.006	4,039.233	49.206	0.000	49.206
2025	1,901.138	1,635.109	557.211	4,093.458	46.148	0.000	46.148
2026	1,775.538	1,548.460	828.802	4,152.800	44.368	0.000	44.368
2027	1,656.328	1,482.304	1,082.607	4,221.239	43.077	0.000	43.077
2028	1,542.257	1,432.713	1,321.956	4,296.926	41.797	0.000	41.797
2029	1,429.563	1,389.866	1,553.171	4,372.600	40.291	0.000	40.291
2030	1,318.935	1,351.540	1,778.820	4,449.295	38.728	0.000	38.728
2031	1,209.950	1,316.535	2,001.138	4,527.623	36.734	0.000	36.734
2032	1,104.629	1,284.433	2,218.381	4,607.443	34.940	0.000	34.940
2033	1,004.624	1,253.574	2,431.281	4,689.479	33.235	0.000	33.235
2034	908.201	1,225.170	2,639.089	4,772.460	31.447	0.000	31.447
2035	814.134	1,198.466	2,844.430	4,857.030	29.608	0.000	29.608
2036	722.507	1,171.893	3,047.039	4,941.439	27.605	0.000	27.605
2037	633.489	1,144.180	3,248.171	5,025.840	25.485	0.000	25.485
2038	548.237	1,116.763	3,446.360	5,111.360	23.372	0.000	23.372
2039	469.610	1,089.024	3,641.494	5,200.128	21.344	0.000	21.344
2040	397.222	1,058.895	3,833.492	5,289.609	19.189	0.000	19.189
2041	335.049	1,027.622	4,020.722	5,383.393	17.200	0.000	17.200
2042	281.114	994.834	4,203.845	5,479.793	15.204	0.000	15.204
2043	234.967	961.188	4,383.338	5,579.493	13.395	0.000	13.395
2044	195.262	924.491	4,560.051	5,679.804	11.752	0.000	11.752
2045	161.196	885.145	4,734.513	5,780.854	10.198	0.000	10.198

¹ Payroll shown is pensionable pay. It does not include amounts in excess of the pay caps applicable to members in Tier 2 participating in the Traditional and Portable plans.

² Governor’s pay is \$216,000 in 2024 and is projected to increase annually by 1.125%.

Values may not add due to rounding.



Table 25
Additional Details – Statutorily Required Employer Contributions
(\$ in Millions)

Fiscal Year Ending	Applicable Employer Normal Cost Rates		Employer Normal Cost Contributions for Pay in Excess of the Governor's Pay ¹			Total Employer Contributions Required by Statute ²		
	Tier 1	Total	Tier 1	Tier 2	Total	Tier 1	Tier 2	Total
2025	18.93%	11.98%			\$ 3.474	\$ 0.000	\$ 0.000	\$ 3.474
2026	19.20%	11.56%	\$ 3.982	\$ 0.000	3.982	3.982	0.000	3.982
2027	19.49%	11.15%	3.601	0.000	3.601	3.601	0.000	3.601
2028	19.77%	10.73%	3.331	0.000	3.331	3.331	0.000	3.331
2029	20.05%	10.32%	3.111	0.000	3.111	3.111	0.000	3.111
2030	20.33%	9.93%	2.904	0.000	2.904	2.904	0.000	2.904
2031	20.59%	9.55%	2.695	0.000	2.695	2.695	0.000	2.695
2032	20.84%	9.19%	2.491	0.000	2.491	2.491	0.000	2.491
2033	21.07%	8.84%	2.273	0.000	2.273	2.273	0.000	2.273
2034	21.29%	8.52%	2.083	0.000	2.083	2.083	0.000	2.083
2035	21.51%	8.23%	1.914	0.000	1.914	1.914	0.000	1.914
2036	21.70%	7.95%	1.749	0.000	1.749	1.749	0.000	1.749
2037	21.83%	7.68%	1.591	0.000	1.591	1.591	0.000	1.591
2038	21.88%	7.42%	1.433	0.000	1.433	1.433	0.000	1.433
2039	21.84%	7.17%	1.280	0.000	1.280	1.280	0.000	1.280
2040	21.69%	6.95%	1.137	0.000	1.137	1.137	0.000	1.137
2041	21.44%	6.76%	1.010	0.000	1.010	1.010	0.000	1.010
2042	21.11%	6.61%	0.888	0.000	0.888	0.888	0.000	0.888
2043	20.78%	6.50%	0.783	0.000	0.783	0.783	0.000	0.783
2044	20.44%	6.44%	0.685	0.000	0.685	0.685	0.000	0.685
2045	20.09%	6.40%	0.600	0.000	0.600	0.600	0.000	0.600
2046	19.74%	6.38%	0.525	0.000	0.525	0.525	0.000	0.525

¹ FY 2025 amount based on excess pay amount as provided by SURS and the total employer normal cost rate. Amounts in FY 2026 and thereafter based on excess pay amount projected by GRS and the total employer normal cost rate. SURS may want to consider having employer normal cost contributions be based on the normal cost rate by tier. 30% of future Tier 1 excess pay employer contributions that would have been calculated are not included because they are already assumed to be part of the federal and trust funds contributions.

² Projected employer contributions do not include 6% employer billing contributions. No additional assumption is made for earnings greater than 6% during the final average salary (FAS) period. The participant's employer is required to make contributions equal to the present value of the increase in benefits attributable to member pay increases in excess of 6% during the FAS period. These contributions are collected when the participant retires.

Values may not add due to rounding.



APPENDIX F

HISTORICAL SCHEDULES

Table 26
Historical Schedule of Funding Status
(\$ in Thousands)

As of June 30	Actuarial Value of Assets	AAL	UAAL	Funded Ratio	Payroll/DB*	UAAL as % of Payroll
2009	\$ 14,281,998	\$ 26,316,231	\$12,034,233	54.27 %	\$3,463,922	347.42 %
2010 **	13,966,643	30,120,427	16,153,784	46.37	3,491,071	462.72
2011	13,945,680	31,514,336	17,568,656	44.25	3,460,838	507.64
2012	13,949,905	33,170,216	19,220,311	42.06	3,477,166	552.76
2013	14,262,621	34,373,104	20,110,483	41.49	3,533,858	569.08
2014 **	15,844,714	37,429,515	21,584,801	42.33	3,522,246	612.81
2015	17,104,607	39,520,687	22,416,080	43.28	3,606,537	621.54
2016	17,701,646	40,923,301	23,221,655	43.26	3,513,108	661.00
2017	18,594,326	41,853,348	23,259,022	44.43	3,458,320	672.55
2018 **	19,347,886	45,258,751	25,910,865	42.75	3,470,226	746.66
2019	19,661,891	46,443,937	26,782,046	42.33	3,506,650	763.75
2020	20,091,675	47,580,470	27,488,795	42.23	3,642,617	754.64
2021 **	21,484,799	48,898,480	27,413,681	43.94	3,638,244	753.49
2022	22,554,752	49,869,932	27,315,180	45.23	3,613,383	755.94
2023	23,381,241	51,050,783	27,669,542	45.80	3,744,813	738.88

AAL – Actuarial Accrued Liability.

UAAL – Unfunded Actuarial Accrued Liability.

* Defined benefit payroll as of June 30, 2022 and later is based on the employee contributions in the financial statements for the fiscal year and an employee contribution rate of 8.00 percent. Payroll prior to June 30, 2022 is rolled forward with salary scale for one year and uses capped payroll for members hired on and after January 1, 2011.

** Investment rate of return assumption decreased from 8.50 percent to 7.75 percent in plan year 2010, decreased from 7.75 percent to 7.25 percent in plan year 2014, decreased from 7.25 percent to 6.75 percent in plan year 2018, and decreased from 6.75 percent to 6.50 percent in plan year 2021.



Table 27
Historical Comparison of ARC and State Contributions
(\$ in Millions)

Fiscal Year	(1) Total Normal Cost	(2) Amortization of UAAL	(3) (1) + (2) Total ADC	(4) Member Contribution	(5) (3) - (4) Net State ARC*	(6) Actual State Contribution	(7) (6) / (5) State Cont. as Percent of Net ARC
2003			\$ 843.8	\$ 246.3	\$ 597.5	\$ 285.3	47.74 %
2004			934.8	243.8	691.0	1,757.5	254.36
2005			859.7	251.9	607.8	285.4	46.96
2006			914.9	252.9	662.0	180.0	27.19
2007			968.3	262.4	705.9	261.1	36.99
2008			971.6	264.1	707.5	344.9	48.75
2009			1,147.3	273.3	874.0	451.6	51.67
2010 **			1,278.3	275.0	1,003.3	696.6	69.43
2011 ***	\$ 723.798	\$ 795.427	1,519.2	260.2	1,259.0	773.6	61.44
2012	700.972	1,000.612	1,701.584	258.236	1,443.348	985.815	68.30
2013	699.747	1,094.681	1,794.428	245.141	1,549.287	1,401.481	90.46
2014	698.225	1,145.380	1,843.605	283.081	1,560.524	1,502.864	96.31

* ARC - Annual Required Contribution as defined in GASB Statements No. 25 and 27. The ARC is the Actuarially Determined Contribution ("ADC") net of member contributions.

** Assets at Actuarial Value (Market Value through 2009, then Actuarial Value beginning with Fiscal Year 2010).

*** Investment rate of return assumption decreased from 8.50 percent to 7.75 percent in Fiscal Year 2011.

Beginning in Fiscal Year 2011, dollars are shown rounded to three decimal places.

Information beginning with Fiscal Year 2015 can be found in Table 11 of the report.



Table 28
Historical Schedule of Contributions
(\$ in Thousands)

FY Ending June 30,	Actuarially Determined Contribution	Actual Contribution	Contribution Deficiency (Excess)	Estimated Covered Payroll	Actual Contribution as a % of Covered Payroll
2014	\$ 1,560,524	\$ 1,502,864	\$ 57,660	\$ 3,522,246	42.67 %
2015	1,622,656	1,528,525	94,130	3,606,537	42.38
2016	1,811,060	1,582,295	228,765	3,513,108	45.04
2017	1,864,843	1,650,551	214,292	3,458,320	47.73
2018	1,862,033	1,607,880	254,153	3,470,226	46.33
2019	2,239,366	1,642,054	597,312	3,506,650	46.83
2020	2,299,031	1,838,786	460,245	3,642,617	50.48
2021	2,303,266	1,978,743	324,523	3,638,244	54.39
2022	2,377,774	2,136,059	241,715	3,613,383	59.12
2023	2,373,000	2,138,712	234,288	3,744,813	57.11

For Fiscal Years 2015 and prior, the Actuarially Determined Contribution is equal to normal cost plus 30-year open period amortization of the unfunded actuarial accrued liability as a level percentage of total payroll.

For Fiscal Years 2016 and after, the Actuarially Determined Contribution is equal to the net normal cost plus closed period amortization of the unfunded actuarial accrued liability as a level percentage of defined benefit plan pensionable (capped) payroll to pay off the total unfunded liability by 2045.

Covered employee payroll as of June 30, 2022 and later is based on the employee contributions in the financial statements for the fiscal year and an employee contribution rate of 8.00%. Covered employee payroll prior to June 30, 2022 is equal to defined benefit payroll from the actuarial valuation as of the same date and rolled forward with one year of wage inflation.



APPENDIX G

ACTUARIAL METHODS AND ASSUMPTIONS

Actuarial Methods and Assumptions

Projected Unit Credit Method

The Projected Unit Credit Method is mandated under Section 15-155 of the SURS Article of the Illinois Pension Code as the funding method to be used for SURS.

The concept of this method is that funding of benefits should occur as benefits are accrued (earned) by active members of SURS.

The Normal Cost (“NC”) for a fiscal year under this method is the actuarial present value of all benefits expected to be accrued during the fiscal year adjusted for future expected salary increases. The Actuarial Accrued Liability (“AAL”) under this method is the actuarial present value of all benefits accrued to the valuation date. To the extent that the assets of the fund are insufficient to cover the AAL, an Unfunded Actuarial Accrued Liability (“UAAL”) develops. Under the classical application of this method, the contribution for a year is the NC for that year plus an amount to amortize the UAAL.

Funding Policy to Calculate Statutory Contributions

Under Section 15-155 of the Illinois Pension Code, the employer/State contribution is determined such that the assets of SURS reach 90% of the AAL by the end of FY 2045.

This contribution is determined as a level percentage of pay for all years except that the contribution rates through 2010 shall grade in equal steps to the desired level contribution rate. *We have assumed the contribution would be based on pensionable (capped) payroll for members hired on or after January 1, 2011 (“Tier 2 members”).* Pensionable pay does not include amounts in excess of the pay cap (\$119,892 in fiscal year 2023 for Tier 2, increased by the lesser of 3% and 1/2 of the increase in CPI-U as measured in the preceding 12-month calendar year) that is applicable to members hired on or after January 1, 2011, participating in the defined benefit plans.

Public Act 100-0023 (Effective July 6, 2017) made the following changes to the SURS funding policy:

State Contributions

- Requires the State to make additional contributions to SURS in FY 2018, FY 2019 and FY 2020 equal to 2% of the total payroll of each employee who participates in the Optional Hybrid Plan or who participates in the Tier 2 plan in lieu of the Optional Hybrid Plan.
- Requires any change in an actuarial assumption that increases or decreases the required State contribution to be implemented in equal annual amounts over a five-year period beginning in the State fiscal year in which the change first applies to the required State contribution.
 - For changes that first applied in FY 2014, FY 2015, FY 2016 or FY 2017, the impact is calculated based on a five-year period and the applicable portion is recognized during the remaining fiscal years in that five-year period.

Actuarial Methods and Assumptions

Employer Contributions

- Requires employers to contribute the employer normal cost of the portion of an employee's earnings that exceeds the amount of salary set for the governor, for academic years beginning on or after July 1, 2017. (Applicable to Tier 1 and Tier 2 employees.)

Public Act 100-0587 (Effective June 4, 2018) made the following changes to the SURS funding policy:

Employer Contributions

- For academic years beginning on or after July 1, 2018, and for earnings paid under a contract or collective bargaining agreement entered into, amended or renewed on or after the effective date of the amendatory Act (June 5, 2018), if a participant's earnings for any academic year with the same employer as the previous academic year used to determine the final average salary increased by more than 3.00%, then the participant's employer shall pay the System the present value of the increase in benefits resulting from the portion of the increase in earnings that is in excess of 3.00%. Prior to the effective date of Public Act 100-0587, the payment from employers was for pay increases in excess of 6.00%.

PA 101-0010 rescinded the change to 3% from PA 100-0587. Therefore, employers make contributions equal to the present value of the increase in benefit attributable to members who receive pay increases in excess of 6% during the final average salary (FAS) period.

The 6% employer billing rule is assumed to apply to all current and future Tier 1 and Tier 2 members.

Statutory Contributions Related to the Optional Hybrid Plan

SURS is currently not moving forward with the implementation of the Optional Hybrid Plan (OHP) created under PA 100-0023. Additional clarifying legislation is needed for SURS to be able to do so. Therefore, contributions related to the OHP are not included in the actuarial valuation, including contributions for employer normal cost, additional 2 percent of payroll contributions and unfunded liability contributions.

Phase In of the Financial Impact of Assumption Changes

On the following page is a table with the recognition schedule for the phase in of actuarial assumption changes required under Public Act 100-0023. The following actuarial assumption changes were made:

1. Beginning with the June 30, 2018 actuarial valuation, there were changes to the economic and demographic actuarial assumptions.
2. Beginning with the June 30, 2021 actuarial valuation, there were changes to the economic and demographic actuarial assumptions.

Actuarial Methods and Assumptions

Valuation Year Ending 6/30	2022	2023	2024	2025	2026	2027
Applicable Fiscal Year Ending 6/30	2024	2025	2026	2027	2028	2029
	\$ in Millions					
	After Impact of Bonds					
Contribution Before Assumption Change:						
(1) Contribution Dollar	\$ 2,186.0	\$ 2,268.0				
(2) Contribution Rate	42.24%	41.12%				
Contribution After Assumption Change:						
(3) Contribution Dollar	2,186.0	2,268.0				
(4) Contribution Rate	42.24%	41.12%				
(5) Assumption Impact as Percentage of Payroll						
=(4)-(2)	0.00%	0.00%				
(6) Assumption Change Impact Recognized						
This Year (5 year recognition)						
(6a) From This Year	0.00%	0.00%				
(6b) From One Year Ago	-0.09%	0.00%	0.00%			
(6c) From Two Years Ago	0.00%	-0.09%	0.00%	0.00%		
(6d) From Three Years Ago	0.00%	0.00%	-0.09%	0.00%	0.00%	
(6e) From Four Years Ago	0.68%	0.00%	0.00%	-0.07%	0.00%	0.00%
(6f) Total Recognized Assumption Change Impact	0.59%	-0.09%	-0.09%	-0.07%	0.00%	0.00%

Contribution Related to Pay in Excess of Governor's Pay

Following is a table with the estimated contributions required under Public Act 100-0023 to be made by employers for pay in excess of the Governor's pay. (Information calculated and provided by SURS.)

\$ in Millions									
Contribution Year	Governor's Pay		Pay for Preceding Fiscal Year for Affected Members						
	Fiscal Year	Amount	Year of Member Pay	Excess Pay	Employer Normal Cost Rate	Excess Pay * ER NC Rate	Additional Adjustments ¹	Estimated Employer Contributions	
2018	2017	\$ 177,500	2017	\$ 46.831	12.46%	\$ 5.835	\$ (1.579)	\$ 4.256	
2019	2018	177,500	2017	47.193	12.29%	5.800	(1.654)	4.146	
2020	2019	177,500	2018	55.726	13.02%	7.256	(2.132)	5.124	
2021	2020	177,500	2019	60.295	12.70%	7.657	(2.128)	5.529	
2022	2021	181,700	2020	58.515	12.32%	7.209	(1.840)	5.369	
2023	2022	184,800	2021	54.838	12.83%	7.036	(1.988)	5.048	
2024	2023	190,700	2022	54.291	12.53%	6.803	(1.810)	4.993	
2025	2024	216,000	2023	40.034	11.98%	4.796	(1.322)	3.474	

¹ Additional adjustments for members with pay in excess of the Governor's pay whose employers' already make normal cost contributions.

Actuarial Methods and Assumptions

Asset Valuation Method

Prior to the actuarial valuation as of June 30, 2009, market value of assets was used. Under Section 15-155(l) of the Illinois Pension Code, beginning with the actuarial valuation as of June 30, 2009, the asset value is the actuarial value of assets which is calculated by recognizing 20% of the investment gain or loss (the difference between the actual investment return and the expected investment return) on the market value of assets for each of the five following fiscal years. This method was not applied retroactively to recognize a portion of investment gains or losses from previous fiscal years.

Following is a table with the investment return assumption used in recent actuarial valuations.

Valuation Date	Investment Return Assumption
Prior to June 30, 2010	8.50%
June 30, 2010 through June 30, 2013	7.75%
June 30, 2014 through June 30, 2017	7.25%
June 30, 2018 through June 30, 2020	6.75%
June 30, 2021 to present	6.50%

Actuarial Methods and Assumptions

Actuarial Assumptions

(Most Adopted Effective with the June 30, 2021, Actuarial Valuation)

Under Section 15-155(a) of the Illinois Pension Code, the Board adopts the assumptions after consultation with the actuary. All actuarial assumptions are expectations of future experience and are not market measures. The rationale for the actuarial assumptions may be found in the experience study report covering the period June 30, 2017 through June 30, 2020, issued to the Board of Trustees on June 1, 2021.

Rate of Investment Return. For all purposes under the system the rate of investment return is assumed to be 6.50% per annum beginning with the **June 30, 2021** actuarial valuation. This assumption is net of investment expenses.

Price Inflation (Increase in Consumer Price Index “CPI”). The assumed rate is 2.25% per annum.

Effective Rate of Interest. The actuarial valuation assumed rate credited to member accounts is 6.50% per annum, beginning with the June 30, 2021 actuarial valuation.

Cost of Living Adjustment “Automatic Annual Increase (AAI).” The assumed rate is 3.00% per annum based on the benefit provision of 3.00% annual compound increases for members hired before January 1, 2011, who have not elected the AAI buyout and 1.50% simple (non-compound) increases for members who have elected the buyout. The assumed rate is 1.125% for members hired on or after January 1, 2011, based on the benefit provision of increases equal to ½ of the increase in CPI-U with a maximum increase of 3.00%.

Annual Compensation Increases. Each member’s compensation is assumed to increase by 3.00% each year, 2.25% reflecting salary inflation and 0.75% reflecting standard of living increases. That rate is increased for members with less than 35 years of service to reflect merit, longevity and promotion increases. (Compensation is limited by the pay cap for Tier 2 members.) The rates are based on service at the beginning of the year and are as follows:

Service Year	Total Increase	
	Under Age 50	50 and Older
0	12.75%	12.00%
1	12.75%	12.00%
2	9.00%	8.25%
3	7.75%	7.00%
4	6.75%	6.00%
5	6.25%	5.50%
6	6.00%	5.25%
7	5.50%	4.75%
8-10	5.00%	4.25%
11-14	4.50%	3.75%
15-18	4.25%	3.50%
19	4.00%	3.25%
20-33	3.75%	3.25%
34+	3.50%	3.00%



Actuarial Methods and Assumptions

General Wage Inflation. The assumed rate of general wage inflation is 3.00%.

