MINUTES

Quarterly Meeting of the Administration Committee
of the Board of Trustees of the
State Universities Retirement System
Thursday, December 7, 2023, at 2:00 p.m.
Northern Trust, 333 S. Wabash Ave. – 44th Floor – Chicago, IL
Optional Remote Connection for Members of the Public

This meeting was held in person at Northern Trust in Chicago, IL.

The following trustees were present: Dr. Andriy Bodnaruk, Mr. Richard Figueroa, Ms. Jamie-Clare Flaherty (via zoom), Dr. Fred Giertz, Mr. Scott Hendrie, Mr. John Lyons, Mr. Pranav Kothari; Dr. Steven Rock, Mr. Antonio Vasquez, and Mr. Mitch Vogel.

Others present: Ms. Suzanne Mayer, Executive Director; Mr. Douglas Wesley, Chief Investment Officer (CIO); Mr. Michael Schlachter, CIO Designee ; Ms. Tara Myers, Chief Financial Officer; Mr. Shane Willoughby, Sr. Investment Officer; Ms. Bianca Green, General Counsel; Ms. Nichole Hemming, Chief Human Resources Officer; Mr. Albert Lee, Associate General Counsel; Ms. Heather Kimmons, Associate Legal Counsel; Ms. Anna Dempsey, Investment Counsel; Ms. Stephanie Brinkman, Investments; Ms. Jackie Hohn, Director of Internal Audit; Mr. Alex Deal, Internal Auditor; Ms. Kristen Houch, Director of Legislative and Stakeholder Relations; Ms. Alicia Route, Legislative Analyst; Mr. Jefferey Saiger, Chief Technology Officer; Ms. Leslie Pouilliard, Project Manager; Mr. Stewart McGill, Project Manager; Ms. Kelly Carson, Ms. Chelsea McCarty and Ms. Annette Ackerman, Executive Assistants; Mr. Kevin Noelke, Mr. Brian Murphy, and Amy Williams of GRS; Ms. Erica Oropeza, Ms. Jennifer Concepcion, and Mr. Bryce Haws of Linea; Ms. Catherine Dietrich and Mr. Darren Spindel of Vitech; and Mr. Michael Calabrese of Foley.

Administrative Committee roll call attendance was taken. Trustee Rock, present; Trustee Van Meter, present; Trustee Vasquez, present.

TRUSTEE PARTICIPATION VIA ELECTRONIC MEANS

Trustee Rock made the following motion:

- That Trustee Flaherty be allowed to participate remotely via video or audio conference as allowed by 5 ILCS 120/7 due to the fact she is prevented from physically attending this meeting because of either 1) personal illness or disability, 2) employment purposes or the business of SURS, 3) a family or other emergency, or 4) unexpected childcare obligations.

Trustee Van Meter seconded the motion which passed via the following roll call vote:

Trustee Flaherty	-	aye
Trustee Rock	-	aye
Trustee Van Meter	-	aye
Trustee Vazquez	-	aye

Following this vote, Trustee Flaherty joined the meeting as a participating member of the Administration Committee.

APPROVAL OF MINUTES

Trustee Van Meter presented the minutes from the Administration Committee meeting of September 7, 2023.

Trustee Rock made the following motion:

- That the minutes from the September 7, 2023 Administration Committee meeting be approved as presented.

Trustee Vasquez seconded the motion which passed via the following roll call vote:

Trustee Flaherty	-	aye
Trustee Rock	-	aye
Trustee Van Meter	-	aye
Trustee Vazquez	-	aye

APPROVAL OF CLOSED MINUTES

Trustee Van Meter presented the closed minutes from the Administration Committee meeting of September 7, 2023.

Trustee Rock made the following motion:

- That the minutes from the September 7, 2023 Administration Committee meeting be approved as presented and remain closed.

Trustee Vasquez seconded the motion which passed via the following roll call vote:

Trustee Flaherty	-	aye
Trustee Rock	-	aye

Trustee Van Meter	-	aye
Trustee Vazquez	-	aye

RECEIPT OF THE FISCAL YEAR 2023 ACTUARIAL VALUATION REPORT AND FISCAL YEAR 2023 GASB 67 AND 68 REPORT

Ms. Amy Williams presented the results of the Fiscal Year 2023 Actuarial Valuation Report and the Fiscal Year 2023 GASB 67 and 68 Report to the SURS Board of Trustees. She provided an overview of the June 30, 2023 Actuarial Valuation, reviewed the results of the valuation and provided a summary of these results.

Trustee Rock made the following motion:

- That based on the joint recommendation of SURS staff and Gabriel Order Smith & Company, the Actuarial Valuation Report and GASB 67/68 Report as of June 30, 2023, be received as presented.

Trustee Vasquez seconded the motion which passed via the following roll call vote:

Trustee Flaherty	-	absent
Trustee Rock	-	aye
Trustee Van Meter	-	aye
Trustee Vazquez	-	aye

A copy of the GRS presentations titled “GRS 2023 Valuation Presentation,” “GRS Valuation 2023 Stress Testing,” and “GRS 2023 GASB6768 Report” has been incorporated into these minutes as **Exhibit 1**, **Exhibit 2** and **Exhibit 3**. A copy of the SURS memorandum titled “FY 2023 Valuation and 67-68 Report” has been incorporated into these minutes as **Exhibit 4**.

CERTIFICATION OF FISCAL YEAR 2025 STATE CONTRIBUTION

Ms. Amy Williams provided a brief overview of the proposed state contribution for fiscal year 2025. The statutory contribution calculation provided by Gabriel, Roeder, Smith and Company (GRS) for fiscal year 2025 is $2,286,784,000 which includes $100,345,000 for projected Retirement Saving Plan (RSP) state contributions. The statutory certified contribution was increased by the projected excess benefit arrangement (EBA) required. The EBA amount for fiscal year 2025 is projected to be $18,300,000.

Trustee Rock made the following motion:

- That based on the recommendation of Gabriel Roeder Smith & Company, the monetary amount of $2,212,810,000 be certified for fiscal year 2025 as the SURS state contribution.

Trustee Vasquez seconded the motion which passed via the following roll call vote:

Trustee Flaherty	-	absent
Trustee Rock	-	aye
Trustee Van Meter	-	aye
Trustee Vazquez	-	aye

Trustee Rock made the following motion:

- That based on the joint recommendation of SURS staff and Gabriel Roeder Smith & Company, the State Actuary's Preliminary Report regarding review of assumptions and methods used in the June 30, 2023, Actuarial Valuation be received as presented.

Trustee Vasquez seconded the motion which passed via the following roll call vote:

Trustee Flaherty	-	aye
Trustee Rock	-	aye
Trustee Van Meter	-	aye
Trustee Vazquez	-	aye

A copy of the GRS presentations titled "FY2025 Certification of Statutory Contribution," "SURS Cheiron 2023," and "GRS Response to State Actuary FY2023" has been incorporated into these minutes as **Exhibit 5**, **Exhibit 6** and **Exhibit 7**. A copy of the SURS memorandum titled "FY 2023 SURS State Actuary Report" has been incorporated into these minutes as **Exhibit 8**.

APPROVAL OF FISCAL YEAR 2024 EFFECTIVE RATE OF INTEREST

Ms. Tara Myers presented the Fiscal Year 2025 Effective Rate of Interest recommendation to the SURS Board of Trustees. The applicable statute requires that the board of trustees consider expected future investment performance. For this portion of the statutory analysis, the variable used is the actuarially assumed rate for the future investment performance. Based on the statutory factors being considered, SURS staff recommended that the Effective Rate of Interest be increased to 7.0% for fiscal year 2025.

Trustee Rock made the following motion:

- That based on the recommendation of SURS staff, the Effective Rate of Interest to be used for all purposes other than the Rule 2 (money purchase) calculation, be set at 7.0% for fiscal year 2025.

Trustee Vasquez seconded the motion which passed via the following roll call vote:

Trustee Flaherty	-	aye

Trustee Rock	-	aye
Trustee Van Meter	-	aye
Trustee Vazquez	-	aye

A copy of the SURS memorandum titled "ERI December 2023 Memo" has been incorporated into these minutes as **Exhibit 9**.

INFORMATION TECHNOLOGY DIVISION STATEGIC PLAN

Mr. Jefferey Saiger presented the SURS updated IT Strategic Roadmap which covers fiscal year 2024 through fiscal year 2026. The new roadmap has been updated to reflect the new paradigm that will establish the new baselines for performance expectations, and to provide IT staff with a tangible path forward with their careers at SURS.

A copy of SURS memorandum titled "12-7-23 Admin Committee Memo" has been incorporated into these minutes as **Exhibit 10**. A copy of SURS presentation titled "IT Strategic Plan FY24-FY26" has been incorporated into these minutes as **Exhibit 11**.

QUARTERLY PENSION ASSESSMENT SYSTEM (PAS) UPDATE

Mr. Jefferey Saiger presented the Administrative Committee with an update regarding Project Velocity. Project Velocity is the SURS IT Department's ongoing project to replace our outdated legacy pension administration system (PAS) with one for the long-term betterment of SURS. Through multiple engagements with the vendors, staff has identified the total monetary amount necessary to successfully complete the project.

Trustee Rock made the following motion:

- That based on the recommendation of SURS staff, the Administration Committee approve the Project Velocity timeline extension and related additional costs in the amount of $6,740,480, which includes a supplemental FY24 budget increase of $370,000 to cover new costs incurred before the end of the fiscal year.

Trustee Vasquez seconded the motion which passed via the following roll call vote:

Trustee Flaherty	-	aye
Trustee Rock	-	aye
Trustee Van Meter	-	aye
Trustee Vazquez	-	aye

Trustee Rock made the following motion:

- That based on the recommendation of SURS staff, the Administration Committee approve an additional contingency of $2,600,000 for the Project Velocity budget to be used to cover unforeseen issues, complexities, and/or legislative mandates, with the understanding that any additional project changes that would exceed this amount must be vetted and approved by the board prior to the expenditure of any additional money.

Trustee Vasquez seconded the motion which passed via the following roll call vote:

Trustee Flaherty	-	aye
Trustee Rock	-	aye
Trustee Van Meter	-	aye
Trustee Vazquez	-	aye

A copy of SURS memorandum titled "12-7-23 Amin Committee Memo" has been incorporated into these minutes as **Exhibit 12**. Copies of the presentations and letters have been incorporated into these minutes as follows: "SURS Board Meeting Project Velocity Update 2023" **Exhibit 13**; "Vitech SURS Board Meeting Slides" **Exhibit 14**; "MBS SURS Executive Level Summary" **Exhibit 15**; "Linea Change Order Extension Summary" **Exhibit 16**; "Vitech SURS Letter Response" **Exhibit 17**; and "Linea Solutions – Sample Implementation Costs" **Exhibit 18**.

PUBLIC COMMENT

There was no public comment presented to the Administration Committee.