Mortality. The mortality assumptions are as follows:

Members classified as an employee type of academic:

Applicable Group	Base Mortality Table	Male Scaling Factor	Female Scaling Factor
Pre-retirement	Pub-2010 Employee Mortality Table (for Teachers)	101%	97%
Post-retirement (non-disabled)	Pub-2010 Healthy Retiree Mortality Table (for Teachers)	99%	105%
Post-retirement (disabled)	Pub-2010 Disabled Retiree Mortality Table (for Non-Safety Employees)	112%	110%

Members classified as an employee type of non-academic:

Applicable Group	Base Mortality Table	Male Scaling Factor	Female Scaling Factor
Pre-retirement	Pub-2010 Employee Mortality Table (for General Employees)	114%	105%
Post-retirement (non-disabled)	Pub-2010 Healthy Retiree Mortality Table (for General Employees)	99%	107%
Post-retirement (disabled)	Pub-2010 Disabled Retiree Mortality Table (for Non-Safety Employees)	112%	110%

Future mortality improvements are reflected by projecting the base mortality tables from 2010 using the Society of Actuaries (SOA) MP-2020 projection scale. The assumptions are generational mortality tables and include a margin for improvement.

Following are the future life expectancies for post-retirement (non-disabled) mortality:

Age	Future Life Expectancy (years) in 2023				Future Life Expectancy (years) in 2035			
	Academic		Non-Academic		Academic		Non-Academic	
	Male	Female	Male	Female	Male	Female	Male	Female
35	53.57	55.31	51.19	53.50	54.48	56.13	52.30	54.46
40	48.32	50.05	45.92	48.20	49.23	50.88	47.03	49.17
45	43.09	44.81	40.68	42.92	43.99	45.64	41.77	43.88
50	37.88	39.58	35.56	37.75	38.78	40.41	36.63	38.70
55	32.76	34.45	30.67	32.80	33.65	35.27	31.70	33.72
60	27.80	29.50	25.95	27.96	28.65	30.29	26.92	28.84
65	23.02	24.68	21.44	23.26	23.82	25.42	22.32	24.07
70	18.48	20.01	17.17	18.76	19.19	20.67	17.93	19.48
75	14.27	15.58	13.24	14.56	14.87	16.17	13.87	15.17

Actuarial Methods and Assumptions

Disability. A table of disability incidence with rates follows:

Age	Academic		Non-Academic	
	Male	Female	Male	Female
20	0.007410%	0.016400%	0.027170%	0.037720%
21	0.007590%	0.017350%	0.027830%	0.039905%
22	0.007770%	0.018300%	0.028490%	0.042090%
23	0.007950%	0.019250%	0.029150%	0.044275%
24	0.008130%	0.020200%	0.029810%	0.046460%
25	0.008310%	0.021150%	0.030470%	0.048645%
26	0.008490%	0.022100%	0.031130%	0.050830%
27	0.008670%	0.023050%	0.031790%	0.053015%
28	0.008850%	0.024050%	0.032450%	0.055315%
29	0.009000%	0.025000%	0.033000%	0.057500%
30	0.009450%	0.027050%	0.034650%	0.062215%
31	0.009900%	0.029100%	0.036300%	0.066930%
32	0.010350%	0.031150%	0.037950%	0.071645%
33	0.010770%	0.033200%	0.039490%	0.076360%
34	0.011220%	0.035250%	0.041140%	0.081075%
35	0.011850%	0.037250%	0.043450%	0.085675%
36	0.012450%	0.039300%	0.045650%	0.090390%
37	0.013080%	0.041350%	0.047960%	0.095105%
38	0.013710%	0.043400%	0.050270%	0.099820%
39	0.014310%	0.045450%	0.052470%	0.104535%
40	0.016080%	0.047500%	0.058960%	0.109250%
41	0.017850%	0.049550%	0.065450%	0.113965%
42	0.019620%	0.051600%	0.071940%	0.118680%
43	0.021390%	0.053650%	0.078430%	0.123395%
44	0.023160%	0.055700%	0.084920%	0.128110%
45	0.025350%	0.057750%	0.092950%	0.132825%
46	0.027570%	0.059800%	0.101090%	0.137540%
47	0.029790%	0.061850%	0.109230%	0.142255%
48	0.031980%	0.063900%	0.117260%	0.146970%
49	0.034200%	0.065950%	0.125400%	0.151685%
50	0.036420%	0.068000%	0.133540%	0.156400%
51	0.038610%	0.070050%	0.141570%	0.161115%
52	0.040830%	0.072100%	0.149710%	0.165830%
53	0.043050%	0.074150%	0.157850%	0.170545%
54	0.045240%	0.076200%	0.165880%	0.175260%
55 & Older	0.046560%	0.078250%	0.170720%	0.179975%

Disability rates apply during the retirement eligibility period.

Members are assumed to first receive disability benefits (DB) and then receive disability retirement annuity (DRA) benefits.

For police officers, 50 percent of disabilities are assumed to occur in the line of duty and 50 percent of disabilities are assumed to be ordinary.



Actuarial Methods and Assumptions

Retirement. Upon eligibility, active members are assumed to retire as follows:

Age	Tier 1					
	Normal (Unreduced) Retirement				Early (Reduced) Retirement	
	Academic		Non-Academic		Academic	Non-Academic
	Under 40 Years	40+ Years	Under 40 Years	40+ Years		
Under 50	55.0%		55.0%			
50	55.0%		40.0%			
51	40.0%		30.0%			
52	40.0%		30.0%			
53	30.0%		30.0%			
54	30.0%		30.0%			
55	20.0%	30.0%	25.0%	37.5%	4.0%	8.0%
56	20.0%	30.0%	25.0%	37.5%	4.0%	5.5%
57	20.0%	30.0%	25.0%	37.5%	4.0%	5.5%
58	20.0%	30.0%	25.0%	37.5%	4.0%	5.5%
59	20.0%	30.0%	25.0%	37.5%	4.0%	7.0%
60	13.0%	19.5%	20.0%	30.0%		
61	13.0%	19.5%	15.0%	22.5%		
62	13.0%	19.5%	15.0%	22.5%		
63	13.0%	19.5%	15.0%	22.5%		
64	13.0%	19.5%	15.0%	22.5%		
65	17.0%	25.5%	25.0%	37.5%		
66	17.0%	25.5%	25.0%	37.5%		
67	17.0%	25.5%	25.0%	37.5%		
68	17.0%	25.5%	25.0%	37.5%		
69	17.0%	25.5%	25.0%	37.5%		
70	17.0%	25.5%	20.0%	30.0%		
71-79	15.0%	22.5%	20.0%	30.0%		
80+	100.0%	100.0%	100.0%	100.0%		

The Non-Academic retirement rates apply to Police and Firefighters.

Actuarial Methods and Assumptions

Tier 2					
Age	Normal (Unreduced) Retirement			Early (Reduced) Retirement	
	Academic	Non-Academic	Police	Academic	Non-Academic
60			60.0%		
61			25.0%		
62			25.0%	25.0%	35.0%
63			25.0%	10.0%	15.0%
64			25.0%	10.0%	15.0%
65			15.0%	10.0%	15.0%
66			15.0%	10.0%	15.0%
67	35.0%	35.0%	15.0%		
68	17.0%	25.0%	25.0%		
69	17.0%	25.0%	25.0%		
70	17.0%	20.0%	20.0%		
71-79	15.0%	20.0%	20.0%		
80+	100.0%	100.0%	100.0%		

A rate equal to 1.5 times the Tier 2 rate shown is used if the member has 40 or more years of service and is younger than 80 years old. The Tier 2 rates shown above are for members with less than 40 years of service.

Members who retire are assumed to elect the most valuable option on a present value basis – refund of contributions (or portable lump sum retirement, if applicable) or a retirement annuity.

For purposes of the projections in the actuarial valuation, members of the Retirement Savings Plan are assumed to retire in accordance with the Tier 1 and Tier 2 retirement rates (based on hire date).

Actuarial Methods and Assumptions

General Turnover. A table of termination rates based on the most recent experience study period. The assumption is a table of turnover rates by years of service. A sample of these rates follows:

Years of Service	Academic	Non-Academic
0	15.00%	15.00%
1	15.00	15.00
2	12.00	15.00
3	11.00	14.00
4	10.00	12.00
5	9.00	10.00
6	8.00	9.00
7	7.00	8.00
8	6.00	7.00
9	5.00	6.00
10	4.00	5.00
11	4.00	5.00
12	3.00	3.50
13	3.00	3.50
14	3.00	3.50
15	2.50	3.00
16	2.50	3.00
17	2.50	3.00
18	2.50	3.00
19	2.50	3.00
20	2.00	2.00
21	2.00	2.00
22	2.00	2.00
23	2.00	2.00
24	2.00	2.00
25	1.50	1.50
26	1.50	1.50
27	1.50	1.50
28	1.50	1.50
29	1.50	1.50

A termination rate of 100 percent is assumed at three years of service for members classified as part time for valuation purposes.

Members who terminate with at least five years of service (10 years of service for Tier 2 members) are assumed to elect the most valuable option on a present value basis – refund of contributions or a deferred benefit.

Termination rate for 29 years of service used for Tier 2 members until retirement eligibility is met.



Actuarial Methods and Assumptions

Operational Expenses. The amount of operational expenses for administration incurred in the latest fiscal year are supplied by SURS staff and incorporated in the Normal Cost. Estimated administrative expenses for FY 2025 and after are assumed to increase by 3.00%.

Marital Status. Members are assumed to be married in the following proportions:

Age	Males	Females
20-24	10 %	25 %
25-29	35	45
30-34	60	65
35-39	70	70
40-44	75	75
45-49	80	75
50-54	80	75
55-59	80	75
60-64	80	70
65-69	80	70
70-74	80	70
75-79	80	70
80-84	80	70
85-89	80	70

Spouse Age. The female spouse is assumed to be three years younger than the male spouse.

Benefit Commencement Age. Inactive members eligible for a deferred benefit are assumed to commence benefits at their earliest normal retirement age. For Tier 1 members, this is age 62 with at least five years of service, age 60 with at least eight years of service or immediately if at least 30 years of service. For Tier 2 members, this is age 67 with 10 or more years of service.

Load on Final Average Salary. No load is assumed to account for higher than assumed pay increases in final years of employment before retirement.

Load on Liabilities for Service Retirees with Non-finalized Benefits. A load of 10% on liabilities for service retirees whose benefits have not been finalized as of the valuation date is assumed to account for finalized benefits that on average are 10% higher than 100% of the preliminary estimated benefit. A load of 5% is used if a “best formula” benefit was provided in the data by Staff.

Valuation of Inactives. An annuity benefit is estimated based on information provided by staff for Tier 1 inactive members with five or more years of service and Tier 2 members with 10 or more years of service.

Assumption for Missing Data. Members with an unknown gender are assumed to be female. Active and inactive members with an unknown date of birth are assumed to be 37 years old at the valuation date. An assumed spouse date of birth is calculated for current service retirees in the traditional plan for



Actuarial Methods and Assumptions

purposes of calculating future survivor benefits. The female spouse is assumed to be three years younger than the male spouse. 70% of current total male retirees and 80% of current total female retirees in the traditional plan who have not elected a survivor refund are assumed to have a spouse at the valuation date.

Reciprocal Service. Reciprocal service is included for current inactive members for purposes of determining vesting eligibility and eligibility age to commence benefits.

The recently updated actuarial assumptions (including retirement and termination rates) were based on SURS service only. Therefore, reciprocal service was not included for current active members.

Projection Assumptions. The number of total active members throughout the projection period will remain the same as the total number of active members in the defined benefit plans and the RSP in the current valuation.

Future new hires are assumed to elect to participate in the offered plans as follows:

- Academic
 - 45% elect to participate in the Retirement Savings Plan
 - 55% elect to participate in the Tier 2 Plan
- Non-Academic
 - 25% elect to participate in the Retirement Savings Plan
 - 75% elect to participate in the Tier 2 Plan

New entrants have an average age of 37.9 and average capped pay of \$51,371 and average uncapped pay of \$53,633 (2023 dollars). These values are based on the estimated average age and average pay of current members at plan entry. The new entrant data is based on the age at hire and assumed pay at hire (using the actuarial assumptions, inflated to 2023 dollars) of current active members with hire dates between July 1, 2019 and July 1, 2022.

Academic

Summary of New Entrants - Academic									
Age	Average Pay			Average Pay			Total Number	Average Pay	
	Number Males	Tier 2		Number Females	Tier 2			Capped Total	Uncapped Total
		Capped Male	Uncapped Male		Capped Female	Uncapped Female			
<20	-	\$ -	\$ -	-	\$ -	\$ -	-	\$ -	\$ -
20 - 24	45	34,539	34,539	57	32,155	32,155	102	33,207	33,207
25 - 29	196	45,662	46,795	294	46,412	47,583	490	46,112	47,268
30 - 34	413	66,680	73,974	585	59,472	64,207	998	62,455	68,249
35 - 39	433	66,462	74,055	493	56,974	60,701	926	61,411	66,945
40 - 44	289	61,276	68,563	340	51,298	54,272	629	55,883	60,838
45 - 49	197	51,467	58,032	242	47,876	51,142	439	49,487	54,234
50 - 54	148	56,240	64,834	184	46,130	50,608	332	50,637	56,950
55 - 59	136	52,170	62,897	132	44,709	52,507	268	48,495	57,780
60 - 64	87	39,177	48,900	80	38,014	44,434	167	38,620	46,761
65 - 69	11	30,420	40,175	9	42,870	58,477	20	36,023	48,411
Total	1,955	\$58,225	\$65,185	2,416	\$51,822	\$55,655	4,371	\$54,686	\$59,917

Actuarial Methods and Assumptions

Non-Academic

Summary of New Entrants - Non-Academic									
Age	Number Males	Average Pay		Number Females	Average Pay		Total Number	Average Pay	
		Tier 2			Tier 2			Tier 2	
		Capped Male	Uncapped Male		Capped Female	Uncapped Female		Capped Total	Uncapped Total
<20	20	\$26,593	\$26,593	27	\$23,617	\$23,617	47	\$24,883	\$24,883
20 - 24	533	38,083	38,083	884	36,577	36,577	1,417	37,143	37,143
25 - 29	1,205	48,369	48,392	1,913	46,763	46,783	3,118	47,384	47,405
30 - 34	1,044	54,078	55,862	1,487	51,876	52,533	2,531	52,784	53,906
35 - 39	675	59,413	62,014	1,096	51,224	51,774	1,771	54,345	55,677
40 - 44	529	60,747	62,662	946	52,554	54,115	1,475	55,492	57,180
45 - 49	453	58,862	63,749	785	51,115	53,115	1,238	53,950	57,006
50 - 54	412	57,223	60,419	645	50,734	52,882	1,057	53,263	55,820
55 - 59	306	55,396	59,129	490	47,957	49,467	796	50,817	53,181
60 - 64	169	53,678	61,239	213	47,301	51,183	382	50,122	55,632
65 - 69	15	68,859	76,025	7	35,618	37,714	22	58,282	63,836
Total	5,361	\$53,182	\$55,181	8,493	\$48,522	\$49,421	13,854	\$50,325	\$51,650

RSP Contribution Assumptions. The projected RSP contributions are equal to 7.6% of RSP payroll, plus estimated RSP expenses minus RSP employer forfeitures. Estimated RSP expenses for FY 2024 are \$1,232,760 and actual FY 2022 RSP employer forfeitures used to reduce the certified contributions for FY 2025 are \$8,977,663 (as provided by SURS). Estimated RSP expenses for FY 2025 and after are assumed to increase by 3.00%. Estimated RSP employer forfeitures used to reduce the certified contributions for FY 2026 and after are assumed to be 7.5% of the gross RSP employer contribution.

Pensionable Earnings Greater than 6%. The participant's employer is required to pay the present value of the increase in benefits resulting from the portion of the increase in excess of 6.00% for earnings used in the calculation of the final average salary. The projections include a component paid for by employers for earnings increases greater than 6.00% in the calculation of the final average salary.

Governor's Pay. The governor's pay is \$190,700 as of June 30, 2023, and budgeted as \$216,000 for fiscal year ending June 30, 2024, and is expected to increase each year by the assumed rate of increase in the Tier 2 pay cap (1/2 the increase in CPI or 1.125%).

Actuarial Methods and Assumptions

Buyout Election Assumption. 0% of eligible Tier 1 active members are assumed to elect to receive a reduced and delayed AAI benefit at retirement and an accelerated pension benefit option in accordance with Public Acts 100-0587, 101-0010 and 102-0718. 0% of eligible inactive members are assumed to elect to receive an accelerated pension benefit option in lieu of an annuity at retirement in accordance with Public Acts 100-0587 and 101-0010.

\$ in millions			
Buyout Activity from Inception Through 6/30/2023			
	AAI	VIB	Total
Number Eligible for the buyout*	11,209	23,669	34,878
Buyout applications received	422	151	573
Buyout election forms sent	283	124	407
Buyout election forms approved	180	91	271
Application %	3.8%	0.6%	1.6%
Approved %	1.6%	0.4%	0.8%
Approved buyout amount**	\$17.0	\$24.4	\$41.3
Estimated Approved buyout (non EBA)	17.0	16.0	32.9
Estimated Liability Reduction	24.2	26.6	50.8

* Number eligible for the VIB buyout is the number of vested Tier 1 inactive members included in the actuarial valuation as of June 30, 2019 who are in the Traditional or Portable Plan.

** Includes amounts attributable to benefits that would have been payable from the Excess Benefit Arrangement (EBA). There was one \$11.2 million VIB buyout of which \$8.4 million was payable from the EBA.

Treatment of Benefits in Excess of the Internal Revenue Code Section 415 Limits. The benefit amounts in excess of the IRC Section 415 limits for current retirees are paid through the Excess Benefit Arrangement (EBA) and are not reported in the actuarial valuation data. Therefore, the liabilities and the required contributions for these EBA benefits are not reflected in the actuarial valuation results. The amount of the estimated EBA payments for the upcoming fiscal year are provided by SURS Staff and included in the Statutory contribution requirement. Following are the estimates used in the previous and current valuations:

Valuation Year	Applicable Fiscal Year	Estimated EBA Payments
2018	2020	\$17.065 million
2019	2021	\$18.000 million
2020	2022	\$21.500 million
2021	2023	\$24.200 million
2022	2024	\$17.300 million
2023	2025	\$18.300 million

Actuarial Methods and Assumptions

Estimated Federal/Trust Fund Employer Contributions. Following are the estimated employer contributions provided by SURS that reduce the estimated State contributions.

Valuation Year	Applicable Fiscal Year	Estimated Federal/Trust Fund Payments
2018	2020	\$52.0 million
2019	2021	\$52.5 million
2020	2022	\$57.0 million
2021	2023	\$62.0 million
2022	2024	\$65.5 million
2023	2025	\$70.5 million

APPENDIX H

SUMMARY OF BENEFIT PROVISIONS OF SURS

Summary of Benefit Provisions of SURS

It should be noted that the purpose of this Appendix is to describe the benefit structures of SURS for which actuarial values have been generated. There is no description of the Retirement Savings Plan (RSP) and many portions of the defined plans are described in a manner which may not be legally complete or precise.

It is not our intent to provide an exhaustive description of all benefits provided under SURS or the policies and procedures utilized by SURS staff. A more precise description of the provisions of SURS is contained in the Member's Guide, published by SURS staff. Of course, the statute is controlling.

Summary of Benefit Provisions of SURS

Plans

There are two defined benefit plans available under SURS, the Traditional Plan and the Portable Plan, and one defined contribution plan, the Retirement Savings Plan (RSP). A Member must select one of these plans within the first six months of participation. If no choice is made in that time, the Traditional Plan is deemed chosen. Effective September 1, 2020 the Self Managed Plan (SMP) was renamed the Retirement Savings Plan (RSP).

New tiers of benefits have been established for members hired on or after January 1, 2011 (“Tier 2”). Members hired before January 1, 2011, participate in Tier 1. Members in Tiers 1 and 2 are eligible to choose either the Traditional or the Portable Plan. **SURS is currently not moving forward with the implementation of the optional hybrid plan created under PA 100-0023. Additional clarifying legislation is needed for SURS to be able to do so.**

Tier 2 members who participate in the Traditional and Portable Plans are subject to the pay caps established under Public Act 96-0889. The Tier 2 pay cap was \$106,800 in fiscal year 2012 and increases by the lesser of (1) 3% and (2) ½ the increase in the Consumer Price Index-Urban (“CPI-U”) for the 12 months ending with the September proceeding each November 1.

The pay cap history is as follows:

Fiscal Year	CPI-U	½ CPI-U	Increase	Tier 2 Pensionable Pay Cap
2012				\$106,800.00
2013	3.90%	1.95%	1.95%	\$108,882.60
2014	2.00%	1.00%	1.00%	\$109,971.43
2015	1.20%	0.60%	0.60%	\$110,631.26
2016	1.70%	0.85%	0.85%	\$111,571.63
2017	0.00%	0.00%	0.00%	\$111,571.63
2018	1.50%	0.75%	0.75%	\$112,408.42
2019	2.20%	1.10%	1.10%	\$113,644.91
2020	2.30%	1.15%	1.15%	\$114,951.83
2021	1.70%	0.85%	0.85%	\$115,928.92
2022	1.40%	0.70%	0.70%	\$116,740.42
2023	5.40%	2.70%	2.70%	\$119,892.41
2024	8.20%	4.10%	3.00%	\$123,489.18

The Tier 2 pay cap is calculated annually by the Illinois Department of Insurance.

The Retirement Savings Plan is a defined contribution plan under which members contribute 8.0% of compensation and the State contributes 7.6% of compensation. A portion of the employer contribution is used to fund disability benefits for RSP participants. Members hired on or after January 1, 2011 who participate in the RSP are not subject to the Tier 2 pay cap.

Summary of Benefit Provisions of SURS

The provisions of the Traditional and Portable defined benefit plans are identical in many areas. The description below is primarily of the Traditional Plan. Where different, the Portable plan provisions will be described in *italics*.

Member Contributions

Most members in Tier 1 and Tier 2 contribute a total of 8% of pensionable compensation. Police officers and firefighters contribute a total of 9.5% of pensionable compensation, with the additional 1.5% allocated to the retirement annuity.

The total contribution is broken down as follows:

	Tier 1 and Tier 2	
	Police/Fire	All Others
Retirement Annuity	8.0%	6.5%
Survivor Benefits	1.0%	1.0%
Annual Increases in Retirement	0.5%	0.5%
Total Contribution	9.5%	8.0%

Portable Plan members contribute the same percent of compensation, but the breakdown set out above does not apply.

The retirement annuity portion of the total contribution (8.0% of compensation for police officers and firefighters and 6.5% of compensation for all others) is annuitized for the money purchase formula (Rule 2) calculation for Tier 1 members.

Contributions for Tier 2 members are assumed not to be made on pay in excess of the pay cap.

Since January 1, 1981, the member contributions under SURS have been “picked up” for IRS purposes by employers.

Effective Rate of Interest

The Effective Rate of Interest (“ERI”) is the interest rate that is applied to member contribution balances. Effective for the 2006 fiscal year, the ERI for the purpose of determining the money purchase benefit is established by the State Comptroller annually. The ERI for other purposes, such as the calculation of purchases of service credit, refunds for excess contributions, portable plan refunds and lump sum portable retirements is determined by the SURS Board annually and certified to the Governor. For purposes of the actuarial valuation, the assumed ERI is 6.50% beginning with the actuarial valuation as of June 30, 2021.

For the purposes of withdrawal of contributions at termination or death by Traditional Plan Members, this rate is not greater than 4.5% by statute.



Summary of Benefit Provisions of SURS

Retirement Benefits

Final Average Salary

Final average salary is equal to:

Tier 1	High four consecutive year average compensation or the average of the last 48 consecutive months of employment.
Tier 2	High final eight consecutive year average compensation within the last 10 years or the average of the last 96 consecutive months within the last 120 months.

The Tier 2 pay cap history is shown in a table earlier in this section. We have assumed that the pay cap each year applies to the individual pay amounts that are used to develop the final average compensation.

The present value of the benefits for pay increases in excess of 6% during the final average earnings period immediately preceding retirement will be paid by the employer. The employer will pay this amount in a lump sum to the Retirement System.

Normal Retirement

Eligibility

For police officers and firefighters, separation from service on or after the attainment of the earlier of:

Tier 1	Tier 2
Age 55/20 Years of Service	Age 60/20 Years of Service
Age 50/25 Years of Service	Age 67/10 Years of Service

For all other Tier 1 and Tier 2 members, separation from service on or after attainment of the earlier of:

Tier 1	Tier 2
Age 62/5 Years of Service	Age 67/10 Years of Service
Age 60/8 Years of Service	
Any age/30 Years of Service	

Initial Benefit Amount

There are three alternate formulae. The initial benefit is the largest produced by one of the three:

1. General Formula (Applicable to all Tiers)
2. Money Purchase Formula (Applicable to Tier 1 only, hired before July 1, 2005)
3. Minimum Benefit (Applicable to all Tiers)

Following is a description of the benefits provided under each of the three alternate formulae.



Summary of Benefit Provisions of SURS

1. General Formula (Applicable to all Tiers): The following percentages of final average compensation for each year of service:

Year of Service	Tier 1 and Tier 2	
	General	Police/Fire
1 st 10 Years	2.20 %	2.25 %
Next 10 Years	2.20	2.50
Over 20	2.20	2.75

2. Money Purchase Formula (Applicable to Tier 1 only, hired before July 1, 2005):
 - a) The member contributions for retirement benefits (8.0% of compensation for police officers and firefighters and 6.5% of compensation for all others) accumulated with interest at the ERI, plus
 - b) An imputed employer contribution match at \$1.40 per dollar of member contribution accumulated with interest at the ERI.
 - c) The total of the accumulations in (a) and (b) is converted into an annuity using a life annuity factor that takes into account neither the automatic 50% spousal survivor benefit nor the automatic annual increases.

Members hired on or after July 1, 2005 no longer receive the Money Purchase Formula under the plan.

3. Minimum Benefit (Applicable to all Tiers) – A benefit for each year of service, up to 30, based on final annual pay, as follows:

Under 3,500	\$ 8
\$3,500 - \$4,500	9
\$4,500 - \$5,500	10
\$5,500 - \$6,500	11
\$6,500 - \$7,500	12
\$7,500 - \$8,500	13
\$8,500 - \$9,500	14
Over \$9,500	15

Minimum Retirement Annuity – No retiree shall receive a retirement annuity less than \$25 per month for each year of service up to 30. The comparable benefit for survivor benefit recipients is \$17.50 per month for each year of service up to 30.

Maximum Benefit

All Tiers have a maximum benefit equal to 80% of final average compensation.



Summary of Benefit Provisions of SURS

Contribution waivers are applicable to members whose benefits are capped at 80% of final average compensation. Member contributions made once the maximum benefit is achieved are refunded to the member with interest (at the Effective Rate of Interest).

Benefit Duration

The Normal Retirement benefit is payable for the lifetime of the retired member. If the retiree under the Traditional Plan has a spouse at date of retirement and if that spouse survives the retiree, the spouse will receive, upon the death of the retiree, a survivor benefit equal to the following percentage of the monthly benefit being paid to the retiree as of the date of death.

1. The survivor benefit for Tier 1 members is equal to 50% of the monthly benefit being paid to the retiree as of the date of death.
2. The survivor benefit for Tier 2 members is equal to 66 2/3% of the monthly benefit being paid to the retiree as of the date of death.

Such benefit will continue for the lifetime of the surviving spouse.

For retirees under the Portable Plan, the normal form of benefit is a single-life annuity for unmarried participants and a reduced 50% joint and survivor benefit for married participants. With spousal consent, a member may designate a contingent annuitant to receive a joint and survivor annuity or elect a single-life annuity or lump sum distribution. Those receiving a joint and survivor annuity will have their benefit reduced to cover the cost of the option. The available joint and survivor options are 50%, 75% and 100%. A member may elect the 75% or 100% spousal joint and survivor annuity without consent.

Portable Plan members may also elect to receive their retirement benefit as a lump sum equal to member contributions with an equal employer match (if have the required years of service), accumulated with interest (at the Effective Rate of Interest that is certified annually by the SURS Board).

The required years of service is five years for all plans. (Must have 10 years if retirement age.)

Annual Increases

For Tier 1 members who have not elected the Automatic Annual Increase (AAI) buyout, each January 1 subsequent to retirement date, the monthly benefit being paid each retiree shall be increased by 3% (compound COLA). The adjustment for the first January after retirement shall be proportional based on the portion of the year retired. See Accelerated Pension Benefit Options on pages 89 and 90 for a description of the increase for members who have elected the AAI buyout.

For Tier 2 members, each January 1 subsequent to retirement date, the monthly benefit being paid each retiree shall be increased by fifty percent of the Consumer Price Index-Urban ("CPI-U") up to a maximum of 3% applied to the original benefit (simple COLA). The first increase will be

Summary of Benefit Provisions of SURS

granted upon the later of the attainment of age 67 or the first anniversary of the commencement of the annuity.

The historical development of the Tier 2 Annual Increase as determined by the Illinois Department of Insurance can be found in the following table.

Calendar Year	CPI-U *	½ CPI-U *	Annual Increase
2011			3.00%
2012	3.90%	1.95%	1.95%
2013	2.00%	1.00%	1.00%
2014	1.20%	0.60%	0.60%
2015	1.70%	0.85%	0.85%
2016	0.00%	0.00%	0.00%
2017	1.50%	0.75%	0.75%
2018	2.20%	1.10%	1.10%
2019	2.30%	1.15%	1.15%
2020	1.70%	0.85%	0.85%
2021	1.40%	0.70%	0.70%
2022	5.40%	2.70%	2.70%
2023	8.20%	4.10%	3.00%

Increase effective January 1.

**Measured based on the change in CPI-U from September to September of the calendar year preceding the year in which the annual increase applies.*

Early Retirement

Eligibility

For Tier 1 members other than police and fire employees, separation from service on or after attainment of age 55 with 8 years of service, but not eligible for Normal Retirement.

For Tier 2 members, separation from service on or after attainment of age 62 with 10 years of service, but not eligible for Normal Retirement.

Benefits

The benefit amounts and all terms of benefit payment are the same as that for Normal Retirement, except that the benefit amounts calculated under the General Formula and the Minimum Formula shall be reduced by .5% for each month by which the retirement date precedes the 60th birthday for Tier 1 members and the 67th birthday for Tier 2 members.

Summary of Benefit Provisions of SURS

Benefits on Death before Retirement

Survivor Benefits

Traditional Plan

Eligibility

Payable to eligible survivor(s) (spouse, child or dependent parent) for the death of an active member with at least 1.5 years of service or a terminated member with at least 10 years of service. For this purpose, service under the State Employees' Retirement System, the Teachers' Retirement System of the State of Illinois and the Public School Teachers' Pension Fund of Chicago is recognized.

Benefits

For Tier 1 members, an annuity to the eligible survivor(s) equal to the greater of:

1. 50% of the benefit accrued to the date of the death of the member, and
2. The lowest applicable benefit from the following list:
 - a) \$400 per month to a single eligible survivor or \$600 per month to two or more eligible survivors.
 - b) 30% (one survivor), or 60% (two survivors), or 80% (three or more survivors) of the member's final rate of earnings.
 - c) If member inactive, 80% of base retirement annuity.

For Tier 2 members, an annuity to the survivor(s) equal to 66 2/3% of the benefit accrued to the date of the death of the member.

Supplemental Minimum Survivor Annuity of \$17.50 per month times number of years of service credit, up to 30 years. No annual increases payable on the supplemental minimum survivor annuity.

Benefit Duration

Surviving spouse

May receive a lifetime benefit commencing at the later of the day following the member's date of death and the spouse's attainment of age 50. May be payable the day following the member's date of death if a dependent child in their care is also receiving benefits.

Dependent child

Payable to unmarried child(ren) under age 18 (over 18 if disabled prior to age 18), and children age 18-22 if a qualified full-time student.



Summary of Benefit Provisions of SURS

Dependent parent

Payable to a parent of the member who was dependent upon the member at the time of their death. Payable at the later of the day following the member's date of death and the parent's attainment of age 55. The benefit continues until the parent dies.

Annual Increases

For Tier 1 members, each January 1 subsequent to retirement date the monthly benefit being paid each survivor annuity recipient shall be increased by 3%. The first increase begins with the first January closest to the first anniversary of the survivor annuity.

For Tier 2 members, each January 1 subsequent to retirement date the monthly benefit being paid each survivor annuity recipient shall be increased fifty percent of the Consumer Price Index-Urban ("CPI-U") up to a maximum of 3% of the originally granted survivor annuity (simple COLA). The first increase will be granted upon January 1 following the first anniversary of the commencement of the survivor annuity.

Portable Plan

Eligibility

Payable to an eligible spouse for the death of an active or inactive member with at least 1.5 years of SURS service.

Benefits

An annuity to the eligible spouse equal to 50% of the member's earned retirement benefit after the reductions to pay for the cost of providing the pre-retirement survivor annuity. (Applicable to Tier 1 and Tier 2 members.)

Benefit Duration

Surviving spouse

May receive a lifetime benefit commencing at the member's earliest retirement age.

Annual Increases

For members hired before January 1, 2011 and for all members hired on or after January 1, 2011, each January 1 subsequent to retirement date the monthly benefit being paid each survivor annuity recipient shall be increased by 3%. The adjustment for the first January after retirement shall be proportional.

Lump Sum Death Benefit

Eligibility

Death of member prior to retirement.



Summary of Benefit Provisions of SURS

Traditional Plan

Benefit

With Eligible Survivor

- $\frac{7}{8}$ ^{ths} of accumulated member contributions balance (includes all contributions and interest)

Without Eligible Survivor

- Refund of the total accumulated member contribution and interest; and
- An amount up to \$5,000 based on the annual final average earnings amount to a dependent beneficiary or \$2,500 to a non-dependent beneficiary. The additional death benefit is only payable if the member was active at death. If the member was inactive, this additional death benefit is not payable.

Portable Plan

Benefit

With Eligible Spouse

- Refund of total accumulated member contributions at the full Effective Rate of Interest, plus, if the member has at least 1.5 years of service at death, a like amount of imputed employer contributions – less the actuarial equivalent of the Pre-Retirement Survivor Annuity.

Without Eligible Spouse

- Refund of total accumulated member contributions at the full Effective Rate of Interest, plus, if the member has at least 1.5 years of service at death, a like amount of imputed employer contributions.

Benefits on Death after Retirement

In addition to survivor/spouse benefits payable from the System, the following death benefit is payable if a member does not have an eligible survivor/spouse/contingent annuitant:

- The greater of the total accumulated member contributions and interest minus the total retirement annuities paid to the member through the date of their death or \$1,000.

Eligibility

Payable to eligible survivor(s) (spouse, child or dependent parent) as long as the member did not take a refund of their survivor contributions at retirement.



Summary of Benefit Provisions of SURS

Traditional Plan

Benefits

For Tier 1 members, an annuity to the eligible survivor(s) equal to the greater of:

1. 50% of the annuity at the time of the member's death.
2. The lowest applicable benefit from the following list:
 - a) \$400 per month to a single eligible survivor or \$600 per month to two or more eligible survivors.
 - b) 30% (one survivor), or 60% (two survivors), or 80% (three or more survivors) of the member's final rate of earnings.
 - c) 80% of base retirement annuity.

For Tier 2 members, an annuity to the survivor(s) equal to 66 2/3% of retirement annuity at the time of the member's death.

Supplemental Minimum Survivor Annuity of \$17.50 per month times number of years of service credit, up to 30 years. No annual increases payable on the supplemental minimum survivor annuity.

Benefit Duration

Surviving spouse

May receive a lifetime benefit commencing at the later of the day following the member's date of death and the spouse's attainment of age 50. May be payable the day following the members' date of death if a dependent child in their care is also receiving benefits.

Dependent child

Payable to unmarried child(ren) under age 18 (over 18 if disabled prior to age 18), and children age 18-22 if a qualified full-time student.

Dependent parent

Payable to a parent of the member who was dependent upon the member at the time of their death. Payable at the later of the day following the member's date of death and the parent's attainment of age 55. The benefit continues until the parent dies.

Summary of Benefit Provisions of SURS

Portable Plan

Benefits

A 50%, 75% or 100% Joint and Survivor annuity is payable to the Contingent Annuitant that the member chose at the time of retirement, if any. The member's retirement annuity is reduced to pay for the Joint and Survivor Annuity.

Benefit Duration

Surviving spouse

May receive a lifetime benefit commencing at the member's earliest retirement age.

Annual Increases

For members hired before January 1, 2011, and for all members hired on or after January 1, 2011, each January 1 on or after the survivor annuity shall be increased by 3% compounded. The first AAI begins with the January 1 on or after the commencement of the survivor annuity if retired January 14, 1991 or later. If the member retired prior to January 14, 1991, then January 1 on or closest to the 1st anniversary of the Survivor Annuity shall be increased by 3%. The adjustment for the first January after retirement shall be proportional.

Benefits for Disability

Disability Benefit

Eligibility

Disablement after completing two years of service. The service requirement is waived if the disablement is accidental.

Disability definition – inability to perform the duties of “own occupation.”

Pregnancy and childbirth are, by definition, disablement.

Benefit

The greater of 50% of the basic compensation paid at date of disablement or 50% of the average earnings for the 24 months prior to the date of disablement. This base benefit level is offset dollar for dollar by each of the following:

1. Earnings while disabled in excess of the disability benefit.
2. Other disability insurance either fully or partially employer provided.
3. Worker's compensation benefits.



Summary of Benefit Provisions of SURS

Duration of Benefit

Benefits become payable on the later of the termination of salary and sick leave, or the 61st day after disablement and continue to the earlier of the following:

1. Recovery or death.
2. Benefits paid equal 50% of total compensation during the period of SURS service.
3. If disablement occurs prior to age 65, the disability benefit may not continue past the August 31 following 70th birthday.
4. If disablement occurs at or after attainment of age 65, completion of five years in disablement.

Survivor and death benefits are payable if a member dies while receiving disability benefits.

If, at discontinuance of the disability benefit, the member is eligible for a retirement benefit (based on service, which includes the period of disability and may also include time receiving a disability retirement annuity), the member may retire and receive that benefit. The member may commence the retirement benefit once age and service requirements are met. The early retirement reduction does not apply for members who began first participating prior to January 1, 2011 (Tier 1). The benefit is based on the greatest of three formulas (General Formula, Money Purchase and Minimum Benefit), subject to applicable maximums. Contributions are not made during the disability period. However, accumulated contributions continue to accrue interest.

For police officers who are disabled in the line of duty, benefits and duration of benefits are based on 65% instead of 50%.

Annual Increases

Each January 1 subsequent to retirement date, the monthly benefit being paid each retiree shall be increased by 3%. The adjustment for the first January after retirement shall be proportional.

Disability Retirement Annuity

Eligibility

Continuing disablement after discontinuation of the disability benefit as a result of reaching the "50% of total earnings" limitation (65% of total earning for police officers disabled in the line of duty). Disability is defined in accordance with the Social Security disability definition.

Benefit

35% of the compensation being earned at disablement.



Summary of Benefit Provisions of SURS

Duration of Benefit

Benefits become payable upon discontinuance of the disability benefit and continue to the earlier of the following:

1. Recovery or death
2. Election to receive a retirement benefit

Survivor and death benefits are payable if a member dies while receiving a disability retirement annuity.

Annual Increases

Each January 1 subsequent to retirement date, the monthly benefit being paid each retiree shall be increased by 3%. The adjustment for the first January after retirement shall be proportional.

For members hired on or after January 1, 2011, if the member converts to a service retirement annuity (item 2 above), each January 1 subsequent to retirement date the monthly benefit being paid each retiree shall be increased fifty percent of the Consumer Price Index ("CPI") up to a maximum of 3% of the originally granted benefit. The first increase will be granted upon the later of the attainment of age 67 or the first anniversary of the commencement of the annuity.

Benefits for Deferred Members

Eligibility

For members hired before January 1, 2011, separation from employment with at least five years of service and separation from employment with at least 10 years of service for members hired on or after January 1, 2011.

Benefit

Benefit as defined for normal retirement purposes, but calculated based on final average compensation and service at date of termination.

Commencement of Benefit

Benefits commence when member reaches the age condition for either normal or early retirement.

Annual Increases

For members hired before January 1, 2011, who have not elected the AAI buyout, each January 1 subsequent to retirement date the monthly benefit being paid each retiree shall be increased by 3%. The adjustment for the first January after retirement shall be proportional. See Accelerated



Summary of Benefit Provisions of SURS

Pension Benefit Options on pages 89 and 90 for a description of the increase for members who have elected the AAI buyout.

For members hired on or after January 1, 2011, each January 1 subsequent to retirement date the monthly benefit being paid each retiree shall be increased fifty percent of the Consumer Price Index ("CPI") up to a maximum of 3% applied to the original benefit. The first increase will be granted upon the later of the attainment of age 67 or the first anniversary of the commencement of the annuity.

Member Refunds

Non-vested terminated members and members who elect a refund in lieu of a vested benefit receive the following amounts.

Traditional Plan

Refund of the total accumulated member contribution at 4.5% interest.

Portable Plan

Refund of total accumulated member contributions at the full Effective Rate of Interest that is certified annually by the SURS Board, plus, if the member has the required years of service, a like amount of imputed employer contributions.

The required years of service is five years for all plans. (Must have 10 years if retirement age.)

Accelerated Pension Benefit Options

Under Public Act (PA) 100-0587 and PA 101-0010, SURS shall offer an accelerated pension benefit payment to eligible members beginning on the implementation date and until June 30, 2024. Public Act 102-0718 extended the buyout period through June 30, 2026.

There are two accelerated pension benefit payment options that will be offered:

1. For vested inactive members, a payment equal to 60% of the present value of the member's pension benefit in lieu of receiving any pension benefit.
2. For members eligible for retirement, a payment equal to 70% of the difference between: (i) the present value of the automatic annual increases (AAI) to a Tier 1 member's retirement and survivor's annuity under the current AAI provisions and (ii) the present value of the automatic annual increases to the Tier 1 member's retirement annuity under revised AAI provisions:
 - a. The current AAI provisions are an annual 3% increase of the prior year's benefit (compound COLA) payable as of the January 1 following the annuity start date (first increase is prorated).
 - b. The revised AAI provisions are an annual 1.5% increase of the originally granted benefit

Summary of Benefit Provisions of SURS

(simple COLA). The delayed AAI begins the January 1 following the first anniversary of the retirement date, or the January 1 following age 67, whichever is later. The survivor AAI is first payable 1 year after the survivor annuity commences.

Defined Contribution Plan

Public Act 100-0769, effective August 10, 2018, requires the SURS Board of Trustees, as soon as practicable after the effective date of the legislation, to establish and maintain a defined contribution plan. The defined contribution benefit must be an optional benefit to any member who chooses to participate. SURS has established the Deferred Compensation Plan (DCP).

Projected administrative expenses for this plan are included in the Statutory contribution. Other costs are not reflected in this valuation.