ADJOURN

There was no further business brought before the committee and Trustee Rock moved that the meeting be adjourned. The motion was seconded by Trustee Vasquez, and it passed via the following roll call vote:

Trustee Flaherty	-	aye
Trustee Rock	-	aye
Trustee Van Meter	-	aye
Trustee Vazquez	-	aye

Respectfully submitted,

Suzanne M. Mayer

Ms. Suzanne M. Mayer
Executive Director and Secretary, Board of Trustees

SMM:cm

State Universities Retirement System of Illinois

Presentation of the June 30, 2023 Actuarial Valuation Results

Amy Williams, ASA, FCA, MAAA
Kevin Noelke, ASA, FCA, MAAA
Kristen Brundirks

December 2023

GRS

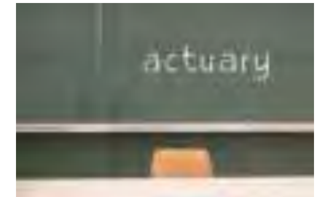
Agenda

1. Role of State Actuary
2. Overview of the June 30, 2023 Actuarial Valuation
3. Actuarial Valuation Results as of June 30, 2023
4. Summary of Actuarial Valuation Results
5. Appendix
   - Key Actuarial Valuation Assumptions

GRS

Role of State Actuary

State Actuary, Cheiron, selected pursuant to Public Act 97-0694



- State Actuary reviews assumptions and methods and actuarial valuation report and may make recommendations for changes
- First reviewed SURS actuarial valuation beginning with annual actuarial valuation as of June 30, 2012
- Board approves preliminary fiscal year 2025 Statutory Contribution at the October 2023 meeting
- SURS provides proposed certified Statutory Contribution for fiscal year 2025 by November 1, 2023 to the State Actuary, Governor and the General Assembly
- State Actuary issues Preliminary Report with recommendations
  - Board considers recommendations and responds to State Actuary
- SURS provides final certified Statutory Contribution for fiscal year 2025 by January 1, 2024 to State Actuary, Governor and the General Assembly

Overview of the June 30, 2023 Actuarial Valuation

- Each year the June 30 actuarial valuation is completed in October
- The October Board meeting included an agenda item for a brief review of the preliminary results of the actuarial valuation
  - Results were based on preliminary assets
- SURS staff submitted a memo for Board action on the statutory contribution amount
- Today's presentation will be an in-depth review of the final results of the June 30, 2023 actuarial valuation
  - Results are based on final assets

Actuarial Valuation Plan Provision Changes

The following legislation was enacted and reflected in the actuarial valuation as of June 30, 2023

- PA 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

Actuarial Valuation Assumptions

- The assumptions remain unchanged from the prior June 30, 2022 actuarial valuation, except for
  - 50% of the total disability rates for police officers 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
    - Newly created line of duty disability benefit required this assumption
- The most recent experience study covered the period June 30, 2017 through June 30, 2020, with updated actuarial assumptions first effective in the June 30, 2021 actuarial valuation
- Under statute, experience studies are required to be conducted every three years
  - The next experience study is scheduled to be completed after the June 30, 2023 actuarial valuation covering the period June 30, 2020 through June 30, 2023 (expected to first impact FY 2026 contributions)

Final vs. Preliminary Valuation Results

	$ in Millions		
Actuarial Valuation Date	June 30, 2022	June 30, 2023	
	Final Results	Preliminary Results	Final Results
Actuarial Accrued Liability (AAL)	$ 49,870	$ 51,051	$ 51,051
Actuarial Value of Assets (AVA)	22,555	23,365	23,381
AVA Funded Ratio	45.2%	45.8%	45.8%
Market Value of Assets (MVA)	22,523	23,111	23,193
MVA Funded Ratio	45.2%	45.3%	45.4%
State Qualified Plan Contribution	$ 2,115.535	$ 2,195.333	$ 2,194.020
Net State Qualified Plan & Non-Qualified Plan Contribution	$ 2,133.335	$ 2,214.123	$ 2,212.810

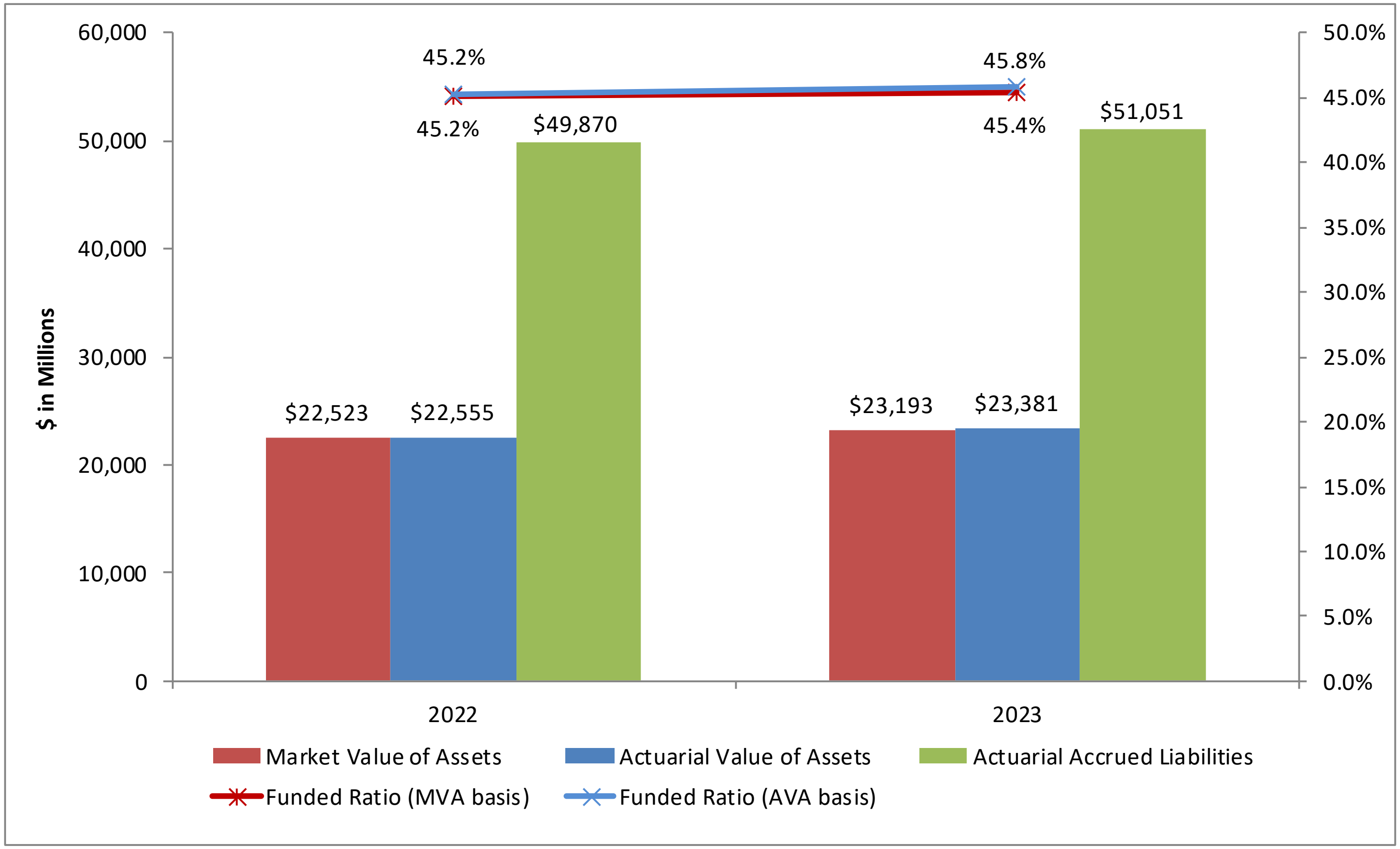
Non-Qualified contributions include Excess Benefit Arrangement (EBA) contributions of $17.3 million and $18.3 million for fiscal years 2024 and 2025, respectively, and Deferred Compensation Plan (DCP) administrative expense contributions of $0.500 million and $0.490 million for fiscal years 2024 and 2025, respectively.

GRS

Key Actuarial Valuation Findings

- Based on the 2023 **market value of assets** of $23.19 billion
  - The funded ratio increased slightly from 45.2% to 45.4% from 2022 to 2023
  - Rate of return was approximately 5.34% during fiscal year 2023
- Based on the 2023 **actuarial value of assets** of $23.38 billion
  - The funded ratio increased from 45.2% to 45.8% from 2022 to 2023
    - The funded ratio was projected to increase to 46.0% if all assumptions were realized
  - Rate of return (which recognizes a portion of prior years' gains and losses) was approximately 6.69% during fiscal year 2023
    - The funded ratio increased by 0.1% more than assumed due to asset experience
  - Net deferred losses of about $0.19 billion still exist in the actuarial value of assets
- There was a loss from higher salary increases than assumed
- There was a slight gain from favorable investment return on the actuarial value of assets and a loss on the market value of assets
- There were losses from other demographic experience
- There was an increase in the number of active members from 2022 to 2023 which affects projected actuarial valuation results
- 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

Actuarial Valuation Results *($ in Millions)*



Market value rate of return was approximately 5.34% and Actuarial (smoothed) value rate of return was approximately 6.69% in FY 2023.

Asset Smoothing

Valuation Date (6/30)	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	0	430,000				
(2) Actuarial Value of Assets	21,484,798,600	22,554,752,340				
(2a) Adjustment as of June 30, 2022	0	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**				

Market value rate of return was approximately 5.34% and Actuarial (smoothed) value rate of return was approximately 6.69% in FY 2023. In the absence of future offsetting gains, a loss of about $465 million will be recognized in the FY 2026 actuarial value of assets.

What Caused the UAAL to Change? *($ in Millions)*

UAAL at 6/30/2022			$	27,315.2
Expected UAAL at 6/30/2023				27,366.4
Increase Due to Assumption Changes	$	-		
Increase Due to Plan Provision Changes		0.1		
(Gain)/Loss from Assets*		(41.5)		
(Gain)/Loss from Salary Increases		293.9		
(Gain)/Loss from Plan Experience**		50.6		
Total Variation from Expected UAAL				303.1
Actual UAAL at 6/30/2023			$	27,669.5

** Based on actuarial (smoothed) assets.*

***Estimated reduction in AAL of $10.9 million from buyouts during plan year ending June 30, 2023.*

May not add due to rounding.

UAAL = Unfunded Actuarial Accrued Liability

Current funding policy expected an increase of $51.2 million in the unfunded liability. (The Statutory contribution plus the Pension Stabilization Fund contribution is less than normal cost plus interest on the unfunded liability.)