APPENDIX I

GLOSSARY OF TERMS

Glossary of Terms

Actuarial Accrued Liability (“AAL”). The difference between (i) the actuarial present value of future plan benefits, and (ii) the actuarial present value of future normal cost. Sometimes referred to as “accrued liability” or “past service liability.”

Actuarial Assumptions. Estimates of future plan experience such as investment return, expected lifetimes and the likelihood of receiving a pension from the Pension Plan. Demographic, or “people” assumptions, include rates of mortality, retirement and separation. Economic, or “money” assumptions, include expected investment return, inflation and salary increases.

Actuarial Cost Method. A mathematical budgeting procedure for allocating the dollar amount of the “actuarial present value of future plan benefits” between the actuarial present value of future normal cost and the actuarial accrued liability. Sometimes referred to as the “actuarial funding method.”

Actuarial Present Value of Future Plan Benefits (“APV”). The amount of funds presently required to provide a payment or series of payments in the future. It is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Actuarial Value of Assets (“AVA”). Smoothed value of assets that recognizes the difference between the expected investment return using the valuation assumption of 6.5 percent and the actual investment return over a five-year period. Dampens volatility of asset value over time.

Actuarially Determined Contribution (“ADC”). The sum of the gross normal cost (including employee contributions) and amortization of the unfunded actuarial accrued liability over a period not to exceed 30 years.

Amortization. Paying off an interest-bearing liability by means of periodic payments of interest and principal, as opposed to paying it off with a lump sum payment.

Annual Required Contribution (“ARC”). The sum of the normal cost (net of employee contributions) and amortization of the unfunded actuarial accrued liability over a period not to exceed 30 years. Was required for accounting purposes by the Governmental Accounting Standards Board (GASB) Statement Nos. 25 and 27.

Asset Return. The net investment return for the asset divided by the mean asset value. Example: if \$1.00 is invested and yields \$1.065 after a year, the asset return is 6.50 percent.

Funded Ratio. The actuarial value of assets divided by the actuarial accrued liability. Measures the portion of the actuarial accrued liability that is currently funded.

Market Value of Assets (“MVA”). The value of assets currently held in the trust available to pay for benefits of the Pension Plan. Each of the investments in the trust is valued at market price which is the price at which buyers and sellers trade similar items in the open market.



Glossary of Terms

Normal Cost (“NC”). The annual cost assigned, under the actuarial funding method, to current and subsequent plan years. Sometimes referred to as “current service cost.” Any payment toward the unfunded actuarial accrued liability is not part of the normal cost.

Unfunded Actuarial Accrued Liability (“UAAL”). The difference between the actuarial accrued liability and valuation assets. Sometimes referred to as “unfunded accrued liability.”

APPENDIX J

STRESS TESTING SCENARIOS



November 17, 2023

Board of Trustees
State Universities Retirement System of Illinois
1901 Fox Drive
Champaign, Illinois 61820

Re: Stress Testing Scenarios based on Actuarial Valuation Results as of June 30, 2023

Dear Members of the Board:

At your request, we have performed stress testing of the required statutory contributions and funded ratio for the State Universities Retirement System of Illinois ("SURS") based on the results of the June 30, 2023 actuarial valuation. Risk measures, as illustrated in this letter, are intended to aid in the understanding of the effects of future experience differing from the assumptions used in the course of the actuarial valuation. Risk measures may also help with illustrating the potential volatility in the accrued liability and the statutory and actuarially determined contribution that result from the differences between actual experience and the actuarial assumptions. We have illustrated the statutory contributions and funded ratios under the stress testing scenarios. However, we are not able to opine on the sponsor's ability to pay the contribution requirements.

This letter focuses on different stressors to the System, including variations in investment return, a changing workforce and new hire plan elections.

GRS has prepared this analysis exclusively for the Trustees of the State Universities Retirement System; GRS is not responsible for reliance upon this report by any other party. This report may be provided to parties other than SURS only in its entirety and only with the permission of SURS and the Board.

Description of Stress Testing Scenarios

Investment Return Scenarios and Additional Contribution Scenario

GRS recommended and performed five alternative investment return/additional contribution stress testing scenarios. Graphs of the total statutory contributions under each of these five scenarios can be found in Exhibits I(A) and I(B), a summary of the total statutory contributions and funded ratios can be found in Exhibits III(A), III(B) and III(C) and additional details of the results of these scenarios can be found in Exhibits IV(A) through V(B). The alternative investment return stress testing scenarios are based on the System earning the following rates of investment return (on average) over the period from fiscal year 2024 through 2045:

1. Scenario 1: Return of -20% in 2024 and then 6.50% in each year from 2024 through 2045
 - Liabilities calculated using 6.50% discount rate
2. Scenario 2: 6.50% investment return in each year from 2024 through 2045, with an additional annual \$50 million contribution through 2043
 - Liabilities calculated using 6.50% discount rate
3. Scenario 3: Volatile returns in each year from 2024 through 2045, with a 22-year geometric average of 6.50% (as shown in Exhibit VIII)
 - Liabilities calculated using 6.50% discount rate
4. Scenario 4: Static returns in each year from 2024 through 2045 of 6.00%
 - The discount rate used to determine liabilities is 6.00%
5. Scenario 5: Volatile returns in each year from 2024 through 2045, with a 22-year geometric average of 6.50% (same set of volatile returns as Scenario 3)
 - The discount rate used to determine liabilities is 6.00%

We have also included a baseline scenario (the basis for the June 30, 2023 actuarial valuation results) which assumes a static return of 6.50% each year from 2024 through 2045.

In order to demonstrate the risk and volatility of the returns, we provided results assuming volatile returns with a geometric average equal to the actuarial valuation assumption. Please note that each volatile return scenario represents one possible trial that generates the targeted average geometric return, and that another equally likely trial that produces the same targeted average geometric return could produce significantly different contribution and funded ratio patterns.

In each scenario 1 through 3, the discount rate used to determine liabilities is 6.50%. In scenarios 4 and 5, the discount rate used to determine liabilities is 6.00%, average future uncapped salary growth or wage inflation remains at 3.00% per year and the future active population remains constant at 71,121 active members (the number of combined total full-time active members as of June 30, 2023, in the SURS defined benefit plan and the Retirement Savings Plan "RSP"). The assumed election percentages for future new hires are 25% to the RSP and 75% to Tier 2 for Non-Academic members and 45% to the RSP and 55% to Tier 2 for Academic members for all investment return/additional contribution scenarios, which is the same as the baseline from the actuarial valuation as of June 30, 2023.

Number of Active Members Scenario

In addition to the five investment return/additional contribution scenarios, GRS performed one sensitivity scenario based on a decrease in the number of future full-time active members. A summary of the number of full-time active members used and the total statutory contributions under this scenario can be found in Exhibit III(B) and additional details of the results of this scenario can be found in Exhibit VI(B). The alternate full-time active population scenario is based on the System earning the annual assumed rate of return of 6.50% in each future year and the following membership changes:

6. Scenario 6: 1% decrease in the number of full-time active members for 5 years (71,121 full-time active members in 2023 to 67,635 full-time active members in 2028)



Future New Hire Plan Election Scenarios

GRS also performed sensitivity scenarios based on changes to the plan election assumption of future new hires. A summary of the total statutory contributions under these scenarios can be found in Exhibit III(B) and additional details of the results of these scenarios can be found in Exhibits VII(A) through VII(B). The alternate plan election scenarios are based on the System earning the annual assumed rate of return of 6.50% in each future year and the following future new hire plan election changes (compared to the current assumption that 25% of Non-Academic members and 45% of Academic members elect RSP):

7. Scenario 7: The assumed election percentages for future new hires are lower than the valuation assumption (15% of Non-Academic members and 25% of Academic members elect RSP)
8. Scenario 8: The assumed election percentages for future new hires are higher than the valuation assumption (35% of Non-Academic members and 55% of Academic members elect RSP)

The following exhibits and graphs are included in this letter:

Exhibit	Scenario	Investment Return	Discount Rate	% of Non-Academic /Academic New Hires to RSP	Ultimate Number of Full-Time Actives	Scenario Description
I(A)	1-3	6.50%	6.50%	25%/45%	71,121	Graphs of the Projected Total Statutory Contributions and Funded Ratios
I(B)	4-5	6.00%, 6.50%	6.00%	25%/45%	71,121	
I(C)	6-8	6.50%	6.50%	25%/45% (15%/25% Scenario 7) (35%/55% Scenario 8)	71,121 (67,635 Scenario 6)	
II	1-8	6.50%, 6.00%	6.50%, 6.00% (Scenarios 4 and 5)	25%/45%	71,121	Graph of the Projected Annual Rates of Return used in the Stress Testing Scenarios
III(A)	1-8	6.50%, 6.00%	6.50%, 6.00% (Scenarios 4 and 5)	25%/45% (15%/25% Scenario 7) (35%/55% Scenario 8)	71,121 (67,635 Scenario 6)	Comparison of Total Contributions, Unfunded Liability and Funded Ratio
III(B)	1-8	6.50%, 6.00%	6.50%, 6.00% (Scenarios 4 and 5)	25%/45% (15%/25% Scenario 7) (35%/55% Scenario 8)	71,121 (67,635 Scenario 6)	Comparison of Number of Full Time Active Members Used in the Stress Testing Scenarios and Projected Total Statutory Contributions
III(C)	1-8	6.50%, 6.00%	6.50%, 6.00% (Scenarios 4 and 5)	25%/45% (15%/25% Scenario 7) (35%/55% Scenario 8)	71,121 (67,635 Scenario 6)	Comparison of Number of Full Time Active Members Used in the Stress Testing Scenarios and Projected Funded Ratios
IV(A)	1	-20%, then 6.50% Static	6.50%	25%/45%	71,121	Comparison of Actuarial Valuation Results and Unfavorable Investment Return in the First Year
IV(B)	2	6.50% Static	6.50%	25%/45%	71,121	Comparison of Actuarial Valuation Results and Additional \$50 million contribution (above level % of pay cont.)
IV(C)	3	6.50% Volatile	6.50%	25%/45%	71,121	Comparison of Actuarial Valuation Results and Volatile Investment Return Stress Testing Scenario
V(A)	4	6.00% Static	6.00%	25%/45%	71,121	Comparison of Actuarial Valuation Results and Stress Testing Scenarios with Liabilities Calculated Using 6.00% Discount Rate
V(B)	5	6.50% Volatile	6.00%	25%/45%	71,121	
VI	6	6.50% Static	6.50%	25%/45%	67,635	Comparison of Actuarial Valuation Results and Number of Active Member Sensitivity Scenario
VII(A)	7	6.50% Static	6.50%	15%/25%	71,121	Comparison of Actuarial Valuation Results and Future New Hire Plan Election Scenario
VII(B)	8	6.50% Static	6.50%	35%/55%	71,121	
VIII	1-8	6.50%	6.50%, 6.00% (Scenarios 4 and 5)	25%/45%	71,121 (67,635 Scenario 6)	Comparison of Assumed Investment Returns Used in the Stress Testing Scenarios



GRS believes that these scenarios provide a plausible illustration of the potential future volatility of investment returns and a changing workforce and the resulting statutory contribution requirements based on the current assumptions and methods (including the current plan election assumptions). These scenarios are not intended to represent the full range of all possible outcomes. Annual returns will likely be significantly different from the returns shown in Exhibit VIII and the 22-year geometric average of actual returns may be either higher or lower than the assumption of 6.50%. The statutory contributions shown in this analysis are the combined amounts from both the State and the employers. Under the provisions of PA 100-0023, employers make contributions beginning in fiscal year 2018 for current members in excess of the Governor’s pay, and under PA 101-0010, and employers make contributions equal to the present value of the increase in benefit attributable to member pay increases in excess of 6.00% during the Final Average Salary (FAS) period.

Analysis of Stress Testing Scenario Results

Under the projected results from the actuarial valuation as of June 30, 2023 in which all future actuarial assumptions are assumed to be realized, the statutory contribution gradually increases by a steady rate (once deferred asset gains/losses are fully recognized in the actuarial value of assets and phase-in of assumption changes are fully recognized). There is also an increase in the funded ratio from 45.8% on an actuarial value of assets basis as of June 30, 2023 to 90% as of June 30, 2045 with a significant portion of the increase occurring in the last five years of the projection period. The funded ratio increases from about 68.7% to 90% between 2040 and 2045.

The following table presents a summary of the combined State and employer (“statutory”) contributions (including RSP) and the present value of the total statutory contributions during the fiscal years 2024 through 2045 under the alternative stress testing scenarios. The total statutory contributions do not include Excess Benefit Arrangement (EBA) contributions or Deferred Compensation Plan (DCP) administrative expense contributions. In addition, we have summarized the unfunded actuarial accrued liability (UAAL) based on the market value of assets as of June 30, 2045, and the present value of the market value UAAL for each scenario. The contributions and UAAL are discounted to a present value based on the actuarial valuation interest rate of 6.50%.

	Contributions* FY 2024-2045 (\$ in Millions)			MVA UAAL at 2045 (\$ in Millions)		Total PV Contributions + UAAL
	Total Contributions	PV Contributions	MVA Funded Ratio in 2045	UAAL	PV of UAAL	
Baseline	\$ 65,261.694	\$ 33,028.388	90.00%	\$ 5,367.677	\$ 1,343.059	\$34,371.447
Scenario 1	78,209.120	38,687.890	90.00%	5,367.677	1,343.059	40,030.949
Scenario 2	64,715.454	33,028.386	90.00%	5,367.678	1,343.059	34,371.445
Scenario 3	64,832.551	32,508.107	89.53%	5,621.475	1,406.562	33,914.669
Scenario 4	69,151.406	34,818.312	90.00%	5,531.233	1,383.982	36,202.294
Scenario 5	64,628.407	32,906.676	91.17%	4,882.445	1,221.648	34,128.324
Scenario 6	64,867.392	32,920.284	90.00%	5,310.516	1,328.756	34,249.040
Scenario 7	64,163.409	32,664.041	90.00%	5,505.768	1,377.611	34,041.652
Scenario 8	66,026.438	33,289.273	90.00%	5,263.885	1,317.089	34,606.362

*Combined State and employer contributions. Includes total RSP contributions. Excludes EBA and DCP contributions.



Scenario 1 reflects a -20% investment return and then 6.50% thereafter (which results in a 22-year geometric average of 5.12%), resulting in an increase in the statutory contribution when compared to the statutory contribution determined based on the actuarial valuation results.

Scenario 2 assumes a \$50 million contribution per year will be made in addition to the statutory contributions determined as a level percentage of pay. As the additional contributions are made, there will be more assets than in the baseline actuarial valuation results and over time, the statutory contributions determined as a level percentage of pay will decrease and the funded ratio will increase as a result of higher contributions that are made earlier in the projection period.

In scenarios 3 and 5, because of the volatility and deviation of the returns from the actuarial assumption of 6.50% and the fact that the statutory contribution for fiscal year 2045 is determined based on the actuarial valuation results as of June 30, 2043, the funded ratios on both an actuarial value of assets basis and a market value of assets basis do not equal 90% in 2045. In scenario 3, the market value funded ratio is less than 90% in 2045, and in scenario 5, the market value funded ratio is greater than 90%. In order to better compare the future obligation between the scenarios and recognize that the unfunded liability and funded ratio as of June 30, 2045 are different under each scenario, we have included the sum of the present value of contributions between 2023 and 2045 and the present value of the market value UAAL as of June 30, 2045.

The total statutory contributions, the present value of the statutory contributions and the unfunded actuarial accrued liability (UAAL) are highly dependent on both the annualized investment returns and the pattern of the investment returns. In the scenarios in which the average geometric return is 6.50% over the years 2024 through 2045 (baseline and scenario 3), the amount of total statutory contributions varies by \$429 million between the scenarios and the sum of the present value of contributions and the present value of the market value UAAL at 2045 varies by \$457 million between the scenarios.

In scenarios 4 and 5, the liabilities were determined using a 6.00% assumption (a 50 basis point reduction from the current assumption of 6.50%). Scenario 4 assumes a static return of 6.00% in each year. Scenario 5 assumes the same rates of investment return as in scenario 3, with an average geometric return of 6.50%. Comparing scenarios 3 and 5, calculating liabilities based on a 6.00% assumption and having rates of investment return that exceed the actuarial assumption (scenario 5) results in the total statutory contributions through 2045 being slightly lower, due to contributions being higher in the earlier years of the projection period. However, total statutory contributions are higher on a present value basis under scenario 5.

In each scenario, we have assumed that the State and the employers will make the statutory contribution when due. However, some scenarios (for example, scenario 1) result in very high contributions rates for extended periods of time and may jeopardize the sustainability of the System. We are not able to opine on the sponsor's ability to pay such high contribution requirements.



The stress testing does not take into account the implication of potential required changes in asset allocation in order to maintain sufficient liquidity to make all required benefit payments.

To the best of our knowledge, this actuarial statement is complete and accurate, fairly presents the actuarial position of SURS as of June 30, 2023 under the alternative stress testing scenarios, and has been prepared in accordance with generally accepted actuarial principles and practices, with the Actuarial Standards of Practice issued by the Actuarial Standards Board and with applicable statutes.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; 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, contribution amounts or applicable law. Due to the limited scope of the actuary's assignment, the actuary did not perform an analysis of the potential range of such future measurements.

This letter is part of the SURS actuarial valuation as of June 30, 2023 and is subject to the same actuarial assumptions and disclosures as used in the presentation and the actuarial valuation report. The stress testing scenarios used future investment returns as shown in Exhibit VIII. All other assumptions and methods were the same as those used in the SURS actuarial valuation as of June 30, 2023 (including the 6.50% discount rate used to determine liabilities for scenarios 1 through 3 and 6 through 8) and the assumed election percentages for future new hires (25% of Non-Academic and 45% of Academic members elect the RSP and 75% of Non-Academic and 55% of Academic members elect Tier 2 for scenarios 1 through 6). A 6.00% discount rate was used to determine liabilities in scenarios 4 and 5. The future new hire election scenarios use a return assumption of 6.50% per year and vary the percentage of new hires assumed to elect the RSP and defined benefit plans.

In each projection scenario, the Statutory contribution in each year has been projected as though an actuarial valuation in each of those years was performed. The market value of assets at each projected valuation is assumed to be based on the rates of investment return and Statutory contributions in the preceding years, according to the scenario being modeled, and the valuation interest rate going forward. At each projected actuarial valuation, an additional 20% of the investment gains and losses are recognized in the actuarial value of assets. The actuarial value of assets is projected to earn the actuarial valuation rate of 6.50% from the valuation date to 2045 (6.00% in scenarios 4 and 5). This iterative process is followed for each projection year through 2045.

This analysis was prepared using our proprietary valuation model and related software and spreadsheet models used to calculate the statutory contributions in each future year through 2045 under the SURS statutory funding policy. In our professional judgment, the models used have the capability to provide results that are consistent with the purposes of the valuation and have no material limitations or known weaknesses. We performed tests to ensure that the model reasonably represents that which is intended to



be modeled. We are relying on the GRS actuaries and Internal Software, Training and Processes Team who developed and maintain the model.

Numerous additional assumptions could be varied in stress testing scenarios, such as payroll growth, inflation and other member behavior. The stress testing analysis performed focused on variations in investment return, a changing workforce and new hire plan elections, which are likely three of the most significant stressors on the System. GRS can perform additional stress testing scenarios at the Board's request.


The statutory funding method generates a contribution requirement that is less than a reasonable actuarially determined contribution. Meeting the statutory requirement does not mean that the undersigned agree that adequate actuarial funding has been achieved; we recommend the development of and adherence to a funding policy that funds the normal cost of the plan as well as an amortization payment that would seek to pay off the total unfunded accrued liability by 2045 or sooner, if possible.

The signing actuaries are independent of the plan sponsor.

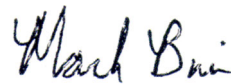
Amy Williams, Mark Buis and Kevin Noelke are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions herein.