GRS

Reconciliation of FY 2025 Statutory Contribution *($ in Millions)*

	Qualified Plan Contributions (Excludes EBA and DCP)			
		Statutory Contribution by Source*		
	Total	State	Federal Trust	Employers
FY 2024 Statutory Contribution (2022 Actuarial Valuation)	$ 2,186.0	$ 2,115.5	$ 65.5	$ 5.0
Projected FY 2025 Statutory Contribution	2,235.4	2,164.6	65.5	5.3
Projected Increase Due to Statutory Funding Policy	49.4	49.1	-	0.3
Increase from (2023 Actuarial Valuation):				
Assumption Changes	$ -	$ -	$ -	$ -
Investment Experience	1.5	1.5	-	-
Non-Investment Plan Experience**	31.1	28.0	5.0	(1.8)
Total Increase from Projected FY 2025 Statutory Contribution	32.6	29.4	5.0	(1.8)
Actual FY 2025 Statutory Contribution	$ 2,268.0	$ 2,194.0	$ 70.5	$ 3.5

* *Employer contribution is for pay in excess of the Governor's pay and pay increases in excess of 6% in FY 2024 and projected for FY 2025.*

** *Includes changes due to actual experience differing from assumptions (retirement, termination, mortality, salary increases, change in number of future active members) and projected results through 2045.*

EBA = Excess Benefit Arrangement

DCP = Deferred Compensation Plan administrative expense

Total State Portion of FY 2025 Statutory Contribution *($ in Millions)*

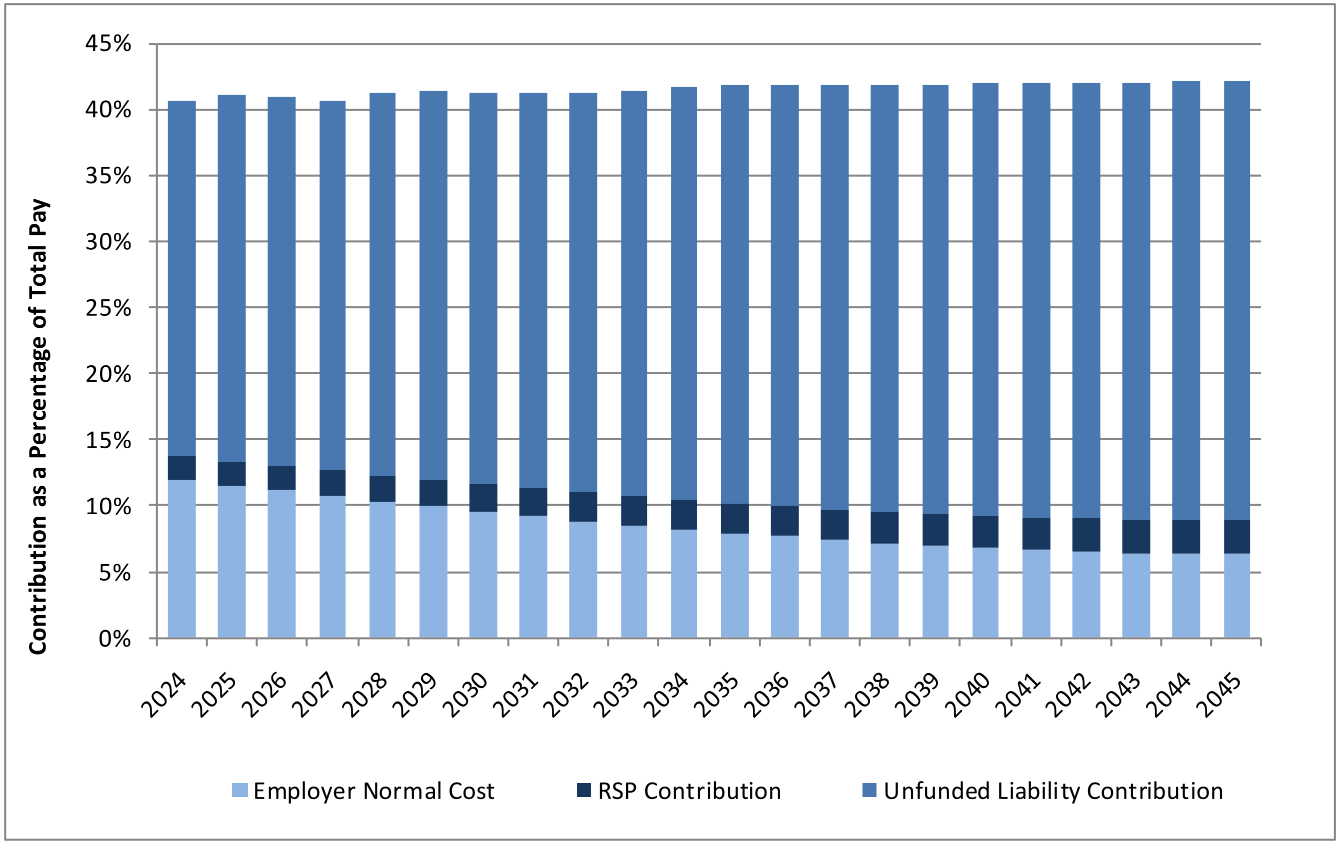
	SURS State Contributions			
	Qualified Plan	**Excess Benefit Arrangement ***	**Deferred Compensation Plan (DCP) Admin Expense**	**Total Qualified and Non-Qualified**
FY 2024 Statutory Contribution (2022 Actuarial Valuation)	$ 2,115.5	$ 17.3	$ 0.5	$ 2,133.3
Projected Increase Due to Statutory Funding Policy	49.1	-	-	49.1
Increase from (2023 Actuarial Valuation):				
Assumption Changes	$ -	$ -	$ -	$ -
Investment Experience	1.5	-	-	1.5
Non-Investment Plan Experience**	28.0	1.0	(0.0)	29.0
Actual FY 2025 Statutory Contribution	$ 2,194.0	$ 18.3	$ 0.5	$ 2,212.8
Change in Statutory Contribution	$ 78.5	$ 1.0	$ (0.0)	$ 79.5

* *Excess Benefit Arrangement (EBA) contribution amount provided by SURS staff.*

** *Includes changes due to actual experience differing from assumptions (retirement, termination, mortality, salary increases, change in number of future active members) and projected results through 2045.*

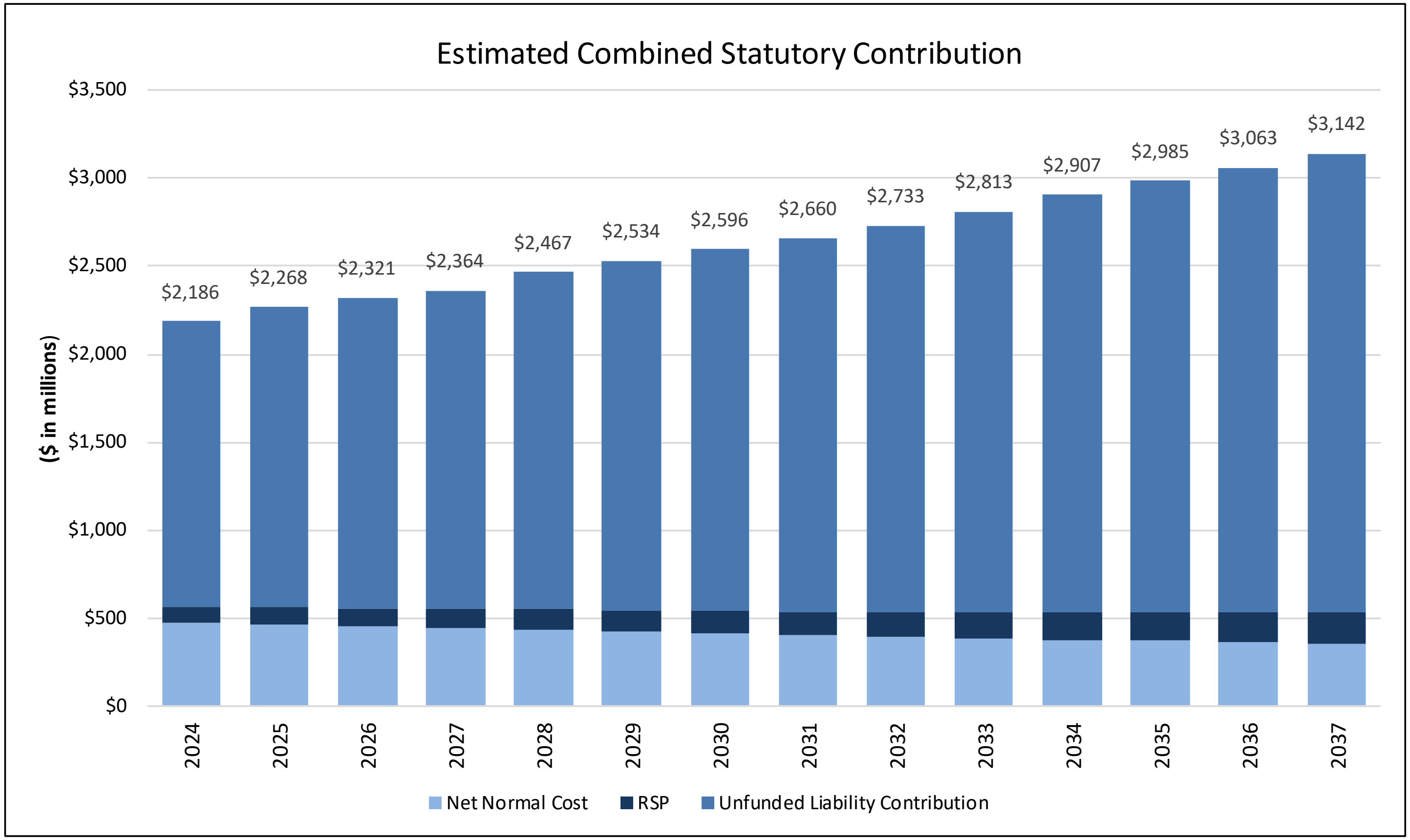
Values may not add up due to rounding.

Projected Contribution as % of Pay



GRS

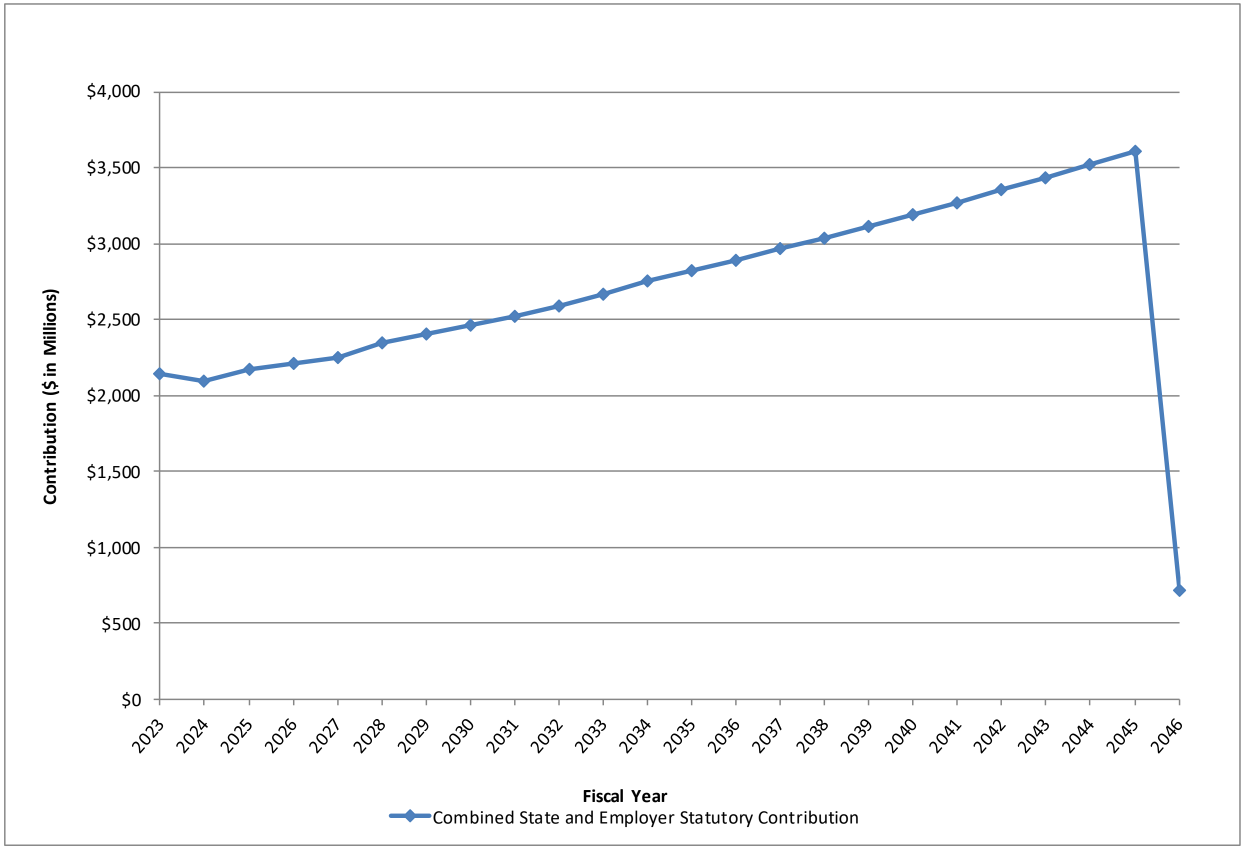
Projected Statutory Contribution ($ in Millions)



The total contribution is comprised of contributions for (1) normal cost (net of employee contributions), (2) RSP contributions, and (3) unfunded liability contributions for the SURS defined benefit plan.

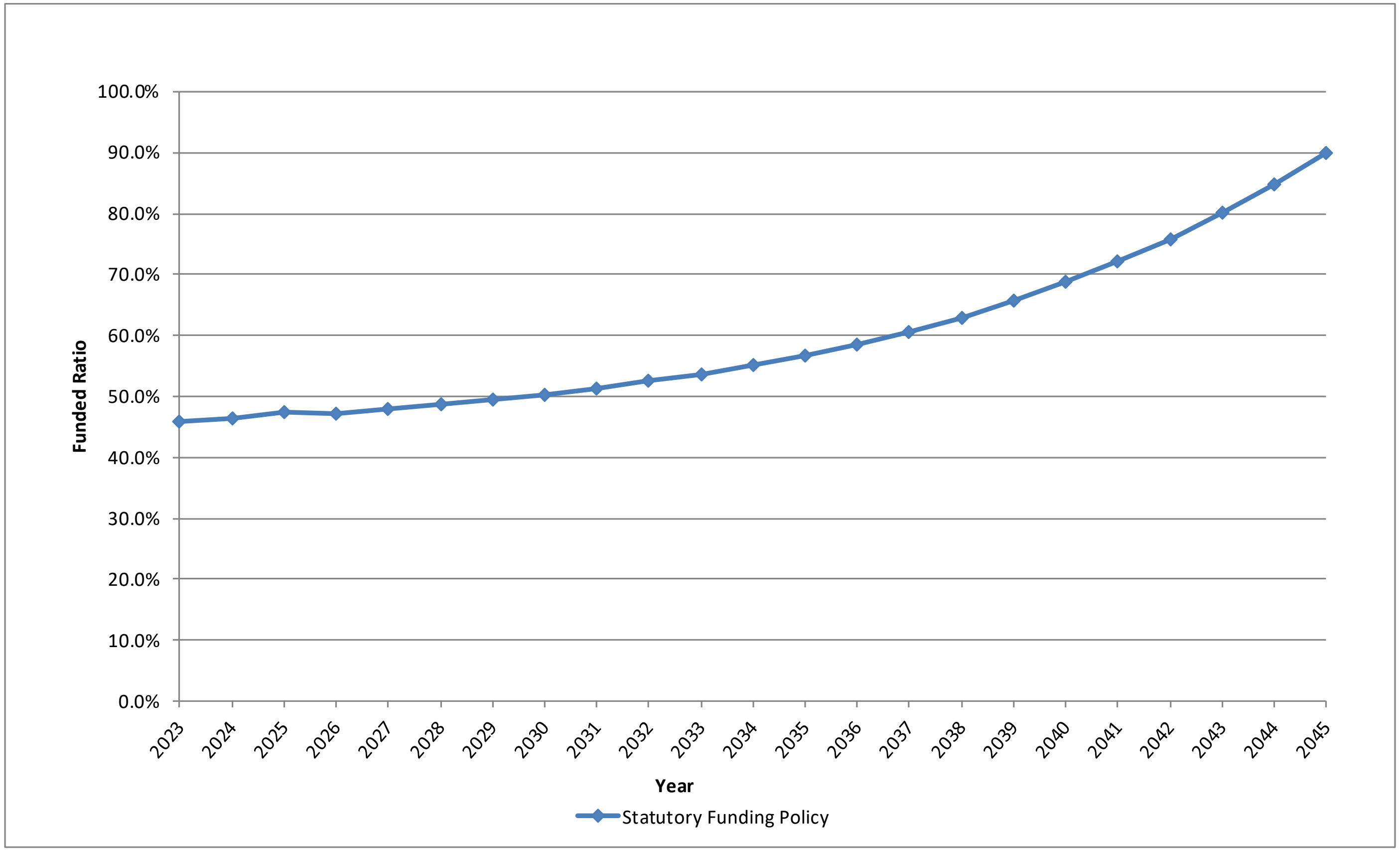
70-80% of the Statutory contribution is to pay toward the unfunded liability.

Statutory Contribution (DB Only)



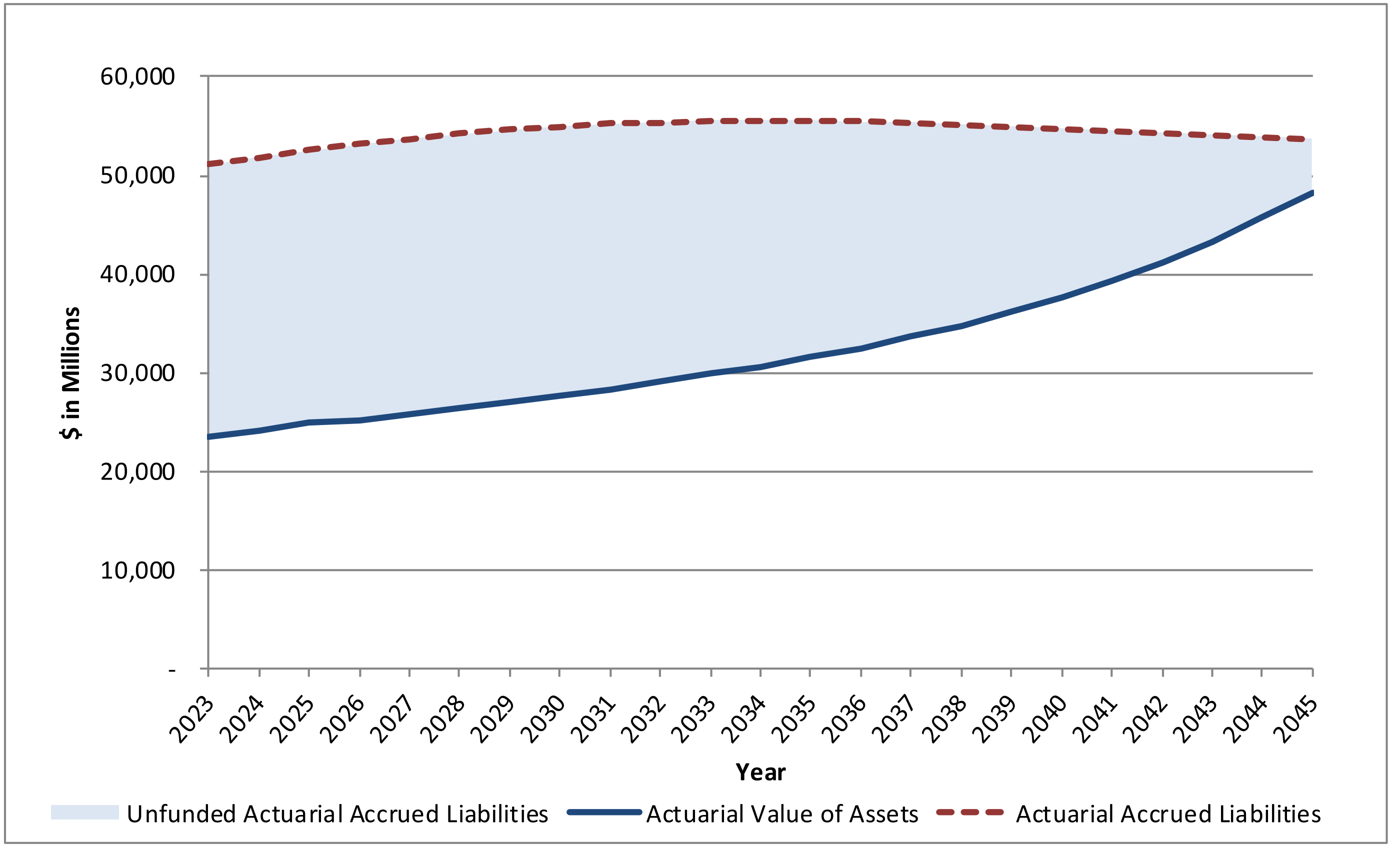
The statutory contribution after 2045 is the contribution needed to maintain a funded ratio of 90%.

Funded Ratio Projection
Statutory Funding Policy



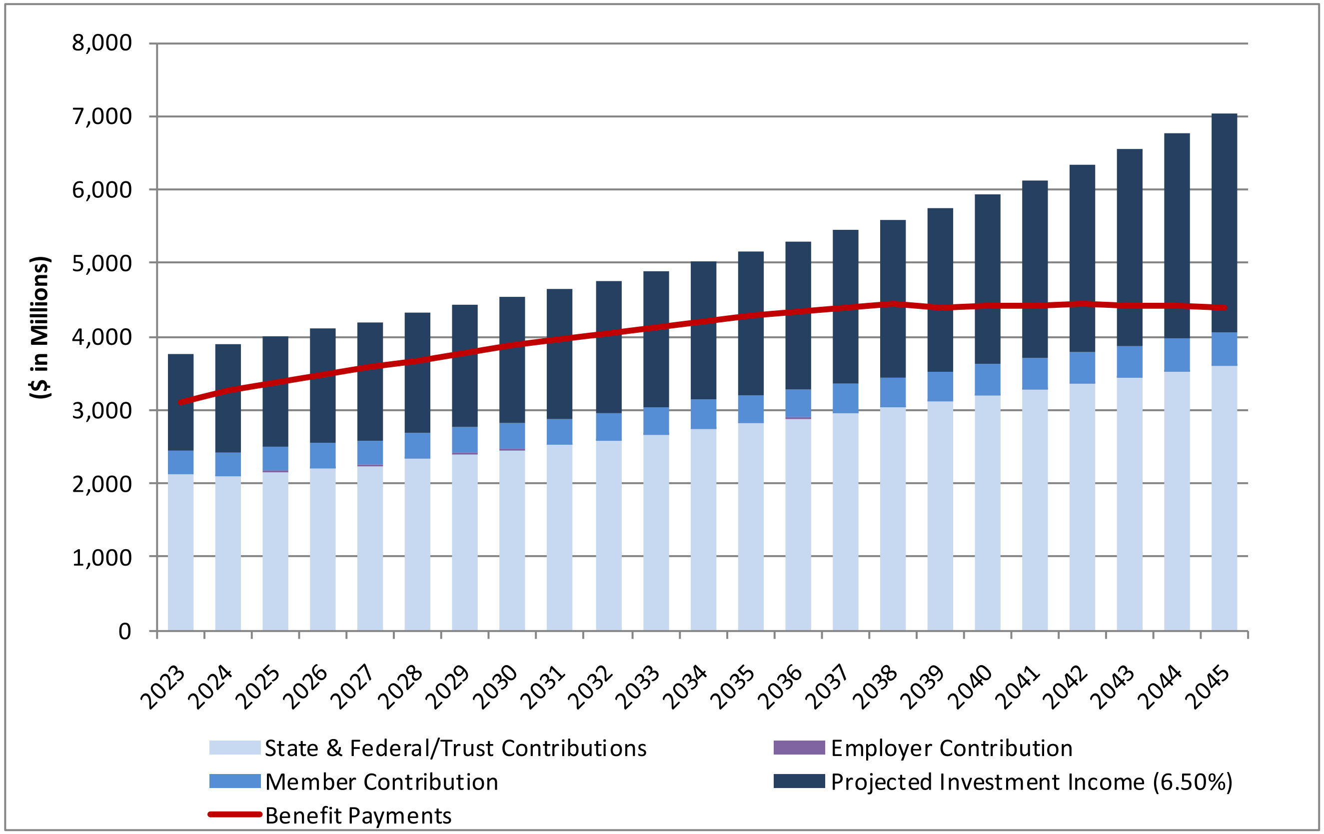
The funded ratio is not expected to exceed 60% until 2037, 70% until 2041 and is projected to increase to 90% during the four-year period from 2041 to 2045.