Sincerely,

Gabriel, Roeder, Smith & Company



Amy Williams, ASA, FCA, MAAA
Senior Consultant



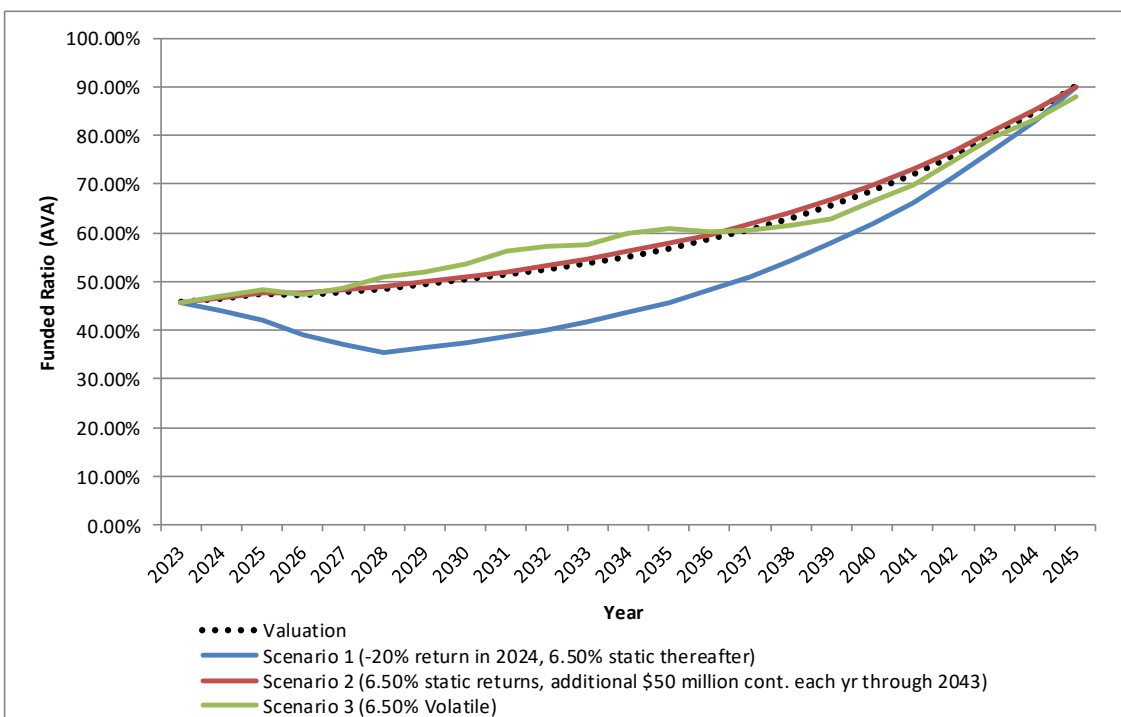
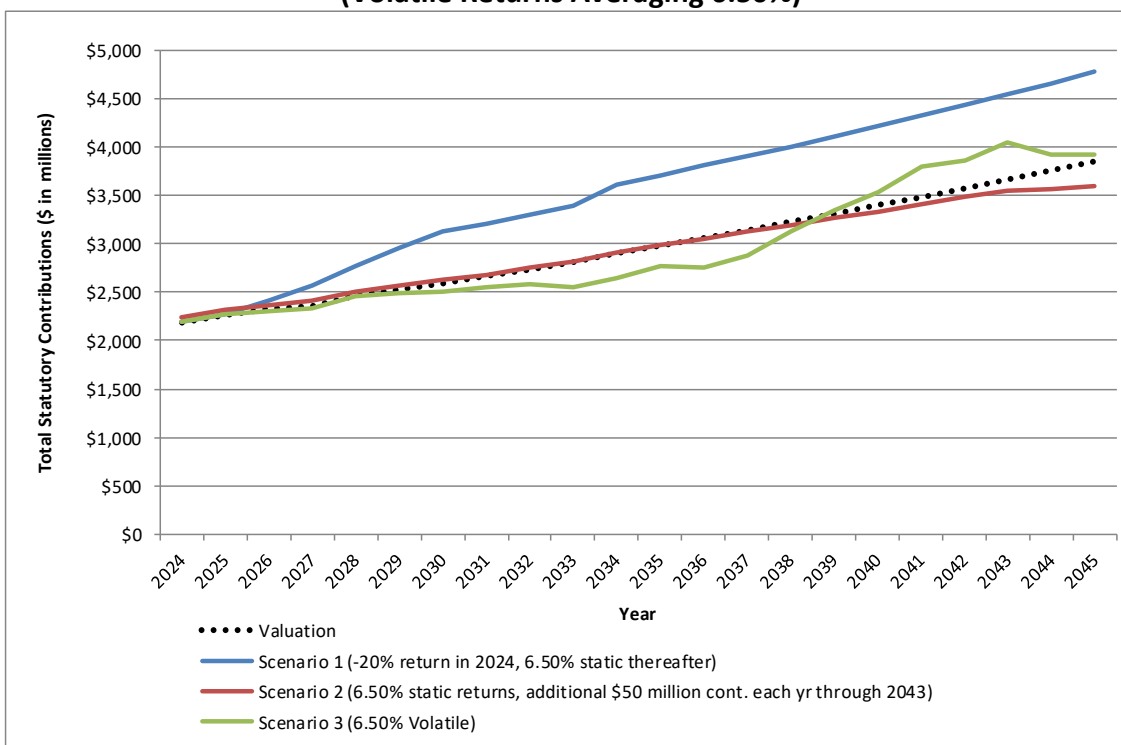
Mark Buis, FSA, EA, FCA, MAAA
Senior Consultant



Kevin Noelke, ASA, FCA, MAAA
Consultant

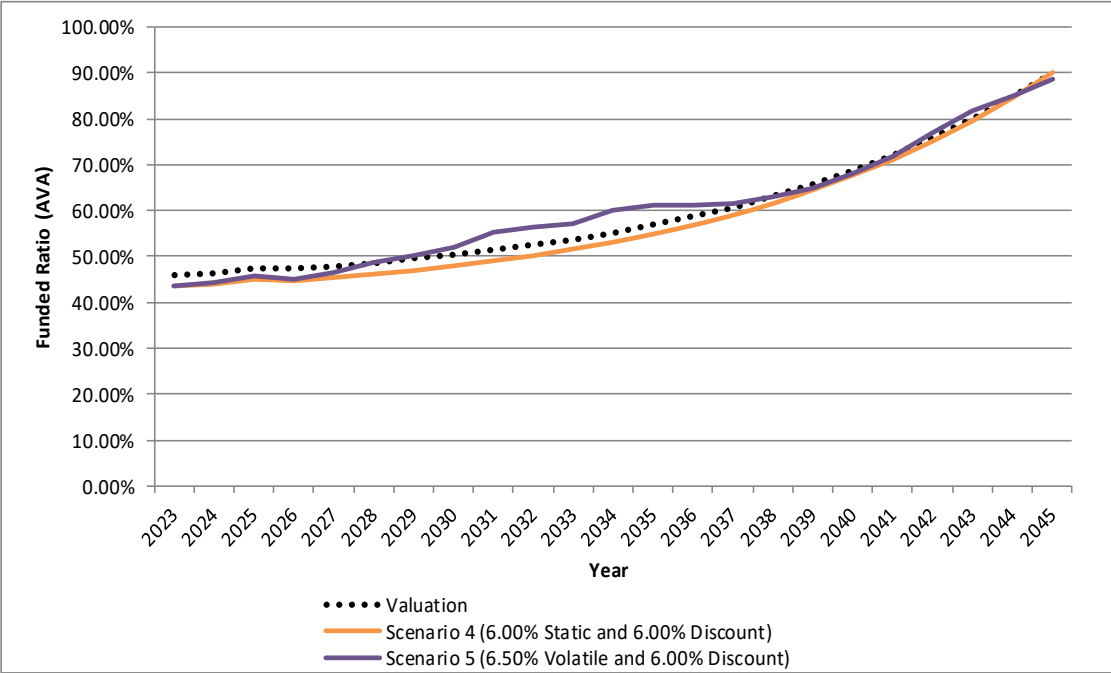
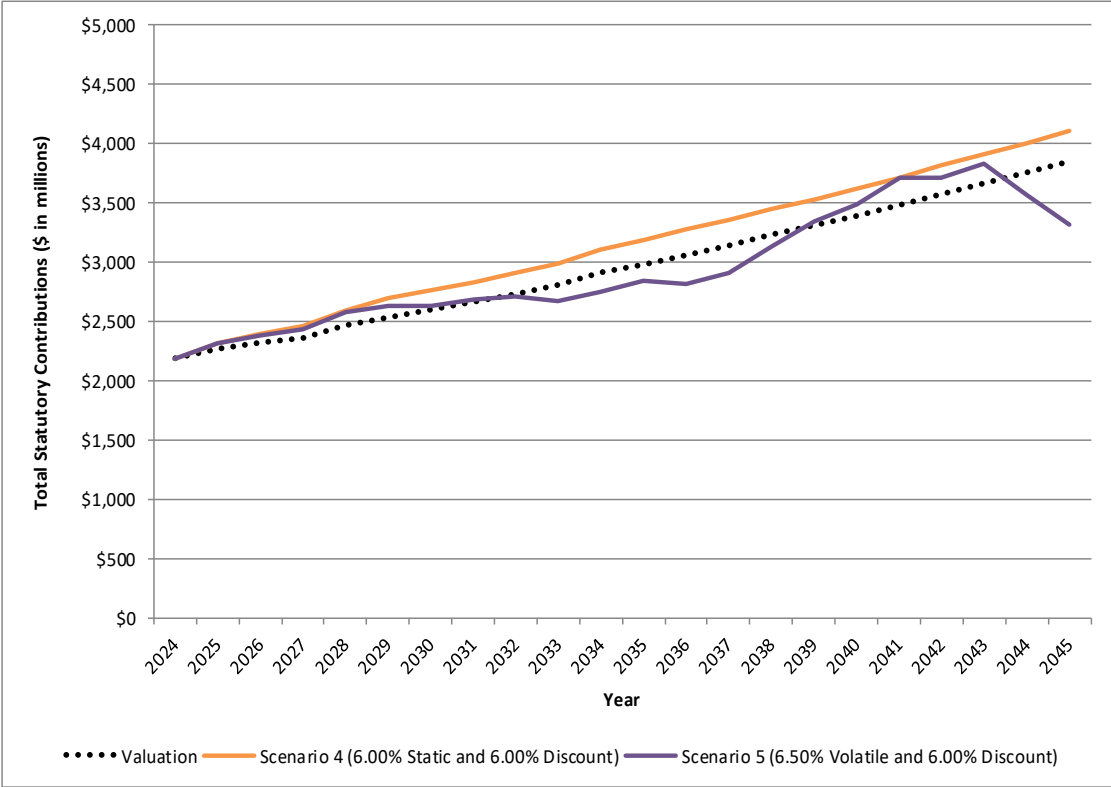


**State Universities Retirement System
Comparison of Total Statutory Contributions and Funded Ratio
Assuming an Annual Return of 6.50% (Valuation Assumption) and
Rates under the Volatile Investment Return Stress Testing Scenarios
(Volatile Returns Averaging 6.50%)**



Total statutory contributions include contributions from both the State and employers and include total RSP contributions. Total statutory contributions exclude EBA and DCP administrative expense contributions.

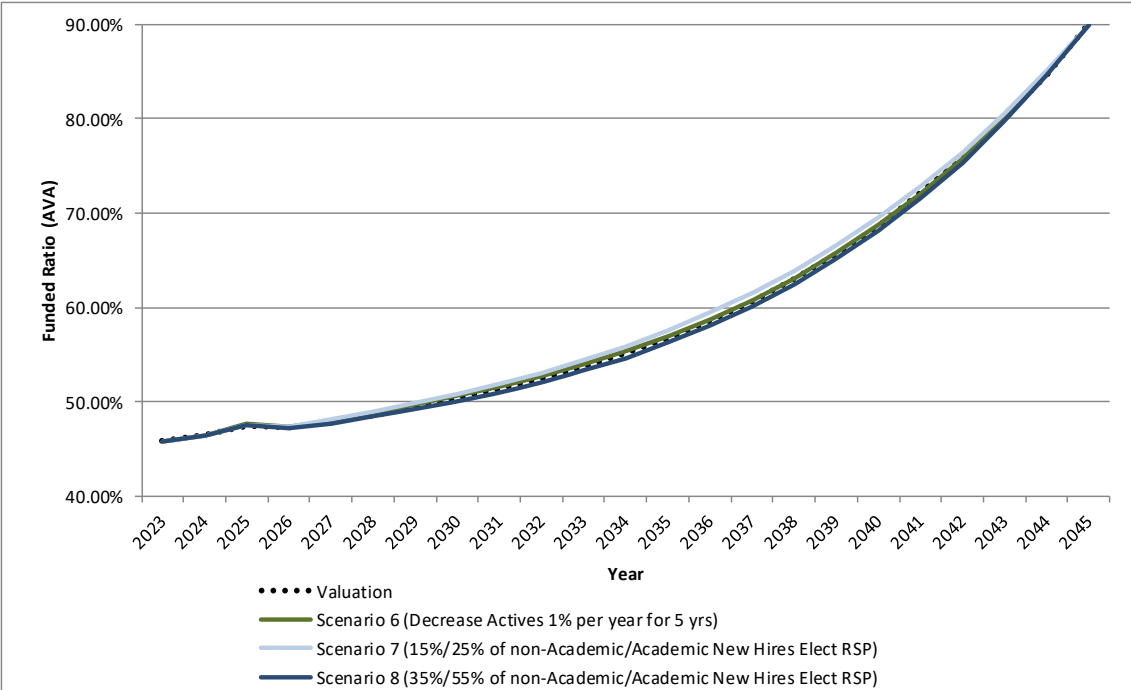
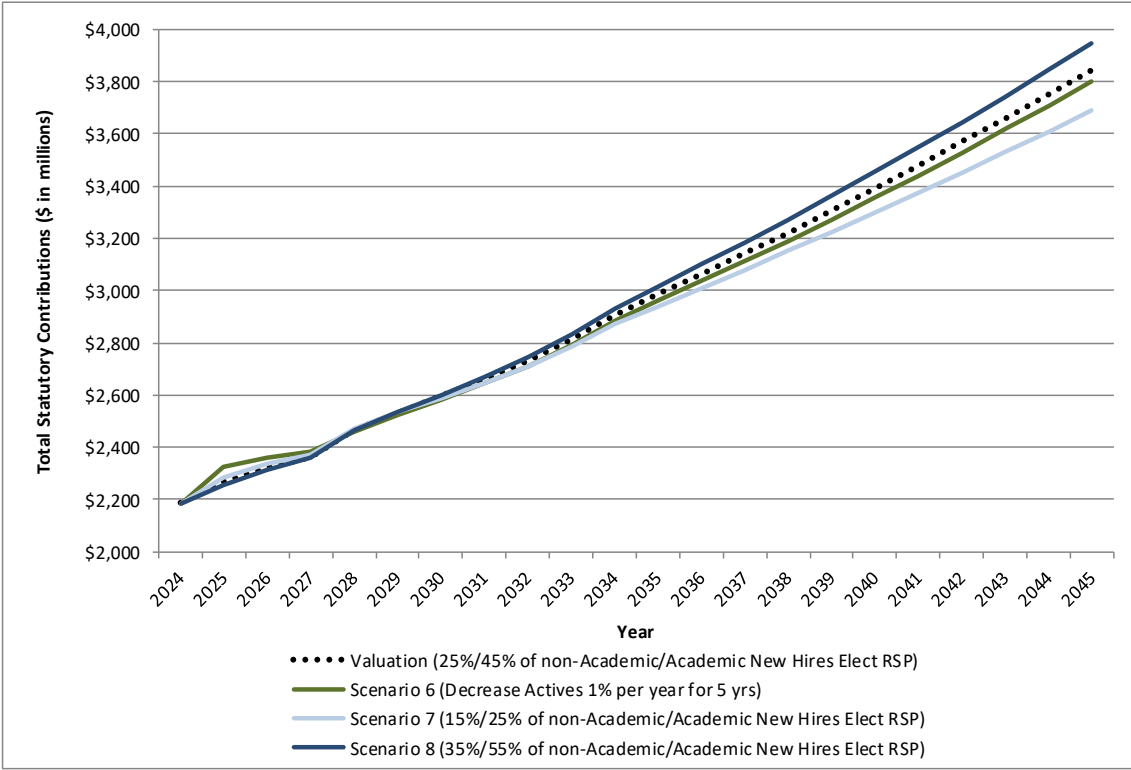
State Universities Retirement System
Comparison of Total Statutory Contributions and Funded Ratio
Assuming an Annual Return of 6.50% (Valuation Assumption) and
Rates under the Volatile Investment Return Stress Testing Scenarios
(Liabilities Discounted at 6.00%)



Total statutory contributions include contributions from both the State and employers and include total RSP contributions. Total statutory contributions exclude EBA and DCP administrative expense contributions.

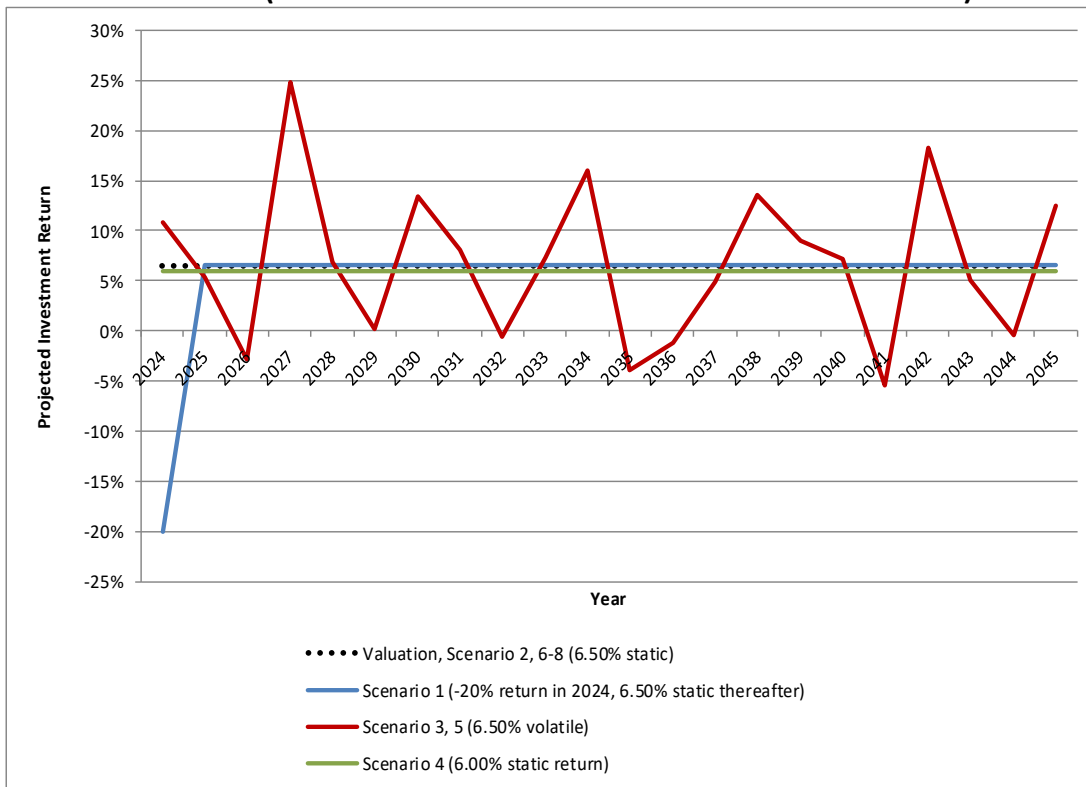


State Universities Retirement System
Comparison of Total Statutory Contributions and Funded Ratio
Assuming an Annual Return of 6.50% (Valuation Assumption) and
Rates under the Number of Active Members Sensitivity and Future New Hire Election Scenarios



Total statutory contributions include contributions from both the State and employers and include total RSP contributions. Total statutory contributions exclude EBA and DCP administrative expense contributions.

**State Universities Retirement System
 Comparison of Projected Rates of Investment Return
 Assuming an Annual Return of 6.50% (Valuation Assumption) and Rates under the Stress Testing
 Scenarios (Liabilities Discounted at 6.00% for Scenarios 4 and 5)**



State Universities Retirement System
Comparison of Total Contributions, Unfunded Liability and Funded Ratio
Based on Actuarial Valuation as of June 30, 2023

	Contributions* FY 2024-2045 (\$ in Millions)			MVA UAAL at 2045 (\$ in Millions)		Total PV
	Total	PV	MVA Funded	UAAL	PV of UAAL	Contributions
	Contributions	Contributions	Ratio in 2045			+ UAAL
Baseline (6.50% Static, 25%/45% of non-Academic/Academic New Hires Elect RSP)	\$ 65,261.694	\$ 33,028.388	90.00%	\$ 5,367.677	\$ 1,343.059	\$34,371.447
Scenario 1 (-20% return in 2024, 6.50% static thereafter)	78,209.120	38,687.890	90.00%	5,367.677	1,343.059	40,030.949
Scenario 2 (6.50% static returns, additional \$50 million cont. each yr through 2043)	64,715.454	33,028.386	90.00%	5,367.678	1,343.059	34,371.445
Scenario 3 (6.50% Volatile)	64,832.551	32,508.107	89.53%	5,621.475	1,406.562	33,914.669
Scenario 4 (6.00% Static and 6.00% Discount)	69,151.406	34,818.312	90.00%	5,531.233	1,383.982	36,202.294
Scenario 5 (6.50% Volatile and 6.00% Discount)	64,628.407	32,906.676	91.17%	4,882.445	1,221.648	34,128.324
Scenario 6 (Decrease Actives 1% per year for 5 yrs)	64,867.392	32,920.284	90.00%	5,310.516	1,328.756	34,249.040
Scenario 7 (15%/25% of non-Academic/Academic New Hires Elect RSP)	64,163.409	32,664.041	90.00%	5,505.768	1,377.611	34,041.652
Scenario 8 (35%/55% of non-Academic/Academic New Hires Elect RSP)	66,026.438	33,289.273	90.00%	5,263.885	1,317.089	34,606.362

	Percentage Change in Annual Statutory Contribution \$		Minimum Funded Ratio		Annual Funded Ratio (AVA) Change	
	Maximum	Maximum			Maximum	Maximum
	Increase	Decrease	(AVA)	(MVA)	Increase	Decrease
Baseline (6.50% Static, 25%/45% of non-Academic/Academic New Hires Elect RSP)			46.46%	45.96%		
Scenario 1 (-20% return in 2024, 6.50% static thereafter)	8.25%	2.49%	35.45%	34.32%	6.87%	-3.09%
Scenario 2 (6.50% static returns, additional \$50 million cont. each yr through 2043)	4.07%	0.27%	46.56%	46.06%	4.75%	-0.16%
Scenario 3 (6.50% Volatile)	8.66%	-3.07%	46.84%	44.32%	5.06%	-0.82%
Scenario 4 (6.00% Static and 6.00% Discount)	5.20%	2.45%	44.01%	43.53%	5.44%	-0.29%
Scenario 5 (6.50% Volatile and 6.00% Discount)	7.73%	-7.10%	44.41%	42.50%	5.00%	-0.67%
Scenario 6 (Decrease Actives 1% per year for 5 yrs)	3.42%	0.98%	46.46%	45.96%	5.22%	-0.19%
Scenario 7 (15%/25% of non-Academic/Academic New Hires Elect RSP)	4.19%	1.63%	46.48%	45.98%	4.93%	-0.19%
Scenario 8 (35%/55% of non-Academic/Academic New Hires Elect RSP)	4.44%	2.03%	46.45%	45.94%	5.41%	-0.31%

*Combined State and employer contributions. Includes total RSP contributions. Excludes EBA and DCP administrative expense contributions.