Projected Liabilities and Assets



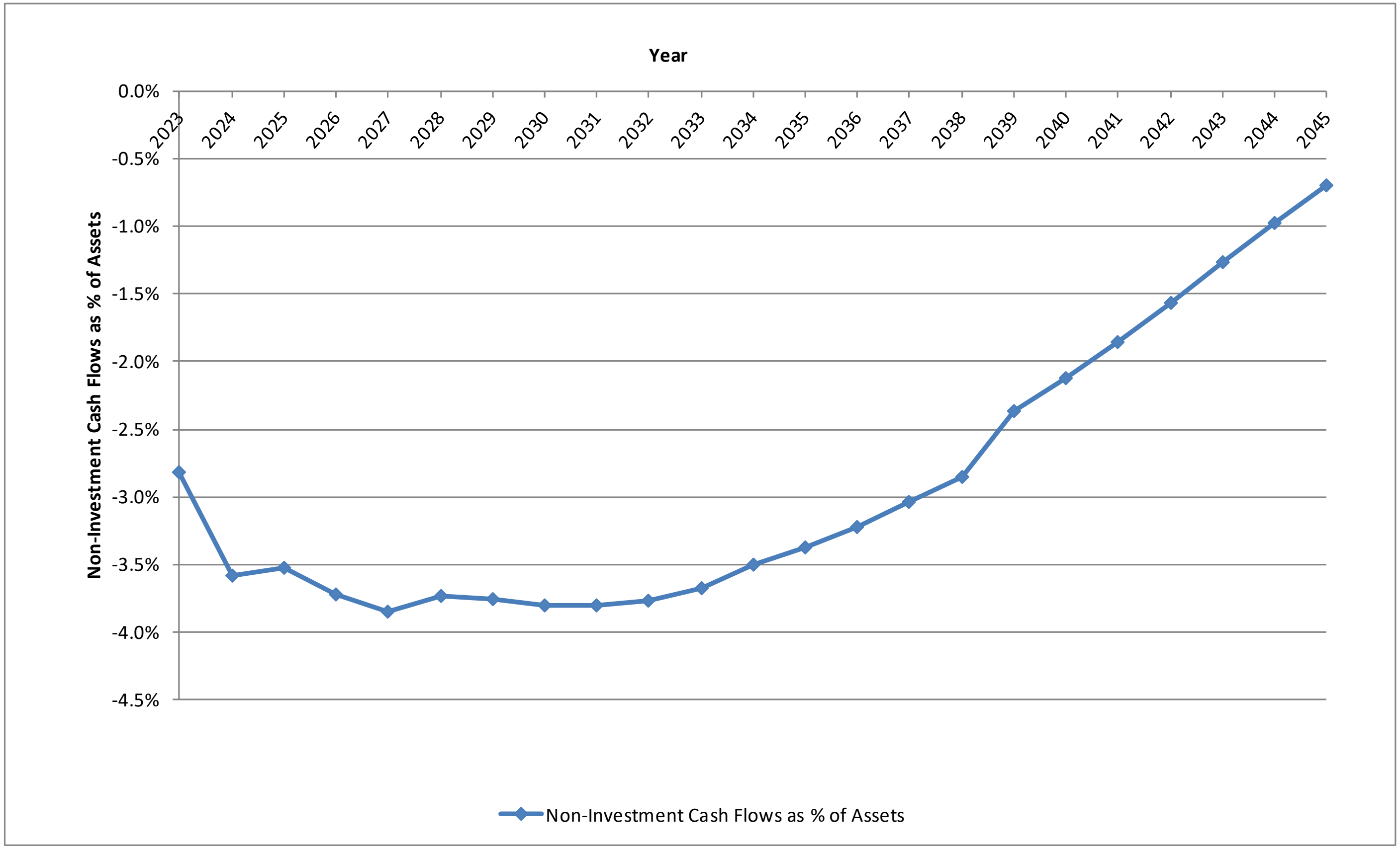
Under the current statutory funding policy, the funded ratio is projected to be 90% in 2045. 10% of the actuarial accrued liability will be unfunded in 2045.

Projected Cash Flows (DB Only) (Includes Investment Income)



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.

Projected Non-Investment Cash Flows (DB Only)



Non-investment cash outflows are projected to be more than 3.5% of assets through 2034 and more than 2.0% of assets through 2040.

GRS

GASB Statements No. 67 and No. 68

Background

- GASB Statement No. 67, Financial Reporting for Pension Plans
  - Addresses financial reporting for state and local government pension plans
  - Replaced GASB Statement No. 25
  - First took effect for SURS, the plan, for the fiscal year July 1, 2013 to June 30, 2014
- GASB Statement No. 68, Accounting and Financial Reporting for Pensions
  - Addresses accounting and financial reporting requirements for governments that sponsor state or local pension plans
  - Replaced GASB Statement No. 27
  - First took effect for SURS' employers and non-employer contributing entities (State of Illinois) for the fiscal year July 1, 2014 to June 30, 2015
- Certain assumptions required to be used for accounting purposes are different than the assumptions used for funding purposes
- The Single Discount Rate (SDR) used for accounting purposes is a blended rate based on the long-term expected rate of return on plan investments (6.50%) and the municipal bond rate (3.86%)
  - Projected benefits for current plan members that are expected to be paid from current assets or future contributions attributable to current plan members are discounted at 6.50%
  - Remaining projected benefits for current plan members are discounted at 3.86%

Funding and GASB Statement Nos. 67/68 Comparative Results *($ in Millions)*

	As of June 30, 2023 ($ in Millions)	
	Funding Results	**Accounting Results**
Valuation Results		
Actuarial Accrued Liability/Total Pension Liability (TPL)	$ 51,051	$ 52,638
Actuarial Value of Assets/Plan Net Position (PNP)	23,381	23,193
Unfunded Actuarial Accrued Liability/Net Pension Liability (NPL)	27,670	29,445
Funded Ratio/PNP as % of TPL	45.80%	44.06%
Alternate Funding Policy Contribution (ARC)/Pension Expense	$ 2,618	$ 1,948
Normal Cost/Service Cost	$ 766	$ 678
Methods and Assumptions		
Measurement Date	June 30, 2023	June 30, 2022 rolled forward to June 30, 2023
Asset Value	Actuarial Value	Market Value
Cost Method	Projected Unit Credit	Entry Age Normal
Discount Rate	6.50%	6.37%
Amortization Method (ARC)/Pension Expense	Level % of Capped Pay Over Remaining 21-Year Closed Period	See following page

Sensitivity of the Net Pension Liability to the Single Discount Rate Assumption		
1% Decrease 5.37%	**Current Single Discount Rate Assumption 6.37%**	**1% Increase 7.37%**
$ 35,695	$ 29,445	$ 24,236

GRS

Fiscal Year Ended June 30, 2024*
GASB Statement No. 68 – Total Pension Expense

Calculation of Total Pension Expense	
1. Service Cost	$ 677,569,791
2. Interest on the Total Pension Liability	3,221,915,693
3. Current Period Benefit Changes	119,703
4. Employee Contributions (made negative for addition here)	(299,585,024)
5. Projected Earnings on Plan Investments (made negative for addition here)	(1,442,917,778)
6. Pension Plan Administrative Expense	23,715,248
7. Other Changes in Plan Fiduciary Net Position	(430,000)
8. Recognition of Outflow (Inflow) of Resources due to Liabilities	(189,071,741)
9. Recognition of Outflow (Inflow) of Resources due to Assets	(43,167,609)
10. Total Pension Expense	**$ 1,948,148,283**

** Based on a measurement date of June 30, 2023.*

Summary

- The funded ratio is 45.8% based on the actuarial value of assets and 45.4% based on the market value of assets
- The FY 2025 Statutory contribution (state portion) is $2.213 billion
- The Board most recently adopted updated economic and demographic assumptions first effective with the June 30, 2021 actuarial valuation and is required to have an experience study every three years
  - The next experience study is scheduled to be completed after the June 30, 2023 actuarial valuation covering the three-year period June 30, 2020 through June 30, 2023
  - The current investment return assumption is 6.50%, which is expected to have slightly over a 50% probability of being achieved based on 2023 capital market assumptions
- In past years, the Board recommended a funding policy that targets 100% funding to ensure the future financial health of the System
- 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)
  - The remaining closed amortization period to pay off the unfunded liability by 2045 is 21 years as of June 30, 2023 actuarial valuation, which calculates the fiscal year 2025 contribution
  - The alternate policy contribution for FY 2025 is approximately $450 million higher than the Statutory contribution

QUESTIONS

Disclaimers

- The actuaries submitting this presentation (Amy Williams, Kevin Noelke and Mark Buis) are Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.
- The purposes of the actuarial valuation are to measure the financial position of SURS, calculate the State contribution calculated in accordance with statute and to calculate other information for financial reporting.
- Future actuarial measurements may differ significantly from the current and projected measurements presented in this presentation due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law.

Disclaimers

- This presentation is intended to be used in conjunction with the actuarial valuation report issued on November 7, 2023. This presentation should not be relied on for any purpose other than the purpose described in the actuarial valuation report as of June 30, 2023.
- This presentation shall not be construed to provide tax advice, legal advice or investment advice.
- If you need additional information to make an informed decision about the contents of this presentation, or if anything appears to be missing or incomplete, please contact us before relying on this presentation.
- 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.

GRS

Exhibit 1

Key Actuarial Valuation Assumptions

Economic assumptions include:

- Investment return assumption of 6.50%
- Price inflation of 2.25%
- Tier 2 pay cap increase assumption of 1.125% (1/2 increase in CPI)
- Tier 2 COLA increase assumption of 1.125% (1/2 increase in CPI)
- Effective Rate of Interest "ERI" assumption of 6.50%
- Total payroll growth assumption (of uncapped payroll) of 3.00%
- Governor's pay increase assumption of 1.125% (1/2 increase in CPI)
  - Used to calculate employer contributions for member pay in excess of Governor's pay

Demographic assumptions include:

- Individual member annual salary increase rates that vary by years of service
  - 12.25% for new hires that grades down to 3.00% for members with 34+ years of service
  - Different salary increase rates for people younger than age 50 and age 50 and older

Key Actuarial Valuation Assumptions

- Demographic assumptions include rates that vary by position type (Academic vs. Non-Academic):
  - Retirement rates that vary by age
  - Termination rates that vary by service
  - Disability rates that vary by age
  - Mortality rates that vary by age and follow a standard mortality table
    - Academic
      - Pub-2010 Mortality Table (for Teachers), sex distinct, projected from 2010 using MP-2020 mortality improvement scale, scaled 99% for males and 105% for females
    - Non-Academic
      - Pub-2010 Mortality Table (for General Employees), sex distinct, projected from 2010 using MP-2020 mortality improvement scale, scaled 99% for males and 107% for females
- The actuarial accrued liability and normal cost are calculated using the Projected Unit Credit actuarial cost method (as required by Statute)

Key Actuarial Valuation Assumptions

- Assumption for buyout elections (in accordance with Public Act 100-0587, Public Act 101-0010 extended the buyout period from June 30, 2021 through June 30, 2024 and Public Act 102-0718 extended the buyout period through June 30, 2026)
  - 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
  - 0% of eligible inactive members are assumed to elect to receive an accelerated pension benefit option in lieu of an annuity at retirement
  - Statistics from inception through June 30, 2023 as provided by SURS Staff

	Automatic Annual Increase (AAI)	Vested Inactive Buyout (VIB)
Number Eligible for the buyout*	11,209	23,669
Buyout applications received	422	151
Buyout election forms sent	283	124
Buyout election forms approved	180	91
Application %	3.8%	0.6%
Approved %	1.6%	0.4%
Approved buyout amount	$17.0 million	$24.4 million
Approved buyout amount (non EBA)	$17.0 million	$16.0 million
Estimated reduction in liability**	$24.2 million	$26.6 million

* *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. Vested active Tier 1 members would also be eligible for the buyout upon termination.*

***The estimated reduction in liability attributable to buyouts during plan year ending June 30, 2023 is $10.9 million.*

Estimated Statutory Contributions*
($ in Millions)

Actuarial Valuation Date	Fiscal Year	Estimated Combined Statutory Contribution: Total	Statutory Contribution by Source: Employer	Federal Trust**	State	Net Normal Cost	Unfunded Liability Contribution	RSP
6/30/2022	2024	$ 2,186.028	$ 4.993	$ 65.500	$ 2,115.535	$ 472.041	$ 1,619.094	$ 94.893
6/30/2023	2025	2,267.994	3.474	70.500	2,194.020	461.078	1,706.571	100.345
6/30/2024	2026	2,321.023	3.982	70.500	2,246.541	449.900	1,764.038	107.085
6/30/2025	2027	2,364.397	3.601	70.500	2,290.296	439.040	1,812.365	112.992
6/30/2026	2028	2,466.906	3.331	70.500	2,393.075	428.707	1,919.414	118.785
6/30/2027	2029	2,533.954	3.111	70.500	2,460.343	419.044	1,990.322	124.588
6/30/2028	2030	2,595.689	2.904	70.500	2,522.285	409.690	2,055.580	130.419
Seven year total		$ 16,735.991	$ 25.396	$ 488.500	$ 16,222.095	$ 3,079.500	$ 12,867.384	$ 789.107

* *Excludes Excess Benefit Arrangement (EBA) and Deferred Compensation Plan (DCP) administrative expense contribution.*

** *Contributions expected to be received from employer federal trust funds. Amounts for fiscal years 2026 and after assumed to remain the same as fiscal year 2025. Amounts are provided each year by SURS.*

The State portion of the Statutory contribution including the EBA and DCP administrative expense contribution is $2.133 billion for fiscal year 2024 and $2.213 billion for fiscal year 2025.

The total FY 2026 statutory contribution (for the Qualified Plan) is projected to increase by about $53 million from FY 2025.

The total contribution is comprised of contributions for (1) normal cost (net of employee contributions), (2) RSP contributions, and (3) unfunded liability contributions for the SURS defined benefit plan. (Projected RSP contributions are net of RSP forfeitures.)

70-80% of the Statutory contribution is to pay toward the unfunded liability.

GRS

Actuarial Valuation Results
SURS DB and RSP *($ in Millions)*

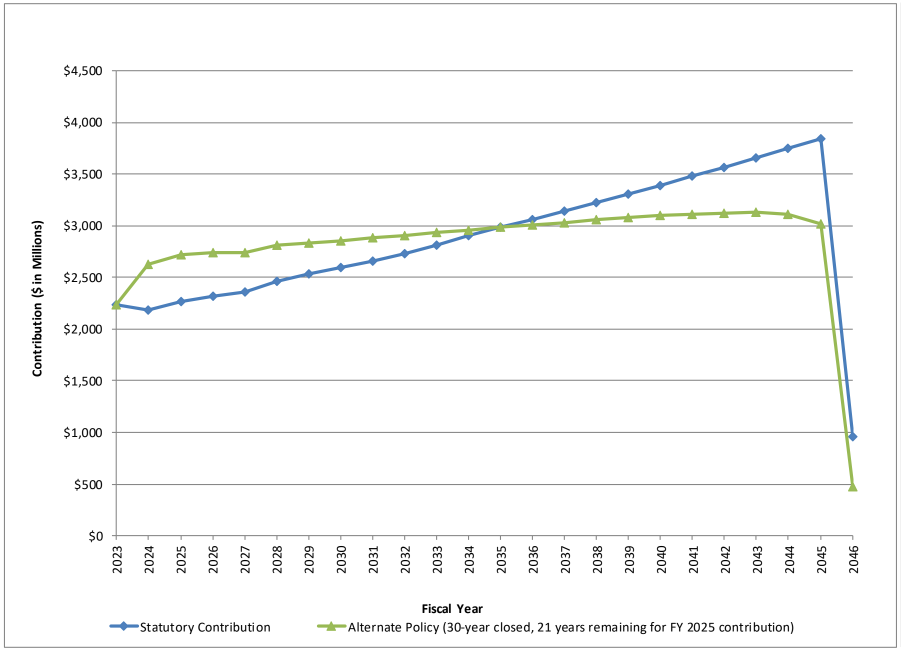
GRS recommends an "Alternate" funding

- Targets a 100% funded ratio in 2045 (or earlier) compared to 90%
  - Projected to increase the funded ratio by 28% in 15 years compared to 17% under the statutory funding policy
- Contribution equal to Net Normal cost, plus amortization of the unfunded liability to pay off the total unfunded liability by 2045 (or sooner, if possible)
  - Minimum contribution based on 30-year closed period (21 years remaining as of June 30, 2023, applicable to the FY 2025 contribution) amortization of the unfunded liability as a level percentage of defined benefit plan pensionable (capped) payroll is illustrated below. Statutory and Alternate Policy contributions below exclude EBA contributions.

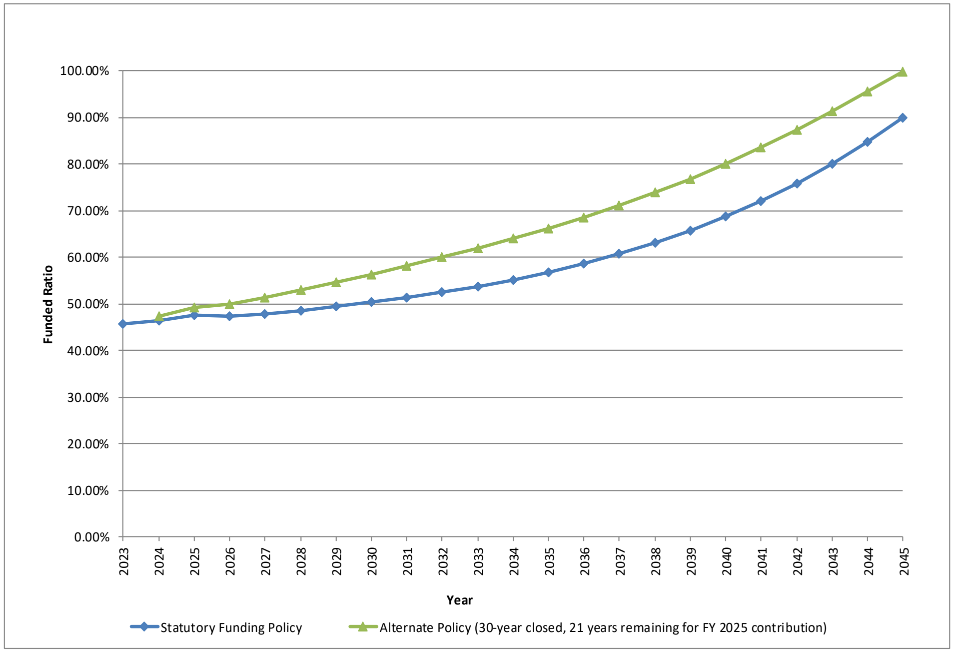
	Combined State, Employer and Federal/Trust Fund Contribution			SURS Alternate Policy Contribution		Projected % of Alternate Policy Contributed	Difference in Alternate and Statutory Contribution
FYE	SURS Cont.	RSP Cont.	Total	SURS Cont.	Total (w/RSP)		
2024	$ 2,091.135	$ 94.893	$ 2,186.028	$ 2,527.245	$ 2,622.138	83.37 %	$ 436.110
2025	2,167.649	100.345	2,267.994	2,617.835	2,718.180	83.44	450.186
2026	2,213.938	107.085	2,321.023	2,629.389	2,736.474	84.82	415.451
2027	2,251.405	112.992	2,364.397	2,626.976	2,739.968	86.29	375.571
2028	2,348.121	118.785	2,466.906	2,688.820	2,807.605	87.87	340.699
2029	2,409.366	124.588	2,533.954	2,708.860	2,833.448	89.43	299.494
2030	2,465.270	130.419	2,595.689	2,727.049	2,857.468	90.84	261.779

Contribution Comparison (DB Only) Statutory vs. Alternate Funding Policy

Contribution Requirement



Funded Ratio



The contribution calculated under the alternate policy is projected to initially be higher and then increase at a slower rate than the contribution calculated under the statutory method. The alternate policy contribution is calculated as a level percentage of defined benefit plan capped payroll. The defined benefit plan capped payroll is projected to increase at a slower rate than the total capped payroll (including RSP) because, based on the new hire election assumption, the number of projected defined benefit plan active members is projected to decrease from 61,509 as of June 30, 2023 to 51,816 as of June 30, 2045.

45% of Academic new hires are assumed to elect RSP and 55% are assumed to elect Tier 2.
25% of Non-Academic new hires are assumed to elect RSP and 75% are assumed to elect Tier 2.

GRS

Low-Default-Risk Obligation Measure (LDROM)

- Actuaries follow Actuarial Standards of Practice (ASOPs) in performing their work
- ASOP No. 4, Measuring Pension Obligations and Determining Pension Plan Costs or Contributions, was revised to require the calculation and disclosure of a "Low-Default-Risk Obligation Measure" liability (LDROM) for measurement dates on or after February 15, 2023
- The LDROM is calculated 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
  - The SURS LDROM is based on the June 2023 (end of month) Financial Times Stock Exchange (FTSE) Pension Discount Curve (PDC)
    - The FTSE PDC is 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 FTSE PDC is one of several options that can be used for calculating the LDROM

GRS

Low-Default-Risk Obligation Measure (LDROM)

- The LDROM results for the June 30, 2023 actuarial valuation are based on
  - Discount rates based upon the June 2023 (end of month) FTSE Pension Discount Curve (PDC)
    - The 1-, 5-, 10-, 20- and 30-year rates follow: 5.76%, 4.64%, 4.68%, 5.22% and 4.85%
  - All other assumptions and methods used in the funding actuarial valuation as of June 30, 2023, including the Projected Unit Credit (PUC) actuarial cost method
- 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

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

- The $10.6 billion difference between the funding actuarial accrued liability of $51.1 billion and the LDROM of $61.7 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 LDROM also represents the cost of securing benefits by investing in a high quality matching bond portfolio

STATE UNIVERSITIES RETIREMENT SYSTEM

State Universities Retirement System of Illinois

Actuarial Valuation Report as of June 30, 2023

P: 312.456.9800 | www.grsconsulting.com

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

Amy Williams, ASA, FCA, MAAA
Senior Consultant

Mark Buis

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

Kevin Noelke

Kevin Noelke, ASA, FCA, MAAA
Consultant

AW/MB/KN:dj

GRS

Table of Contents

Table of Contents

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	
		% of Payroll[7]		% of Payroll[7]
Estimated Statutory Contribution:				
· 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.