The contributions and unfunded actuarial accrued liability (UAAL) are discounted to a present value based on the actuarial valuation interest rate of 6.50%.

The maximum increase and decrease in the annual statutory contribution is for fiscal years 2025 through 2045.

State Universities Retirement System
Comparison of Number of Full-Time Active Members Used in the Stress Testing Scenarios and Total Statutory Contributions
Based on Actuarial Valuation as of June 30, 2023

Year	Full-Time Active Count (DB and RSP)		Total Statutory Contributions (\$ in Millions)								
	Baseline	Scenario 6	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6	Scenario 7	Scenario 8
2023	71,121	71,121									
2024	71,121	70,411	\$2,186.028	\$2,186.028	\$2,236.028	\$2,186.028	\$2,186.028	\$2,186.028	\$2,186.028	\$2,186.028	\$2,186.028
2025	71,121	69,706	2,267.994	2,267.994	2,317.994	2,267.994	2,312.468	2,312.468	2,323.127	2,287.460	2,256.561
2026	71,121	69,009	2,321.023	2,405.554	2,367.072	2,305.155	2,391.688	2,377.477	2,357.692	2,335.948	2,312.746
2027	71,121	68,318	2,364.397	2,559.319	2,406.244	2,332.902	2,464.764	2,434.198	2,380.845	2,373.990	2,359.760
2028	71,121	67,635	2,466.906	2,770.393	2,504.275	2,461.725	2,592.968	2,577.576	2,462.292	2,473.483	2,464.428
2029	71,121	67,635	2,533.954	2,949.974	2,566.554	2,496.455	2,690.219	2,634.538	2,524.353	2,534.558	2,535.507
2030	71,121	67,635	2,595.689	3,125.457	2,623.201	2,502.707	2,756.012	2,636.021	2,581.970	2,589.917	2,601.509
2031	71,121	67,635	2,660.406	3,203.939	2,682.472	2,557.418	2,824.895	2,683.260	2,643.450	2,647.838	2,670.748
2032	71,121	67,635	2,732.654	3,290.247	2,748.872	2,589.937	2,901.398	2,706.529	2,712.857	2,712.880	2,747.769
2033	71,121	67,635	2,812.736	3,384.789	2,822.653	2,551.015	2,985.856	2,666.664	2,790.302	2,785.356	2,832.873
2034	71,121	67,635	2,906.860	3,612.888	2,909.965	2,648.281	3,104.291	2,749.299	2,883.208	2,870.761	2,932.678
2035	71,121	67,635	2,984.716	3,708.990	2,980.410	2,761.640	3,187.249	2,844.804	2,958.867	2,940.469	3,015.894
2036	71,121	67,635	3,062.938	3,805.535	3,050.558	2,753.040	3,270.595	2,814.954	3,034.991	3,010.088	3,099.771
2037	71,121	67,635	3,142.280	3,903.445	3,121.029	2,870.719	3,355.129	2,911.282	3,112.264	3,080.308	3,185.118
2038	71,121	67,635	3,223.147	4,003.228	3,192.047	3,119.356	3,441.286	3,136.430	3,191.110	3,151.537	3,272.333
2039	71,121	67,635	3,306.375	4,105.936	3,264.185	3,350.837	3,529.962	3,340.244	3,272.382	3,224.591	3,362.267
2040	71,121	67,635	3,391.351	4,210.783	3,336.487	3,531.647	3,620.495	3,484.782	3,355.468	3,298.824	3,454.323
2041	71,121	67,635	3,478.676	4,318.557	3,408.962	3,795.832	3,713.538	3,708.061	3,440.936	3,374.891	3,549.073
2042	71,121	67,635	3,567.823	4,428.588	3,480.122	3,853.229	3,808.524	3,706.079	3,528.287	3,452.224	3,646.016
2043	71,121	67,635	3,659.057	4,541.213	3,548.293	4,050.033	3,905.740	3,833.736	3,617.797	3,531.082	3,745.427
2044	71,121	67,635	3,751.457	4,655.265	3,557.839	3,925.779	4,004.195	3,568.645	3,708.522	3,610.510	3,846.410
2045	71,121	67,635	3,845.227	4,770.998	3,590.192	3,920.822	4,104.106	3,315.332	3,800.644	3,690.666	3,949.199
Total Contributions FY 2024-2045			\$65,261.694	\$78,209.120	\$64,715.454	\$64,832.551	\$69,151.406	\$64,628.407	\$64,867.392	\$64,163.409	\$66,026.438
Total Present Value FY 2024-2045			\$33,028.388	\$38,687.890	\$33,028.386	\$32,508.107	\$34,818.312	\$32,906.676	\$32,920.284	\$32,664.041	\$33,289.273
Difference from June 30, 2023 Valuation											
Total Contributions FY 2024-2045			\$0.000	\$12,947.426	-\$546.240	-\$429.143	\$3,889.712	-\$633.287	-\$394.302	-\$1,098.285	\$764.744
Total Present Value FY 2024-2045			\$0.000	\$5,659.502	-\$0.002	-\$520.281	\$1,789.924	-\$121.712	-\$108.104	-\$364.347	\$260.885

Total statutory contributions include contributions from both the State and employers and include total RSP contributions. Total statutory contributions exclude EBA and DCP administrative expense contributions.

The contributions are discounted to a present value based on the actuarial valuation interest rate of 6.50%.



State Universities Retirement System
Comparison of Number of Full-Time Active Members Used in the Stress Testing Scenarios and Funded Ratios
Based on Actuarial Valuation as of June 30, 2023

Year	Full -Time Active Count (DB and RSP)		Funded Ratio Based on Actuarial Value of Assets (AVA)								
	Baseline	Scenario 6	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6	Scenario 7	Scenario 8
2023	71,121	71,121	45.80%	45.80%	45.80%	45.80%	43.41%	43.41%	45.80%	45.80%	45.80%
2024	71,121	70,411	46.46%	44.14%	46.56%	46.84%	44.01%	44.41%	46.46%	46.48%	46.45%
2025	71,121	69,706	47.50%	42.16%	47.70%	48.25%	44.91%	45.76%	47.60%	47.58%	47.44%
2026	71,121	69,009	47.23%	39.07%	47.54%	47.43%	44.63%	45.09%	47.41%	47.39%	47.13%
2027	71,121	68,318	47.83%	37.06%	48.23%	48.75%	45.21%	46.59%	48.05%	48.06%	47.68%
2028	71,121	67,635	48.60%	35.45%	49.09%	50.79%	46.00%	48.84%	48.83%	48.91%	48.40%
2029	71,121	67,635	49.44%	36.33%	50.03%	51.85%	46.91%	50.20%	49.67%	49.83%	49.19%
2030	71,121	67,635	50.35%	37.47%	51.02%	53.48%	47.89%	52.14%	50.57%	50.81%	50.05%
2031	71,121	67,635	51.35%	38.71%	52.10%	56.39%	48.97%	55.33%	51.56%	51.88%	50.99%
2032	71,121	67,635	52.46%	40.08%	53.28%	57.08%	50.17%	56.36%	52.66%	53.06%	52.05%
2033	71,121	67,635	53.71%	41.62%	54.61%	57.51%	51.51%	57.18%	53.90%	54.38%	53.26%
2034	71,121	67,635	55.16%	43.60%	56.12%	59.84%	53.09%	59.90%	55.33%	55.88%	54.66%
2035	71,121	67,635	56.78%	45.82%	57.80%	60.77%	54.86%	61.18%	56.94%	57.56%	56.25%
2036	71,121	67,635	58.61%	48.30%	59.67%	60.28%	56.84%	61.04%	58.75%	59.44%	58.05%
2037	71,121	67,635	60.68%	51.09%	61.77%	60.40%	59.07%	61.50%	60.79%	61.53%	60.09%
2038	71,121	67,635	63.00%	54.21%	64.11%	61.66%	61.56%	63.08%	63.09%	63.87%	62.40%
2039	71,121	67,635	65.69%	57.80%	66.79%	63.00%	64.42%	64.69%	65.75%	66.54%	65.09%
2040	71,121	67,635	68.70%	61.81%	69.77%	66.35%	67.62%	68.26%	68.74%	69.52%	68.12%
2041	71,121	67,635	72.08%	66.30%	73.10%	69.69%	71.20%	71.71%	72.10%	72.83%	71.55%
2042	71,121	67,635	75.86%	71.32%	76.79%	74.59%	75.19%	76.71%	75.87%	76.51%	75.40%
2043	71,121	67,635	80.09%	76.91%	80.87%	79.65%	79.63%	81.68%	80.08%	80.58%	79.74%
2044	71,121	67,635	84.79%	83.13%	85.25%	83.34%	84.56%	84.99%	84.78%	85.07%	84.59%
2045	71,121	67,635	90.00%	90.00%	90.00%	87.88%	90.00%	88.69%	90.00%	90.00%	90.00%

Scenario 1 assumes a -20% return the first year and 6.50% thereafter.

Scenario 2 assumes an additional \$50 million is contributed annually.

Scenarios 3 and 5 assume volatile returns with a geometric average of 6.50% over the 22-year period.

Scenario 4 assumes an annual return of 6.00%.

Scenario 6 assumes a decreasing number of full-time active members and an annual return of 6.50%.

Scenarios 7 and 8 assume 15%/25% and 35%/55% of non-Academic/Academic new hires elect the RSP.

Liabilities are calculated using a discount rate of 6.00% in Scenarios 4 and 5 and 6.50% in all other scenarios.



**State Universities Retirement System
Comparison of Actuarial Valuation Results and Stress Testing Scenario 1
(-20% return in 2024, 6.50% Thereafter)
Based on Actuarial Valuation as of June 30, 2023**

\$ in Millions

June 30, 2023 Valuation Baseline									Stress Test Scenario 1							
Year Ending	Projected Investment Return	DB Statutory Contribution	Total Statutory Contribution Including RSP	Actuarial Value of Assets (AVA) Funded Ratio	Market Value of Assets (MVA) Funded Ratio	Increase in Total Statutory Contribution	Increase in AVA Funded Ratio	Annual Rate of Investment Return	Cumulative Geometric Return (from 2024)	DB Statutory Contribution	Total Statutory Contribution Including RSP	Actuarial Value of Assets (AVA) Funded Ratio	Market Value of Assets (MVA) Funded Ratio	Increase in Total Statutory Contribution	Increase in AVA Funded Ratio	
June 30	Return	Contribution						Return								
2023		\$2,138.712	\$2,232.861	45.80%	45.43%			5.99%		\$2,138.712	\$2,232.861	45.80%	45.43%			
2024	6.50%	2,091.135	2,186.028	46.46%	45.96%	-2.10%	0.66%	-20.00%	-20.00%	2,091.135	2,186.028	44.14%	34.32%	-2.10%	-1.66%	
2025	6.50%	2,167.649	2,267.994	47.50%	46.57%	1.03%	3.75%	6.50%	-7.70%	2,167.649	2,267.994	42.16%	34.34%	3.75%	-1.98%	
2026	6.50%	2,213.938	2,321.023	47.23%	47.19%	2.34%	-0.26%	6.50%	-3.19%	2,298.469	2,405.554	39.07%	34.49%	6.07%	-3.09%	
2027	6.50%	2,251.405	2,364.397	47.83%	47.83%	1.87%	0.60%	6.50%	-0.85%	2,446.326	2,559.319	37.06%	34.82%	6.39%	-2.01%	
2028	6.50%	2,348.121	2,466.906	48.60%	48.60%	4.34%	0.77%	6.50%	0.58%	2,651.609	2,770.393	35.45%	35.45%	8.25%	-1.62%	
2029	6.50%	2,409.366	2,533.954	49.44%	49.44%	2.72%	0.84%	6.50%	1.54%	2,825.387	2,949.974	36.33%	36.33%	6.48%	0.88%	
2030	6.50%	2,465.270	2,595.689	50.35%	50.35%	2.44%	0.91%	6.50%	2.23%	2,995.039	3,125.457	37.47%	37.47%	5.95%	1.14%	
2031	6.50%	2,523.973	2,660.406	51.35%	51.35%	2.49%	1.00%	6.50%	2.76%	3,067.506	3,203.939	38.71%	38.71%	2.51%	1.24%	
2032	6.50%	2,590.063	2,732.654	52.46%	52.46%	2.72%	1.11%	6.50%	3.17%	3,147.656	3,290.247	40.08%	40.08%	2.69%	1.37%	
2033	6.50%	2,663.809	2,812.736	53.71%	53.71%	2.93%	1.25%	6.50%	3.50%	3,235.862	3,384.789	41.62%	41.62%	2.87%	1.54%	
2034	6.50%	2,751.423	2,906.860	55.16%	55.16%	3.35%	1.44%	6.50%	3.77%	3,457.451	3,612.888	43.60%	43.60%	6.74%	1.98%	
2035	6.50%	2,822.530	2,984.716	56.78%	56.78%	2.68%	1.63%	6.50%	3.99%	3,546.804	3,708.990	45.82%	45.82%	2.66%	2.22%	
2036	6.50%	2,893.937	3,062.938	58.61%	58.61%	2.62%	1.83%	6.50%	4.18%	3,636.534	3,805.535	48.30%	48.30%	2.60%	2.48%	
2037	6.50%	2,966.294	3,142.280	60.68%	60.68%	2.59%	2.06%	6.50%	4.35%	3,727.459	3,903.445	51.09%	51.09%	2.57%	2.78%	
2038	6.50%	3,040.010	3,223.147	63.00%	63.00%	2.57%	2.32%	6.50%	4.49%	3,820.091	4,003.228	54.21%	54.21%	2.56%	3.12%	
2039	6.50%	3,115.924	3,306.375	65.69%	65.69%	2.58%	2.68%	6.50%	4.61%	3,915.485	4,105.936	57.80%	57.80%	2.57%	3.59%	
2040	6.50%	3,193.362	3,391.351	68.70%	68.70%	2.57%	3.01%	6.50%	4.72%	4,012.794	4,210.783	61.81%	61.81%	2.55%	4.01%	
2041	6.50%	3,273.051	3,478.676	72.08%	72.08%	2.57%	3.38%	6.50%	4.82%	4,112.932	4,318.557	66.30%	66.30%	2.56%	4.49%	
2042	6.50%	3,354.441	3,567.823	75.86%	75.86%	2.56%	3.78%	6.50%	4.91%	4,215.206	4,428.588	71.32%	71.32%	2.55%	5.02%	
2043	6.50%	3,437.799	3,659.057	80.09%	80.09%	2.56%	4.23%	6.50%	4.99%	4,319.955	4,541.213	76.91%	76.91%	2.54%	5.59%	
2044	6.50%	3,522.181	3,751.457	84.79%	84.79%	2.53%	4.70%	6.50%	5.06%	4,425.989	4,655.265	83.13%	83.13%	2.51%	6.21%	
2045	6.50%	3,607.769	3,845.227	90.00%	90.00%	2.50%	5.21%	6.50%	5.12%	4,533.540	4,770.998	90.00%	90.00%	2.49%	6.87%	
Total Contributions FY 2024-2045		\$61,703.450	\$65,261.694							\$74,650.878	\$78,209.120					
Total Present Value FY 2024-2045		\$31,298.082	\$33,028.388							\$36,957.586	\$38,687.890					
Difference from June 30, 2023 Valuation																
Total Contributions FY 2024-2045		\$0.000	\$0.000							\$12,947.428	\$12,947.426					
Total Present Value FY 2024-2045		\$0.000	\$0.000							\$5,659.504	\$5,659.502					
Maximum Annual Increase														8.25%	6.87%	
Maximum Annual Decrease														2.49%	-3.09%	

Total statutory contributions include contributions from both the State and employers and include total RSP contributions. Total statutory contributions exclude EBA and DCP administrative expense contributions. Total statutory contribution in fiscal year 2023 includes a contribution of \$38.759 million from the Pension Stabilization Fund.

The contributions are discounted to a present value based on the actuarial valuation interest rate of 6.50%.



**State Universities Retirement System
Comparison of Actuarial Valuation Results and Stress Testing Scenario 2
(Additional \$50 Million Contribution Each Year)
Based on Actuarial Valuation as of June 30, 2023**

\$ in Millions

June 30, 2023 Valuation Baseline								Stress Test Scenario 2							
Year Ending	Projected Investment Return	DB Statutory Contribution	Total Statutory Contribution Including RSP	Actuarial Value of Assets (AVA) Funded Ratio	Market Value of Assets (MVA) Funded Ratio	Increase in Total Statutory Contribution	Increase in AVA Funded Ratio	Annual Rate of Investment Return	Cumulative Geometric Return (from 2024)	DB Statutory Contribution	Total Statutory Contribution Including RSP	Actuarial Value of Assets (AVA) Funded Ratio	Market Value of Assets (MVA) Funded Ratio	Increase in Total Statutory Contribution	Increase in AVA Funded Ratio
2023		\$2,138.712	\$2,232.861	45.80%	45.43%			5.99%		\$2,138.712	\$2,232.861	45.80%	45.43%		
2024	6.50%	2,091.135	2,186.028	46.46%	45.96%	-2.10%	0.66%	6.50%	6.50%	2,141.135	2,236.028	46.56%	46.06%	0.14%	0.76%
2025	6.50%	2,167.649	2,267.994	47.50%	46.57%	3.75%	1.03%	6.50%	6.50%	2,217.649	2,317.994	47.70%	46.77%	3.67%	1.14%
2026	6.50%	2,213.938	2,321.023	47.23%	47.19%	2.34%	-0.26%	6.50%	6.50%	2,259.987	2,367.072	47.54%	47.49%	2.12%	-0.16%
2027	6.50%	2,251.405	2,364.397	47.83%	47.83%	1.87%	0.60%	6.50%	6.50%	2,293.252	2,406.244	48.23%	48.23%	1.65%	0.69%
2028	6.50%	2,348.121	2,466.906	48.60%	48.60%	4.34%	0.77%	6.50%	6.50%	2,385.491	2,504.275	49.09%	49.09%	4.07%	0.86%
2029	6.50%	2,409.366	2,533.954	49.44%	49.44%	2.72%	0.84%	6.50%	6.50%	2,441.967	2,566.554	50.03%	50.03%	2.49%	0.93%
2030	6.50%	2,465.270	2,595.689	50.35%	50.35%	2.44%	0.91%	6.50%	6.50%	2,492.783	2,623.201	51.02%	51.02%	2.21%	1.00%
2031	6.50%	2,523.973	2,660.406	51.35%	51.35%	2.49%	1.00%	6.50%	6.50%	2,546.039	2,682.472	52.10%	52.10%	2.26%	1.08%
2032	6.50%	2,590.063	2,732.654	52.46%	52.46%	2.72%	1.11%	6.50%	6.50%	2,606.281	2,748.872	53.28%	53.28%	2.48%	1.19%
2033	6.50%	2,663.809	2,812.736	53.71%	53.71%	2.93%	1.25%	6.50%	6.50%	2,673.726	2,822.653	54.61%	54.61%	2.68%	1.32%
2034	6.50%	2,751.423	2,906.860	55.16%	55.16%	3.35%	1.44%	6.50%	6.50%	2,754.528	2,909.965	56.12%	56.12%	3.09%	1.51%
2035	6.50%	2,822.530	2,984.716	56.78%	56.78%	2.68%	1.63%	6.50%	6.50%	2,818.224	2,980.410	57.80%	57.80%	2.42%	1.68%
2036	6.50%	2,893.937	3,062.938	58.61%	58.61%	2.62%	1.83%	6.50%	6.50%	2,881.557	3,050.558	59.67%	59.67%	2.35%	1.88%
2037	6.50%	2,966.294	3,142.280	60.68%	60.68%	2.59%	2.06%	6.50%	6.50%	2,945.043	3,121.029	61.77%	61.77%	2.31%	2.10%
2038	6.50%	3,040.010	3,223.147	63.00%	63.00%	2.57%	2.32%	6.50%	6.50%	3,008.910	3,192.047	64.11%	64.11%	2.28%	2.34%
2039	6.50%	3,115.924	3,306.375	65.69%	65.69%	2.58%	2.68%	6.50%	6.50%	3,073.734	3,264.185	66.79%	66.79%	2.26%	2.68%
2040	6.50%	3,193.362	3,391.351	68.70%	68.70%	2.57%	3.01%	6.50%	6.50%	3,138.498	3,336.487	69.77%	69.77%	2.22%	2.99%
2041	6.50%	3,273.051	3,478.676	72.08%	72.08%	2.57%	3.38%	6.50%	6.50%	3,203.337	3,408.962	73.10%	73.10%	2.17%	3.32%
2042	6.50%	3,354.441	3,567.823	75.86%	75.86%	2.56%	3.78%	6.50%	6.50%	3,266.740	3,480.122	76.79%	76.79%	2.09%	3.69%
2043	6.50%	3,437.799	3,659.057	80.09%	80.09%	2.56%	4.23%	6.50%	6.50%	3,327.035	3,548.293	80.87%	80.87%	1.96%	4.08%
2044	6.50%	3,522.181	3,751.457	84.79%	84.79%	2.53%	4.70%	6.50%	6.50%	3,328.563	3,557.839	85.25%	85.25%	0.27%	4.38%
2045	6.50%	3,607.769	3,845.227	90.00%	90.00%	2.50%	5.21%	6.50%	6.50%	3,352.734	3,590.192	90.00%	90.00%	0.91%	4.75%
Total Contributions FY 2024-2045		\$61,703.450	\$65,261.694							\$61,157.213	\$64,715.454				
Total Present Value FY 2024-2045		\$31,298.082	\$33,028.388							\$31,298.083	\$33,028.386				
Difference from June 30, 2023 Valuation															
Total Contributions FY 2024-2045		\$0.000	\$0.000							-\$546.237	-\$546.240				
Total Present Value FY 2024-2045		\$0.000	\$0.000							\$0.001	-\$0.002				
Maximum Annual Increase														4.07%	4.75%
Maximum Annual Decrease														0.27%	-0.16%

Total statutory contributions include contributions from both the State and employers and include total RSP contributions. Total statutory contributions exclude EBA and DCP administrative expense contributions. Total statutory contribution in fiscal year 2023 includes a contribution of \$38.759 million from the Pension Stabilization Fund.

The contributions are discounted to a present value based on the actuarial valuation interest rate of 6.50%.



State Universities Retirement System
Comparison of Actuarial Valuation Results and Stress Testing Scenario 3
(Volatile Returns Averaging 6.50%)
Based on Actuarial Valuation as of June 30, 2023

\$ in Millions

June 30, 2023 Valuation Baseline								Stress Test Scenario 3							
Year Ending	Projected Investment Return	DB Statutory Contribution	Total Statutory Contribution Including RSP	Actuarial Value of Assets (AVA) Funded Ratio	Market Value of Assets (MVA) Funded Ratio	Increase in Total Statutory Contribution	Increase in AVA Funded Ratio	Annual Rate of Investment Return	Cumulative Geometric Return (from 2024)	DB Statutory Contribution	Total Statutory Contribution Including RSP	Actuarial Value of Assets (AVA) Funded Ratio	Market Value of Assets (MVA) Funded Ratio	Increase in Total Statutory Contribution	Increase in AVA Funded Ratio
2023		\$2,138.712	\$2,232.861	45.80%	45.43%			5.99%		\$2,138.712	\$2,232.861	45.80%	45.43%		
2024	6.50%	2,091.135	2,186.028	46.46%	45.96%	-2.10%	0.66%	10.78%	10.78%	2,091.135	2,186.028	46.84%	47.84%	-2.10%	1.04%
2025	6.50%	2,167.649	2,267.994	47.50%	46.57%	3.75%	1.03%	5.30%	8.01%	2,167.649	2,267.994	48.25%	47.99%	3.75%	1.41%
2026	6.50%	2,213.938	2,321.023	47.23%	47.19%	2.34%	-0.26%	-2.82%	4.27%	2,198.070	2,305.155	47.43%	44.32%	1.64%	-0.82%
2027	6.50%	2,251.405	2,364.397	47.83%	47.83%	1.87%	0.60%	24.80%	9.06%	2,219.910	2,332.902	48.75%	52.61%	1.20%	1.32%
2028	6.50%	2,348.121	2,466.906	48.60%	48.60%	4.34%	0.77%	6.80%	8.61%	2,342.941	2,461.725	50.79%	53.78%	5.52%	2.05%
2029	6.50%	2,409.366	2,533.954	49.44%	49.44%	2.72%	0.84%	0.25%	7.17%	2,371.868	2,496.455	51.85%	51.57%	1.41%	1.06%
2030	6.50%	2,465.270	2,595.689	50.35%	50.35%	2.44%	0.91%	13.34%	8.03%	2,372.289	2,502.707	53.48%	55.87%	0.25%	1.62%
2031	6.50%	2,523.973	2,660.406	51.35%	51.35%	2.49%	1.00%	8.11%	8.04%	2,420.985	2,557.418	56.39%	57.88%	2.19%	2.92%
2032	6.50%	2,590.063	2,732.654	52.46%	52.46%	2.72%	1.11%	-0.59%	7.04%	2,447.346	2,589.937	57.08%	55.12%	1.27%	0.69%
2033	6.50%	2,663.809	2,812.736	53.71%	53.71%	2.93%	1.25%	7.29%	7.07%	2,402.088	2,551.015	57.51%	56.48%	-1.50%	0.42%
2034	6.50%	2,751.423	2,906.860	55.16%	55.16%	3.35%	1.44%	16.02%	7.85%	2,492.844	2,648.281	59.84%	62.88%	3.81%	2.33%
2035	6.50%	2,822.530	2,984.716	56.78%	56.78%	2.68%	1.63%	-3.99%	6.81%	2,599.454	2,761.640	60.77%	58.12%	4.28%	0.93%
2036	6.50%	2,893.937	3,062.938	58.61%	58.61%	2.62%	1.83%	-1.20%	6.17%	2,584.039	2,753.040	60.28%	55.08%	-0.31%	-0.49%
2037	6.50%	2,966.294	3,142.280	60.68%	60.68%	2.59%	2.06%	4.89%	6.08%	2,694.733	2,870.719	60.40%	55.52%	4.27%	0.12%
2038	6.50%	3,040.010	3,223.147	63.00%	63.00%	2.57%	2.32%	13.50%	6.56%	2,936.219	3,119.356	61.66%	61.13%	8.66%	1.26%
2039	6.50%	3,115.924	3,306.375	65.69%	65.69%	2.58%	2.68%	9.02%	6.71%	3,160.386	3,350.837	63.00%	65.30%	7.42%	1.35%
2040	6.50%	3,193.362	3,391.351	68.70%	68.70%	2.57%	3.01%	7.16%	6.74%	3,333.658	3,531.647	66.35%	68.98%	5.40%	3.34%
2041	6.50%	3,273.051	3,478.676	72.08%	72.08%	2.57%	3.38%	-5.39%	6.03%	3,590.207	3,795.832	69.69%	64.79%	7.48%	3.34%
2042	6.50%	3,354.441	3,567.823	75.86%	75.86%	2.56%	3.78%	18.35%	6.64%	3,639.847	3,853.229	74.59%	76.28%	1.51%	4.90%
2043	6.50%	3,437.799	3,659.057	80.09%	80.09%	2.56%	4.23%	5.04%	6.56%	3,828.775	4,050.033	79.65%	80.16%	5.11%	5.06%
2044	6.50%	3,522.181	3,751.457	84.79%	84.79%	2.53%	4.70%	-0.37%	6.22%	3,696.503	3,925.779	83.34%	79.69%	-3.07%	3.69%
2045	6.50%	3,607.769	3,845.227	90.00%	90.00%	2.50%	5.21%	12.56%	6.50%	3,683.364	3,920.822	87.88%	89.53%	-0.13%	4.54%
Total Contributions FY 2024-2045		\$61,703.450	\$65,261.694							\$61,274.310	\$64,832.551				
Total Present Value FY 2024-2045		\$31,298.082	\$33,028.388							\$30,777.804	\$32,508.107				
Difference from June 30, 2023 Valuation															
Total Contributions FY 2024-2045		\$0.000	\$0.000							-\$429.140	-\$429.143				
Total Present Value FY 2024-2045		\$0.000	\$0.000							-\$520.278	-\$520.281				
Maximum Annual Increase														8.66%	5.06%
Maximum Annual Decrease														-3.07%	-0.82%

Total statutory contributions include contributions from both the State and employers and include total RSP contributions. Total statutory contributions exclude EBA and DCP administrative expense contributions. Total statutory contribution in fiscal year 2023 includes a contribution of \$38.759 million from the Pension Stabilization Fund.

The contributions are discounted to a present value based on the actuarial valuation interest rate of 6.50%.



**State Universities Retirement System
Comparison of Actuarial Valuation Results and Stress Testing Scenario 4
(Liabilities Discounted at 6.00%, Static Return of 6.00%)
Based on Actuarial Valuation as of June 30, 2023**

\$ in Millions

June 30, 2023 Valuation Baseline								Stress Test Scenario 4							
Year Ending	Projected Investment Return	DB Statutory Contribution	Total Statutory Contribution Including RSP	Actuarial Value of Assets (AVA) Funded Ratio	Market Value of Assets (MVA) Funded Ratio	Increase in Total Statutory Contribution	Increase in AVA Funded Ratio	Annual Rate of Investment Return	Cumulative Geometric Return (from 2024)	DB Statutory Contribution	Total Statutory Contribution Including RSP	Actuarial Value of Assets (AVA) Funded Ratio	Market Value of Assets (MVA) Funded Ratio	Increase in Total Statutory Contribution	Increase in AVA Funded Ratio
2023		\$2,138.712	\$2,232.861	45.80%	45.43%			5.99%		\$2,138.712	\$2,232.861	43.41%	43.06%		
2024	6.50%	2,091.135	2,186.028	46.46%	45.96%	-2.10%	0.66%	6.00%	6.00%	2,091.135	2,186.028	44.01%	43.53%	-2.10%	0.60%
2025	6.50%	2,167.649	2,267.994	47.50%	46.57%	3.75%	1.03%	6.00%	6.00%	2,212.123	2,312.468	44.91%	44.03%	5.78%	0.91%
2026	6.50%	2,213.938	2,321.023	47.23%	47.19%	2.34%	-0.26%	6.00%	6.00%	2,284.603	2,391.688	44.63%	44.59%	3.43%	-0.29%
2027	6.50%	2,251.405	2,364.397	47.83%	47.83%	1.87%	0.60%	6.00%	6.00%	2,351.771	2,464.764	45.21%	45.21%	3.06%	0.58%
2028	6.50%	2,348.121	2,466.906	48.60%	48.60%	4.34%	0.77%	6.00%	6.00%	2,474.184	2,592.968	46.00%	46.00%	5.20%	0.79%
2029	6.50%	2,409.366	2,533.954	49.44%	49.44%	2.72%	0.84%	6.00%	6.00%	2,565.632	2,690.219	46.91%	46.91%	3.75%	0.91%
2030	6.50%	2,465.270	2,595.689	50.35%	50.35%	2.44%	0.91%	6.00%	6.00%	2,625.594	2,756.012	47.89%	47.89%	2.45%	0.99%
2031	6.50%	2,523.973	2,660.406	51.35%	51.35%	2.49%	1.00%	6.00%	6.00%	2,688.462	2,824.895	48.97%	48.97%	2.50%	1.08%
2032	6.50%	2,590.063	2,732.654	52.46%	52.46%	2.72%	1.11%	6.00%	6.00%	2,758.807	2,901.398	50.17%	50.17%	2.71%	1.20%
2033	6.50%	2,663.809	2,812.736	53.71%	53.71%	2.93%	1.25%	6.00%	6.00%	2,836.929	2,985.856	51.51%	51.51%	2.91%	1.35%
2034	6.50%	2,751.423	2,906.860	55.16%	55.16%	3.35%	1.44%	6.00%	6.00%	2,948.854	3,104.291	53.09%	53.09%	3.97%	1.58%
2035	6.50%	2,822.530	2,984.716	56.78%	56.78%	2.68%	1.63%	6.00%	6.00%	3,025.063	3,187.249	54.86%	54.86%	2.67%	1.77%
2036	6.50%	2,893.937	3,062.938	58.61%	58.61%	2.62%	1.83%	6.00%	6.00%	3,101.594	3,270.595	56.84%	56.84%	2.61%	1.98%
2037	6.50%	2,966.294	3,142.280	60.68%	60.68%	2.59%	2.06%	6.00%	6.00%	3,179.143	3,355.129	59.07%	59.07%	2.58%	2.23%
2038	6.50%	3,040.010	3,223.147	63.00%	63.00%	2.57%	2.32%	6.00%	6.00%	3,258.149	3,441.286	61.56%	61.56%	2.57%	2.50%
2039	6.50%	3,115.924	3,306.375	65.69%	65.69%	2.58%	2.68%	6.00%	6.00%	3,339.511	3,529.962	64.42%	64.42%	2.58%	2.86%
2040	6.50%	3,193.362	3,391.351	68.70%	68.70%	2.57%	3.01%	6.00%	6.00%	3,422.506	3,620.495	67.62%	67.62%	2.56%	3.20%
2041	6.50%	3,273.051	3,478.676	72.08%	72.08%	2.57%	3.38%	6.00%	6.00%	3,507.913	3,713.538	71.20%	71.20%	2.57%	3.58%
2042	6.50%	3,354.441	3,567.823	75.86%	75.86%	2.56%	3.78%	6.00%	6.00%	3,595.142	3,808.524	75.19%	75.19%	2.56%	3.99%
2043	6.50%	3,437.799	3,659.057	80.09%	80.09%	2.56%	4.23%	6.00%	6.00%	3,684.482	3,905.740	79.63%	79.63%	2.55%	4.44%
2044	6.50%	3,522.181	3,751.457	84.79%	84.79%	2.53%	4.70%	6.00%	6.00%	3,774.919	4,004.195	84.56%	84.56%	2.52%	4.93%
2045	6.50%	3,607.769	3,845.227	90.00%	90.00%	2.50%	5.21%	6.00%	6.00%	3,866.648	4,104.106	90.00%	90.00%	2.50%	5.44%
Total Contributions FY 2024-2045		\$61,703.450	\$65,261.694							\$65,593.164	\$69,151.406				
Total Present Value FY 2024-2045		\$31,298.082	\$33,028.388							\$33,088.007	\$34,818.312				
Difference from June 30, 2023 Valuation															
Total Contributions FY 2024-2045		\$0.000	\$0.000							\$3,889.714	\$3,889.712				
Total Present Value FY 2024-2045		\$0.000	\$0.000							\$1,789.925	\$1,789.924				
Maximum Annual Increase														5.20%	5.44%
Maximum Annual Decrease														2.45%	-0.29%

Total statutory contributions include contributions from both the State and employers and include total RSP contributions. Total statutory contributions exclude EBA and DCP administrative expense contributions. Total statutory contribution in fiscal year 2023 includes a contribution of \$38.759 million from the Pension Stabilization Fund.

The contributions are discounted to a present value based on the actuarial valuation interest rate of 6.50%.



**State Universities Retirement System
Comparison of Actuarial Valuation Results and Stress Testing Scenario 5
(Liabilities Discounted at 6.00%, Volatile Return Averaging 6.50%)
Based on Actuarial Valuation as of June 30, 2023**

\$ in Millions

June 30, 2023 Valuation Baseline								Stress Test Scenario 5							
Year Ending	Projected Investment Return	DB Statutory Contribution	Total Statutory Contribution Including RSP	Actuarial Value of Assets (AVA) Funded Ratio	Market Value of Assets (MVA) Funded Ratio	Increase in Total Statutory Contribution	Increase in AVA Funded Ratio	Annual Rate of Investment Return	Cumulative Geometric Return (from 2024)	DB Statutory Contribution	Total Statutory Contribution Including RSP	Actuarial Value of Assets (AVA) Funded Ratio	Market Value of Assets (MVA) Funded Ratio	Increase in Total Statutory Contribution	Increase in AVA Funded Ratio
2023		\$2,138.712	\$2,232.861	45.80%	45.43%			5.99%		\$2,138.712	\$2,232.861	43.41%	43.06%		
2024	6.50%	2,091.135	2,186.028	46.46%	45.96%	-2.10%	0.66%	10.78%	10.78%	2,091.135	2,186.028	44.41%	45.53%	-2.10%	1.00%
2025	6.50%	2,167.649	2,267.994	47.50%	46.57%	3.75%	1.03%	5.30%	8.01%	2,212.123	2,312.468	45.76%	45.81%	5.78%	1.35%
2026	6.50%	2,213.938	2,321.023	47.23%	47.19%	2.34%	-0.26%	-2.82%	4.27%	2,270.392	2,377.477	45.09%	42.50%	2.81%	-0.67%
2027	6.50%	2,251.405	2,364.397	47.83%	47.83%	1.87%	0.60%	24.80%	9.06%	2,321.205	2,434.198	46.59%	50.74%	2.39%	1.50%
2028	6.50%	2,348.121	2,466.906	48.60%	48.60%	4.34%	0.77%	6.80%	8.61%	2,458.792	2,577.576	48.84%	52.18%	5.89%	2.25%
2029	6.50%	2,409.366	2,533.954	49.44%	49.44%	2.72%	0.84%	0.25%	7.17%	2,509.951	2,634.538	50.20%	50.38%	2.21%	1.36%
2030	6.50%	2,465.270	2,595.689	50.35%	50.35%	2.44%	0.91%	13.34%	8.03%	2,505.603	2,636.021	52.14%	54.96%	0.06%	1.94%
2031	6.50%	2,523.973	2,660.406	51.35%	51.35%	2.49%	1.00%	8.11%	8.04%	2,546.827	2,683.260	55.33%	57.32%	1.79%	3.19%
2032	6.50%	2,590.063	2,732.654	52.46%	52.46%	2.72%	1.11%	-0.59%	7.04%	2,563.938	2,706.529	56.36%	54.94%	0.87%	1.03%
2033	6.50%	2,663.809	2,812.736	53.71%	53.71%	2.93%	1.25%	7.29%	7.07%	2,517.737	2,666.664	57.18%	56.69%	-1.47%	0.82%
2034	6.50%	2,751.423	2,906.860	55.16%	55.16%	3.35%	1.44%	16.02%	7.85%	2,593.862	2,749.299	59.90%	63.53%	3.10%	2.71%
2035	6.50%	2,822.530	2,984.716	56.78%	56.78%	2.68%	1.63%	-3.99%	6.81%	2,682.618	2,844.804	61.18%	59.07%	3.47%	1.28%
2036	6.50%	2,893.937	3,062.938	58.61%	58.61%	2.62%	1.83%	-1.20%	6.17%	2,645.953	2,814.954	61.04%	56.32%	-1.05%	-0.14%
2037	6.50%	2,966.294	3,142.280	60.68%	60.68%	2.59%	2.06%	4.89%	6.08%	2,735.296	2,911.282	61.50%	57.10%	3.42%	0.46%
2038	6.50%	3,040.010	3,223.147	63.00%	63.00%	2.57%	2.32%	13.50%	6.56%	2,953.293	3,136.430	63.08%	63.15%	7.73%	1.58%
2039	6.50%	3,115.924	3,306.375	65.69%	65.69%	2.58%	2.68%	9.02%	6.71%	3,149.793	3,340.244	64.69%	67.67%	6.50%	1.61%
2040	6.50%	3,193.362	3,391.351	68.70%	68.70%	2.57%	3.01%	7.16%	6.74%	3,286.793	3,484.782	68.26%	71.61%	4.33%	3.57%
2041	6.50%	3,273.051	3,478.676	72.08%	72.08%	2.57%	3.38%	-5.39%	6.03%	3,502.436	3,708.061	71.71%	67.29%	6.41%	3.45%
2042	6.50%	3,354.441	3,567.823	75.86%	75.86%	2.56%	3.78%	18.35%	6.64%	3,492.697	3,706.079	76.71%	79.14%	-0.05%	5.00%
2043	6.50%	3,437.799	3,659.057	80.09%	80.09%	2.56%	4.23%	5.04%	6.56%	3,612.478	3,833.736	81.68%	82.95%	3.44%	4.97%
2044	6.50%	3,522.181	3,751.457	84.79%	84.79%	2.53%	4.70%	-0.37%	6.22%	3,339.369	3,568.645	84.99%	82.01%	-6.91%	3.30%
2045	6.50%	3,607.769	3,845.227	90.00%	90.00%	2.50%	5.21%	12.56%	6.50%	3,077.874	3,315.332	88.69%	91.17%	-7.10%	3.70%
Total Contributions FY 2024-2045		\$61,703.450	\$65,261.694							\$61,070.165	\$64,628.407				
Total Present Value FY 2024-2045		\$31,298.082	\$33,028.388							\$31,176.372	\$32,906.676				
Difference from June 30, 2023 Valuation															
Total Contributions FY 2024-2045		\$0.000	\$0.000							-\$633.285	-\$633.287				
Total Present Value FY 2024-2045		\$0.000	\$0.000							-\$121.710	-\$121.712				
Maximum Annual Increase														7.73%	5.00%
Maximum Annual Decrease														-7.10%	-0.67%

Total statutory contributions include contributions from both the State and employers and include total RSP contributions. Total statutory contributions exclude EBA and DCP administrative expense contributions. Total statutory contribution in fiscal year 2023 includes a contribution of \$38.759 million from the Pension Stabilization Fund.

The contributions are discounted to a present value based on the actuarial valuation interest rate of 6.50%.