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 payroll[1] 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.
            - 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.

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.

3. 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 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	Funded Ratio	
Year	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.

Percentage of Actuarial Accrued Liabilities Covered by Net Assets (in Millions)							
	Actuarial Accrued Liabilities for				% of Liabilities Covered by		
Fiscal Year	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.

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.

($ 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.

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 dampens 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.

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)

Valuation Date (6/30)	(1) Accrued Liabilities (AAL)	(2) Market Value of Assets	(3) Market Value Unfunded AAL	(4) Valuation Payroll	(5) Market Value Funded Ratio (2)/(1)	(6) Retiree Liabilities (RetLiab)	(7) RetLiab / AAL (6)/(1)	(8) AAL / Payroll (1)/(4)	(9) Assets / Payroll (2)/(4)
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%

Valuation Date (6/30)	(10) Portfolio StdDev	(11) Std Dev % of Pay	(12) Unfunded / Payroll	(13) Non-Investment Cash Flow (NICF)	(14) NICF / Assets (13)/(2)	(15) Market Rate of Return	(16) 5-Year Trailing 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.

(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.

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	289,070,662	299,585,024
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	6,360,276	3,901,358
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	572,138	314,311
Net investment income	(685,632,964)	1,329,721,631
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	22,583,852	23,715,248
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	23,768,313,260	22,523,123,405
Impact of adoption of new accounting standards	-	430,000
Plan Net Position		
End of year	$ 22,523,123,405	$ 23,193,247,901

[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

	Years of Service								
Age	Under 1	1-4	5-9	10-14	15-19	20-24	25-29	30 & Over	Totals
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

Age	Number	Annual Benefit
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	3,360	129,851,458
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	5	101,965
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: Actuarial Accrued Liability (AAL)	Projected Unit Credit Values: Gross Normal Cost (NC) [1]	Gross NC % of Pay [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)		$ 344.5
(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)		$ 51,050.8
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)		$ (41.5)
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)		$ 303.0

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

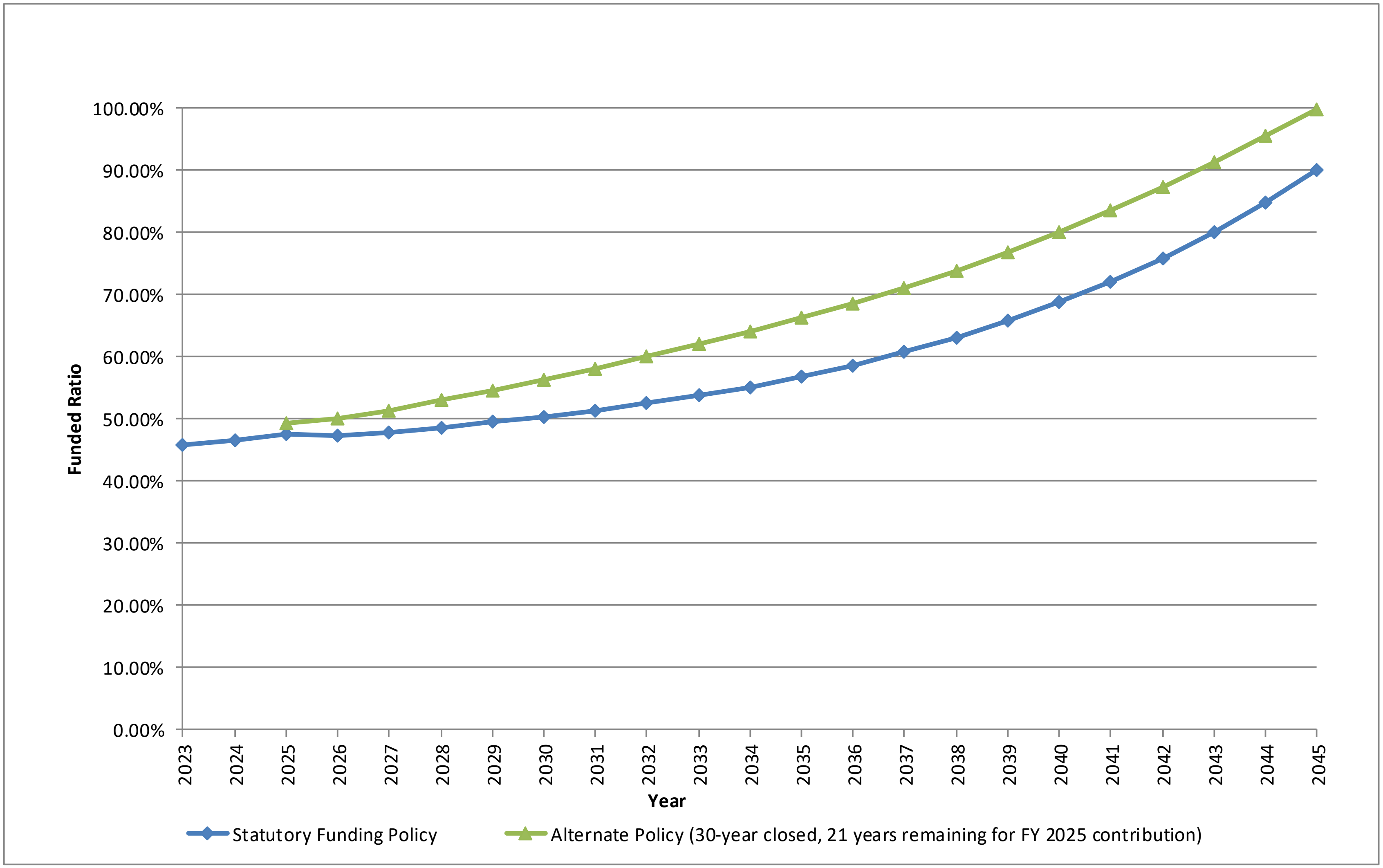
($ in Millions)

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

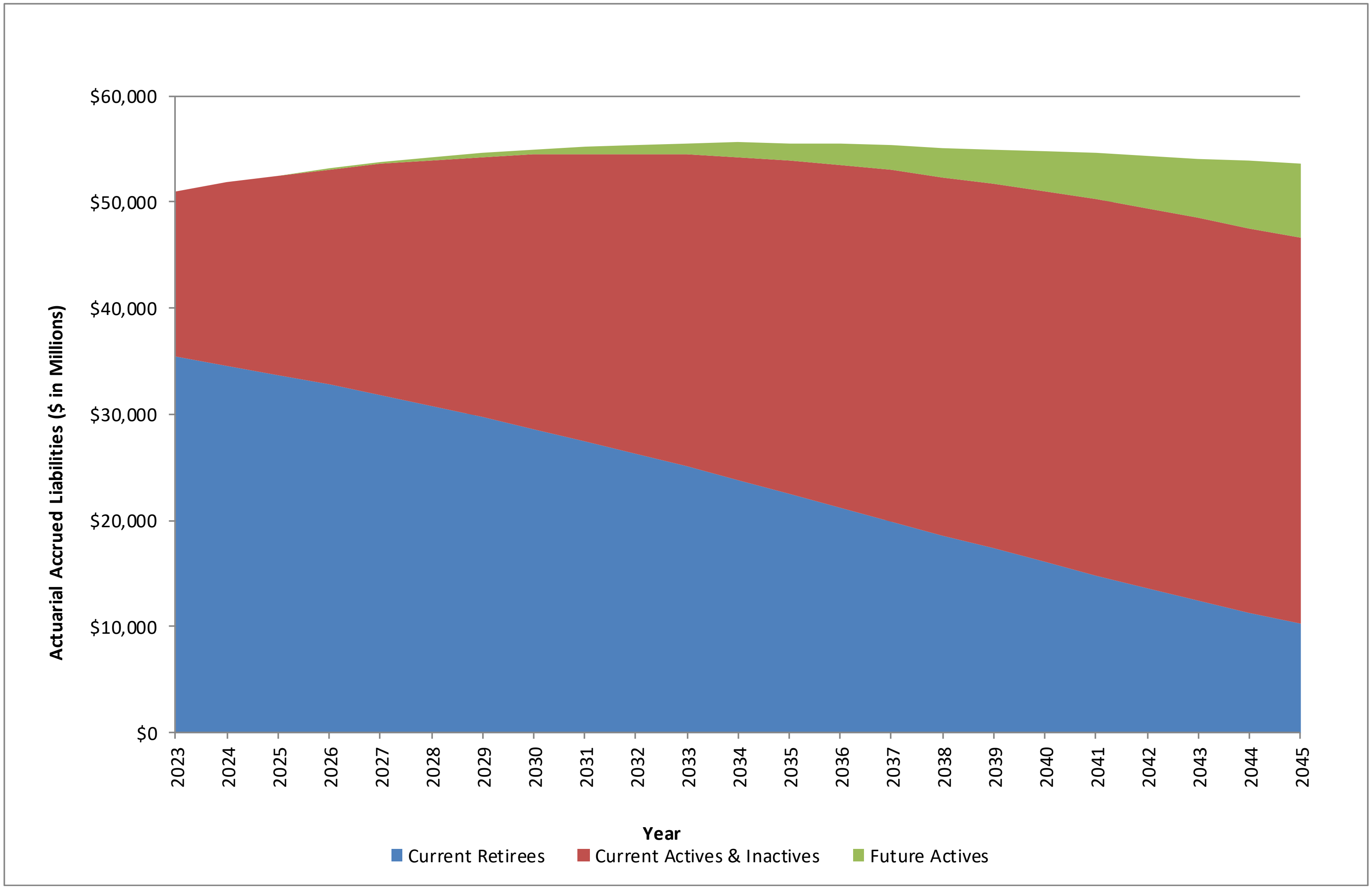
Projections are based on 55% of academic and 75% of non-academic new hires electing Tier 2 and 45% of academic and 25% of non-academic new hires electing RSP and 74,645 total active members (71,121 full time and 3,524 part time) in each future year.