**State Universities Retirement System
Comparison of Actuarial Valuation Results and Stress Testing Scenario 6
(Decreasing Full-Time Active Members – 1%/year for 5 Years)
Based on Actuarial Valuation as of June 30, 2023**

\$ in Millions

June 30, 2023 Valuation Baseline								Stress Test Scenario 6							
Year Ending	Projected Investment Return	DB Statutory Contribution	Total Statutory Contribution Including RSP	Actuarial Value of Assets (AVA) Funded Ratio	Market Value of Assets (MVA) Funded Ratio	Increase in Total Statutory Contribution	Increase in AVA Funded Ratio	Annual Rate of Investment Return	Cumulative Geometric Return (from 2024)	DB Statutory Contribution	Total Statutory Contribution Including RSP	Actuarial Value of Assets (AVA) Funded Ratio	Market Value of Assets (MVA) Funded Ratio	Increase in Total Statutory Contribution	Increase in AVA Funded Ratio
2023		\$2,138.712	\$2,232.861	45.80%	45.43%			5.99%		\$2,138.712	\$2,232.861	45.80%	45.43%		
2024	6.50%	2,091.135	2,186.028	46.46%	45.96%	-2.10%	0.66%	6.50%	6.50%	2,092.133	2,186.028	46.46%	45.96%	-2.10%	0.66%
2025	6.50%	2,167.649	2,267.994	47.50%	46.57%	3.75%	1.03%	6.50%	6.50%	2,224.910	2,323.127	47.60%	46.67%	6.27%	1.14%
2026	6.50%	2,213.938	2,321.023	47.23%	47.19%	2.34%	-0.26%	6.50%	6.50%	2,253.743	2,357.692	47.41%	47.37%	1.49%	-0.19%
2027	6.50%	2,251.405	2,364.397	47.83%	47.83%	1.87%	0.60%	6.50%	6.50%	2,272.258	2,380.845	48.05%	48.05%	0.98%	0.64%
2028	6.50%	2,348.121	2,466.906	48.60%	48.60%	4.34%	0.77%	6.50%	6.50%	2,349.278	2,462.292	48.83%	48.83%	3.42%	0.77%
2029	6.50%	2,409.366	2,533.954	49.44%	49.44%	2.72%	0.84%	6.50%	6.50%	2,405.977	2,524.353	49.67%	49.67%	2.52%	0.84%
2030	6.50%	2,465.270	2,595.689	50.35%	50.35%	2.44%	0.91%	6.50%	6.50%	2,458.166	2,581.970	50.57%	50.57%	2.28%	0.91%
2031	6.50%	2,523.973	2,660.406	51.35%	51.35%	2.49%	1.00%	6.50%	6.50%	2,513.996	2,643.450	51.56%	51.56%	2.38%	0.99%
2032	6.50%	2,590.063	2,732.654	52.46%	52.46%	2.72%	1.11%	6.50%	6.50%	2,577.595	2,712.857	52.66%	52.66%	2.63%	1.10%
2033	6.50%	2,663.809	2,812.736	53.71%	53.71%	2.93%	1.25%	6.50%	6.50%	2,649.050	2,790.302	53.90%	53.90%	2.85%	1.24%
2034	6.50%	2,751.423	2,906.860	55.16%	55.16%	3.35%	1.44%	6.50%	6.50%	2,735.791	2,883.208	55.33%	55.33%	3.33%	1.43%
2035	6.50%	2,822.530	2,984.716	56.78%	56.78%	2.68%	1.63%	6.50%	6.50%	2,805.047	2,958.867	56.94%	56.94%	2.62%	1.61%
2036	6.50%	2,893.937	3,062.938	58.61%	58.61%	2.62%	1.83%	6.50%	6.50%	2,874.701	3,034.991	58.75%	58.75%	2.57%	1.81%
2037	6.50%	2,966.294	3,142.280	60.68%	60.68%	2.59%	2.06%	6.50%	6.50%	2,945.337	3,112.264	60.79%	60.79%	2.55%	2.04%
2038	6.50%	3,040.010	3,223.147	63.00%	63.00%	2.57%	2.32%	6.50%	6.50%	3,017.388	3,191.110	63.09%	63.09%	2.53%	2.30%
2039	6.50%	3,115.924	3,306.375	65.69%	65.69%	2.58%	2.68%	6.50%	6.50%	3,091.707	3,272.382	65.75%	65.75%	2.55%	2.66%
2040	6.50%	3,193.362	3,391.351	68.70%	68.70%	2.57%	3.01%	6.50%	6.50%	3,167.623	3,355.468	68.74%	68.74%	2.54%	2.99%
2041	6.50%	3,273.051	3,478.676	72.08%	72.08%	2.57%	3.38%	6.50%	6.50%	3,245.831	3,440.936	72.10%	72.10%	2.55%	3.36%
2042	6.50%	3,354.441	3,567.823	75.86%	75.86%	2.56%	3.78%	6.50%	6.50%	3,325.807	3,528.287	75.87%	75.87%	2.54%	3.77%
2043	6.50%	3,437.799	3,659.057	80.09%	80.09%	2.56%	4.23%	6.50%	6.50%	3,407.830	3,617.797	80.08%	80.08%	2.54%	4.22%
2044	6.50%	3,522.181	3,751.457	84.79%	84.79%	2.53%	4.70%	6.50%	6.50%	3,490.932	3,708.522	84.78%	84.78%	2.51%	4.70%
2045	6.50%	3,607.769	3,845.227	90.00%	90.00%	2.50%	5.21%	6.50%	6.50%	3,575.273	3,800.644	90.00%	90.00%	2.48%	5.22%
Total Contributions FY 2024-2045		\$61,703.450	\$65,261.694							\$61,480.373	\$64,867.392				
Total Present Value FY 2024-2045		\$31,298.082	\$33,028.388							\$31,268.708	\$32,920.284				
Difference from June 30, 2023 Valuation															
Total Contributions FY 2024-2045		\$0.000	\$0.000							-\$223.077	-\$394.302				
Total Present Value FY 2024-2045		\$0.000	\$0.000							-\$29.374	-\$108.104				
Maximum Annual Increase														3.42%	5.22%
Maximum Annual Decrease														0.98%	-0.19%

Total statutory contributions include contributions from both the State and employers and include total RSP contributions. Total statutory contributions exclude EBA and DCP administrative expense contributions. Total statutory contribution in fiscal year 2023 includes a contribution of \$38.759 million from the Pension Stabilization Fund.

The contributions are discounted to a present value based on the actuarial valuation interest rate of 6.50%.



**State Universities Retirement System
Comparison of Actuarial Valuation Results and Sensitivity Scenario 7
(Change Non-Academic/Academic Future New Hires Who Elect RSP from 25%/45% to 15%/25%)
Based on Actuarial Valuation as of June 30, 2023**

\$ in Millions

June 30, 2023 Valuation Baseline									Stress Test Scenario 7							
Year Ending	Projected Investment Return	DB Statutory Contribution	Total Statutory Contribution Including RSP	Actuarial Value of Assets (AVA) Funded Ratio	Market Value of Assets (MVA) Funded Ratio	Increase in Total Statutory Contribution	Increase in AVA Funded Ratio		Annual Rate of Investment Return	Cumulative Geometric Return (from 2024)	DB Statutory Contribution	Total Statutory Contribution Including RSP	Actuarial Value of Assets (AVA) Funded Ratio	Market Value of Assets (MVA) Funded Ratio	Increase in Total Statutory Contribution	Increase in AVA Funded Ratio
2023		\$2,138.712	\$2,232.861	45.80%	45.43%				5.99%		\$2,138.712	\$2,232.861	45.80%	45.43%		
2024	6.50%	2,091.135	2,186.028	46.46%	45.96%	-2.10%	0.66%	6.50%	6.50%	2,095.543	2,186.028	46.48%	45.98%	-2.10%	0.68%	
2025	6.50%	2,167.649	2,267.994	47.50%	46.57%	3.75%	1.03%	6.50%	6.50%	2,195.883	2,287.460	47.58%	46.65%	4.64%	1.10%	
2026	6.50%	2,213.938	2,321.023	47.23%	47.19%	2.34%	-0.26%	6.50%	6.50%	2,241.065	2,335.948	47.39%	47.35%	2.12%	-0.19%	
2027	6.50%	2,251.405	2,364.397	47.83%	47.83%	1.87%	0.60%	6.50%	6.50%	2,277.103	2,373.990	48.06%	48.06%	1.63%	0.67%	
2028	6.50%	2,348.121	2,466.906	48.60%	48.60%	4.34%	0.77%	6.50%	6.50%	2,374.565	2,473.483	48.91%	48.91%	4.19%	0.85%	
2029	6.50%	2,409.366	2,533.954	49.44%	49.44%	2.72%	0.84%	6.50%	6.50%	2,433.552	2,534.558	49.83%	49.83%	2.47%	0.92%	
2030	6.50%	2,465.270	2,595.689	50.35%	50.35%	2.44%	0.91%	6.50%	6.50%	2,486.786	2,589.917	50.81%	50.81%	2.18%	0.99%	
2031	6.50%	2,523.973	2,660.406	51.35%	51.35%	2.49%	1.00%	6.50%	6.50%	2,542.427	2,647.838	51.88%	51.88%	2.24%	1.07%	
2032	6.50%	2,590.063	2,732.654	52.46%	52.46%	2.72%	1.11%	6.50%	6.50%	2,605.048	2,712.880	53.06%	53.06%	2.46%	1.18%	
2033	6.50%	2,663.809	2,812.736	53.71%	53.71%	2.93%	1.25%	6.50%	6.50%	2,674.928	2,785.356	54.38%	54.38%	2.67%	1.32%	
2034	6.50%	2,751.423	2,906.860	55.16%	55.16%	3.35%	1.44%	6.50%	6.50%	2,757.561	2,870.761	55.88%	55.88%	3.07%	1.50%	
2035	6.50%	2,822.530	2,984.716	56.78%	56.78%	2.68%	1.63%	6.50%	6.50%	2,824.304	2,940.469	57.56%	57.56%	2.43%	1.68%	
2036	6.50%	2,893.937	3,062.938	58.61%	58.61%	2.62%	1.83%	6.50%	6.50%	2,890.927	3,010.088	59.44%	59.44%	2.37%	1.87%	
2037	6.50%	2,966.294	3,142.280	60.68%	60.68%	2.59%	2.06%	6.50%	6.50%	2,958.034	3,080.308	61.53%	61.53%	2.33%	2.09%	
2038	6.50%	3,040.010	3,223.147	63.00%	63.00%	2.57%	2.32%	6.50%	6.50%	3,026.025	3,151.537	63.87%	63.87%	2.31%	2.34%	
2039	6.50%	3,115.924	3,306.375	65.69%	65.69%	2.58%	2.68%	6.50%	6.50%	3,095.730	3,224.591	66.54%	66.54%	2.32%	2.67%	
2040	6.50%	3,193.362	3,391.351	68.70%	68.70%	2.57%	3.01%	6.50%	6.50%	3,166.447	3,298.824	69.52%	69.52%	2.30%	2.98%	
2041	6.50%	3,273.051	3,478.676	72.08%	72.08%	2.57%	3.38%	6.50%	6.50%	3,238.923	3,374.891	72.83%	72.83%	2.31%	3.31%	
2042	6.50%	3,354.441	3,567.823	75.86%	75.86%	2.56%	3.78%	6.50%	6.50%	3,312.583	3,452.224	76.51%	76.51%	2.29%	3.68%	
2043	6.50%	3,437.799	3,659.057	80.09%	80.09%	2.56%	4.23%	6.50%	6.50%	3,387.694	3,531.082	80.58%	80.58%	2.28%	4.07%	
2044	6.50%	3,522.181	3,751.457	84.79%	84.79%	2.53%	4.70%	6.50%	6.50%	3,463.288	3,610.510	85.07%	85.07%	2.25%	4.49%	
2045	6.50%	3,607.769	3,845.227	90.00%	90.00%	2.50%	5.21%	6.50%	6.50%	3,539.516	3,690.666	90.00%	90.00%	2.22%	4.93%	
Total Contributions FY 2024-2045		\$61,703.450	\$65,261.694							\$61,587.932	\$64,163.409					
Total Present Value FY 2024-2045		\$31,298.082	\$33,028.388							\$31,353.039	\$32,664.041					
Difference from June 30, 2023 Valuation																
Total Contributions FY 2024-2045		\$0.000	\$0.000								-\$115.518	-\$1,098.285				
Total Present Value FY 2024-2045		\$0.000	\$0.000								\$54.957	-\$364.347				
Maximum Annual Increase															4.19%	4.93%
Maximum Annual Decrease															1.63%	-0.19%

Total statutory contributions include contributions from both the State and employers and include total RSP contributions. Total statutory contributions exclude EBA and DCP administrative expense contributions. Total statutory contribution in fiscal year 2023 includes a contribution of \$38.759 million from the Pension Stabilization Fund.

The contributions are discounted to a present value based on the actuarial valuation interest rate of 6.50%.



**State Universities Retirement System
Comparison of Actuarial Valuation Results and Sensitivity Scenario 8
(Change Non-Academic/Academic Future New Hires Who Elect RSP from 25%/45% to 35%/55%)
Based on Actuarial Valuation as of June 30, 2023**

\$ in Millions

June 30, 2023 Valuation Baseline									Stress Test Scenario 8							
Year Ending	Projected Investment Return	DB Statutory Contribution	Total Statutory Contribution Including RSP	Actuarial Value of Assets (AVA) Funded Ratio	Market Value of Assets (MVA) Funded Ratio	Increase in Total Statutory Contribution	Increase in AVA Funded Ratio		Annual Rate of Investment Return	Cumulative Geometric Return (from 2024)	DB Statutory Contribution	Total Statutory Contribution Including RSP	Actuarial Value of Assets (AVA) Funded Ratio	Market Value of Assets (MVA) Funded Ratio	Increase in Total Statutory Contribution	Increase in AVA Funded Ratio
2023		\$2,138.712	\$2,232.861	45.80%	45.43%				5.99%		\$2,138.712	\$2,232.861	45.80%	45.43%		
2024	6.50%	2,091.135	2,186.028	46.46%	45.96%	-2.10%	0.66%	6.50%	6.50%	2,087.850	2,186.028	46.45%	45.94%	-2.10%	0.65%	
2025	6.50%	2,167.649	2,267.994	47.50%	46.57%	3.75%	1.03%	6.50%	6.50%	2,149.693	2,256.561	47.44%	46.51%	3.23%	0.99%	
2026	6.50%	2,213.938	2,321.023	47.23%	47.19%	2.34%	-0.26%	6.50%	6.50%	2,196.618	2,312.746	47.13%	47.09%	2.49%	-0.31%	
2027	6.50%	2,251.405	2,364.397	47.83%	47.83%	1.87%	0.60%	6.50%	6.50%	2,234.862	2,359.760	47.68%	47.68%	2.03%	0.55%	
2028	6.50%	2,348.121	2,466.906	48.60%	48.60%	4.34%	0.77%	6.50%	6.50%	2,330.986	2,464.428	48.40%	48.40%	4.44%	0.72%	
2029	6.50%	2,409.366	2,533.954	49.44%	49.44%	2.72%	0.84%	6.50%	6.50%	2,393.554	2,535.507	49.19%	49.19%	2.88%	0.79%	
2030	6.50%	2,465.270	2,595.689	50.35%	50.35%	2.44%	0.91%	6.50%	6.50%	2,451.034	2,601.509	50.05%	50.05%	2.60%	0.86%	
2031	6.50%	2,523.973	2,660.406	51.35%	51.35%	2.49%	1.00%	6.50%	6.50%	2,511.556	2,670.748	50.99%	50.99%	2.66%	0.95%	
2032	6.50%	2,590.063	2,732.654	52.46%	52.46%	2.72%	1.11%	6.50%	6.50%	2,579.724	2,747.769	52.05%	52.05%	2.88%	1.06%	
2033	6.50%	2,663.809	2,812.736	53.71%	53.71%	2.93%	1.25%	6.50%	6.50%	2,655.798	2,832.873	53.26%	53.26%	3.10%	1.21%	
2034	6.50%	2,751.423	2,906.860	55.16%	55.16%	3.35%	1.44%	6.50%	6.50%	2,746.406	2,932.678	54.66%	54.66%	3.52%	1.40%	
2035	6.50%	2,822.530	2,984.716	56.78%	56.78%	2.68%	1.63%	6.50%	6.50%	2,820.163	3,015.894	56.25%	56.25%	2.84%	1.59%	
2036	6.50%	2,893.937	3,062.938	58.61%	58.61%	2.62%	1.83%	6.50%	6.50%	2,894.494	3,099.771	58.05%	58.05%	2.78%	1.80%	
2037	6.50%	2,966.294	3,142.280	60.68%	60.68%	2.59%	2.06%	6.50%	6.50%	2,970.083	3,185.118	60.09%	60.09%	2.75%	2.04%	
2038	6.50%	3,040.010	3,223.147	63.00%	63.00%	2.57%	2.32%	6.50%	6.50%	3,047.349	3,272.333	62.40%	62.40%	2.74%	2.31%	
2039	6.50%	3,115.924	3,306.375	65.69%	65.69%	2.58%	2.68%	6.50%	6.50%	3,127.138	3,362.267	65.09%	65.09%	2.75%	2.69%	
2040	6.50%	3,193.362	3,391.351	68.70%	68.70%	2.57%	3.01%	6.50%	6.50%	3,208.793	3,454.323	68.12%	68.12%	2.74%	3.03%	
2041	6.50%	3,273.051	3,478.676	72.08%	72.08%	2.57%	3.38%	6.50%	6.50%	3,293.030	3,549.073	71.55%	71.55%	2.74%	3.42%	
2042	6.50%	3,354.441	3,567.823	75.86%	75.86%	2.56%	3.78%	6.50%	6.50%	3,379.316	3,646.016	75.40%	75.40%	2.73%	3.86%	
2043	6.50%	3,437.799	3,659.057	80.09%	80.09%	2.56%	4.23%	6.50%	6.50%	3,467.922	3,745.427	79.74%	79.74%	2.73%	4.33%	
2044	6.50%	3,522.181	3,751.457	84.79%	84.79%	2.53%	4.70%	6.50%	6.50%	3,557.920	3,846.410	84.59%	84.59%	2.70%	4.85%	
2045	6.50%	3,607.769	3,845.227	90.00%	90.00%	2.50%	5.21%	6.50%	6.50%	3,649.512	3,949.199	90.00%	90.00%	2.67%	5.41%	
Total Contributions FY 2024-2045		\$61,703.450	\$65,261.694							\$61,753.801	\$66,026.438					
Total Present Value FY 2024-2045		\$31,298.082	\$33,028.388							\$31,253.339	\$33,289.273					
Difference from June 30, 2023 Valuation																
Total Contributions FY 2024-2045		\$0.000	\$0.000							\$50.351	\$764.744					
Total Present Value FY 2024-2045		\$0.000	\$0.000							-\$44.743	\$260.885					
Maximum Annual Increase															4.44%	5.41%
Maximum Annual Decrease															2.03%	-0.31%

Total statutory contributions include contributions from both the State and employers and include total RSP contributions. Total statutory contributions exclude EBA and DCP administrative expense contributions. Total statutory contribution in fiscal year 2023 includes a contribution of \$38.759 million from the Pension Stabilization Fund.

The contributions are discounted to a present value based on the actuarial valuation interest rate of 6.50%.



State Universities Retirement System
Comparison of Assumed Investment Returns Used in the Stress Testing Scenarios and Total Statutory Contributions
Based on Actuarial Valuation as of June 30, 2023

Year	Baseline ¹	Scenario 1 (Unfavorable 1 st Year)		Scenario 2 (Additional \$50 Million Cont.)		Scenario 3 and 5 (6.50% Volatile)		Scenario 4 (6.00% Static)	
		Nominal ²	Geometric ³	Nominal ²	Geometric ³	Nominal ²	Geometric ³	Nominal ²	Geometric ³
2024	6.50%	-20.00%	-20.00%	6.50%	6.50%	10.78%	10.78%	6.00%	6.00%
2025	6.50%	6.50%	-7.70%	6.50%	6.50%	5.30%	8.01%	6.00%	6.00%
2026	6.50%	6.50%	-3.19%	6.50%	6.50%	-2.82%	4.27%	6.00%	6.00%
2027	6.50%	6.50%	-0.85%	6.50%	6.50%	24.80%	9.06%	6.00%	6.00%
2028	6.50%	6.50%	0.58%	6.50%	6.50%	6.80%	8.61%	6.00%	6.00%
2029	6.50%	6.50%	1.54%	6.50%	6.50%	0.25%	7.17%	6.00%	6.00%
2030	6.50%	6.50%	2.23%	6.50%	6.50%	13.34%	8.03%	6.00%	6.00%
2031	6.50%	6.50%	2.76%	6.50%	6.50%	8.11%	8.04%	6.00%	6.00%
2032	6.50%	6.50%	3.17%	6.50%	6.50%	-0.59%	7.04%	6.00%	6.00%
2033	6.50%	6.50%	3.50%	6.50%	6.50%	7.29%	7.07%	6.00%	6.00%
2034	6.50%	6.50%	3.77%	6.50%	6.50%	16.02%	7.85%	6.00%	6.00%
2035	6.50%	6.50%	3.99%	6.50%	6.50%	-3.99%	6.81%	6.00%	6.00%
2036	6.50%	6.50%	4.18%	6.50%	6.50%	-1.20%	6.17%	6.00%	6.00%
2037	6.50%	6.50%	4.35%	6.50%	6.50%	4.89%	6.08%	6.00%	6.00%
2038	6.50%	6.50%	4.49%	6.50%	6.50%	13.50%	6.56%	6.00%	6.00%
2039	6.50%	6.50%	4.61%	6.50%	6.50%	9.02%	6.71%	6.00%	6.00%
2040	6.50%	6.50%	4.72%	6.50%	6.50%	7.16%	6.74%	6.00%	6.00%
2041	6.50%	6.50%	4.82%	6.50%	6.50%	-5.39%	6.03%	6.00%	6.00%
2042	6.50%	6.50%	4.91%	6.50%	6.50%	18.35%	6.64%	6.00%	6.00%
2043	6.50%	6.50%	4.99%	6.50%	6.50%	5.04%	6.56%	6.00%	6.00%
2044	6.50%	6.50%	5.06%	6.50%	6.50%	-0.37%	6.22%	6.00%	6.00%
2045	6.50%	6.50%	5.12%	6.50%	6.50%	12.56%	6.50%	6.00%	6.00%

¹An annual return of 6.50% is assumed for the baseline and scenarios 6, 7 and 8.

²Nominal one-year rate of return.

³Cumulative average geometric return from 2024 through the current year.