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.*

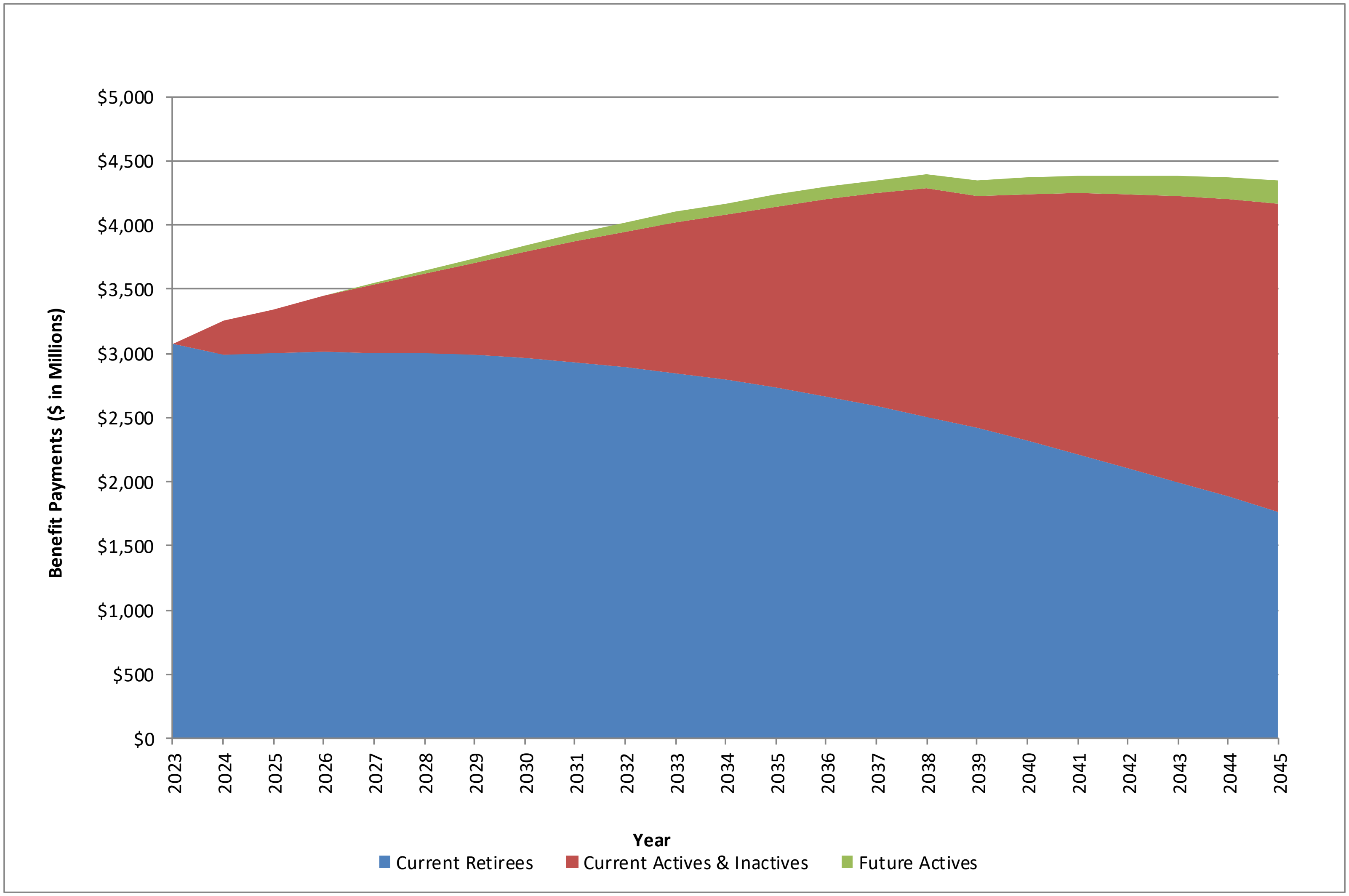
Graph 1
Projected Funded Ratio Based on Statutory Contributions
Actuarial Valuation as of June 30, 2023
($ in Millions)



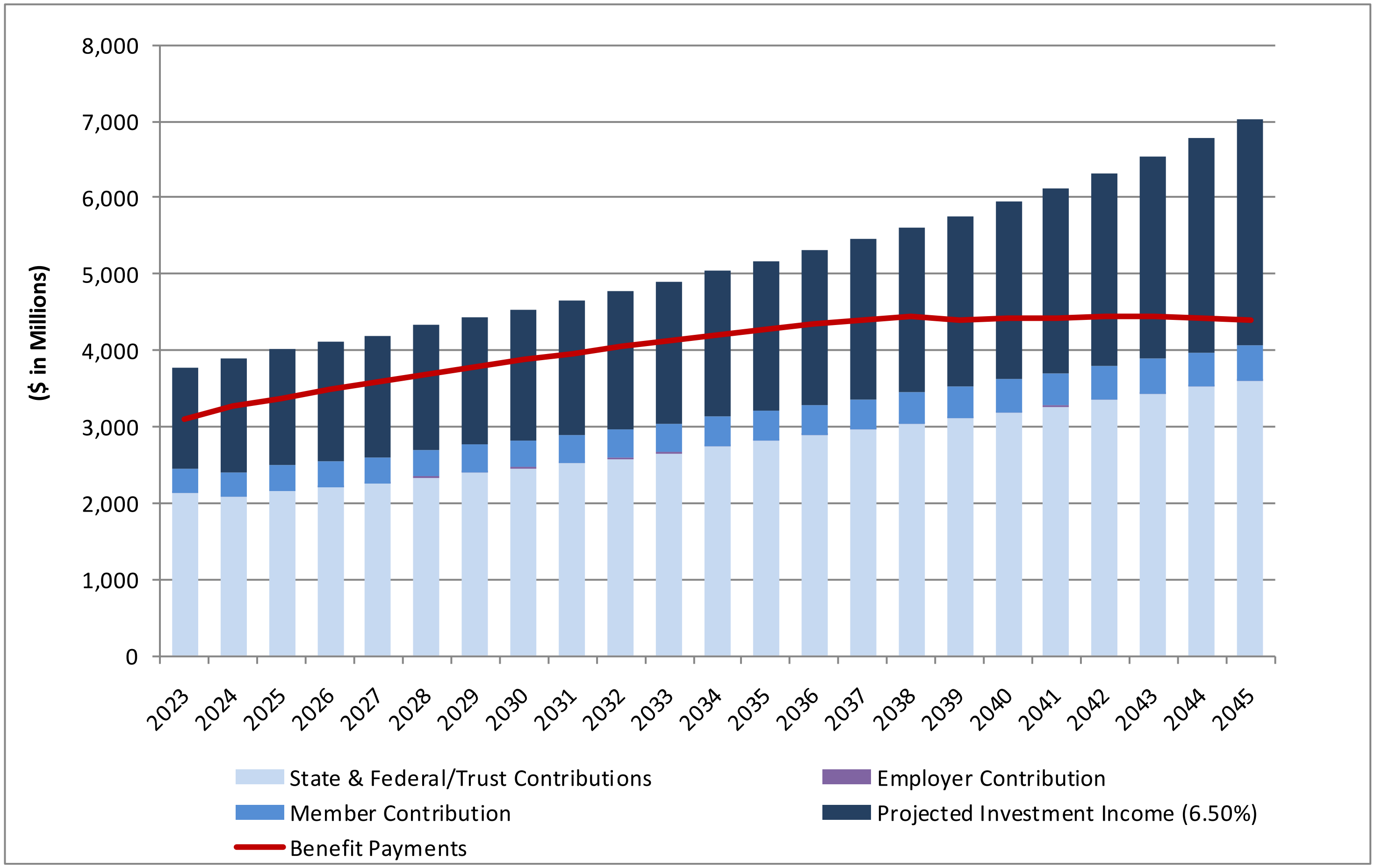
Graph 2
Projected Actuarial Accrued Liabilities
Actuarial Valuation as of June 30, 2023
($ in Millions)



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)

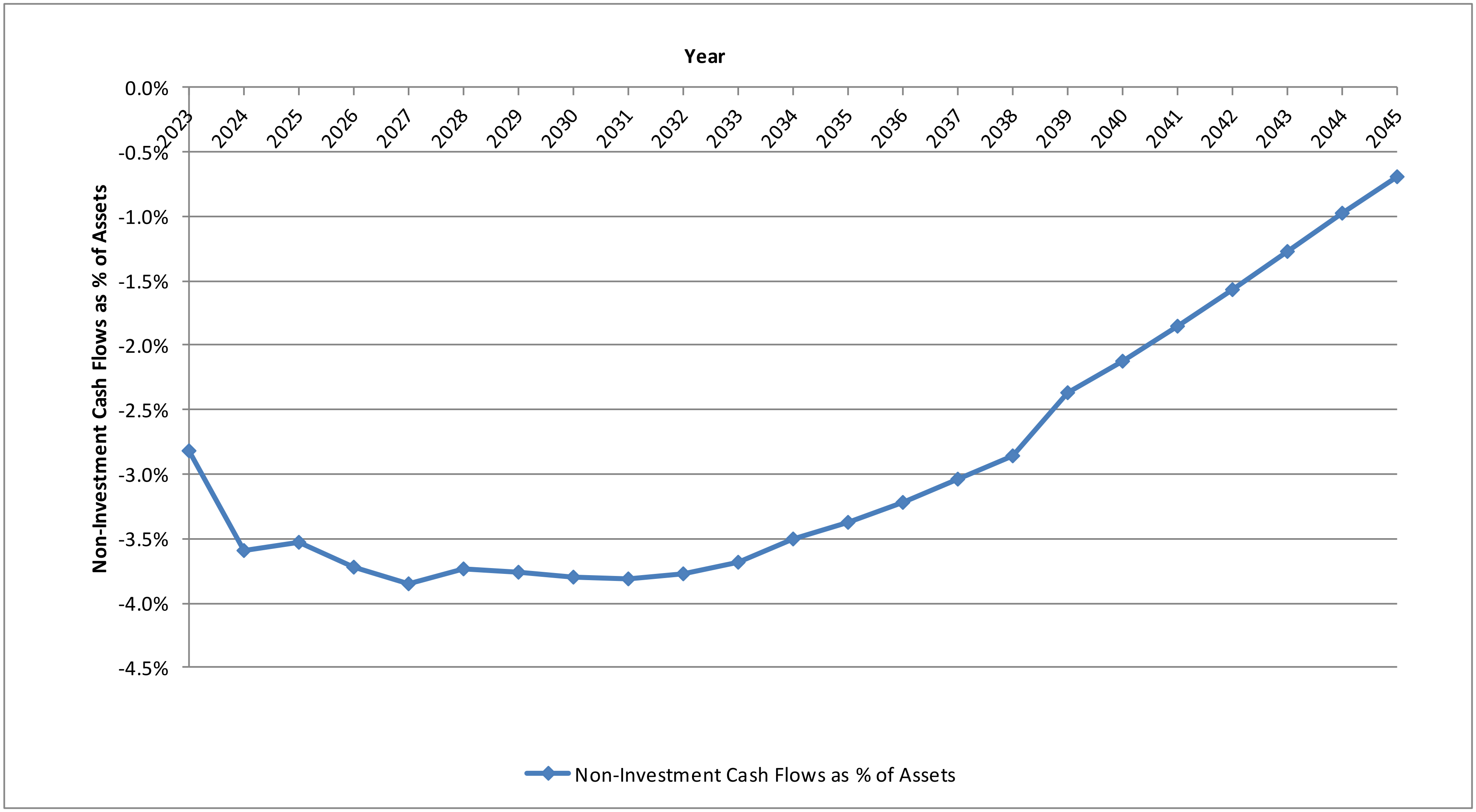


Table 13
Projected Statutory Contributions for the Actuarial Valuation as of June 30, 2023
Before Impact of Bonds Issued in 2004
($ in Millions)

			Combined State and Employer Contribution	
FYE	SURS Cont. [1]	RSP Cont. [1]	$	% 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 $	Combined State and Employer Contribution % of Pay [2]	Debt Service $	Debt Service % of Pay [2]	SURS Alternate Policy Contribution [3] SURS Cont.	SURS Alternate Policy Contribution [3] Total (w/RSP)	Projected % of Alternate Policy Contributed [4]	Employer Contributions	Federal/Trust Fund Contributions [5]	Qualified Plan State Contribution
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.*

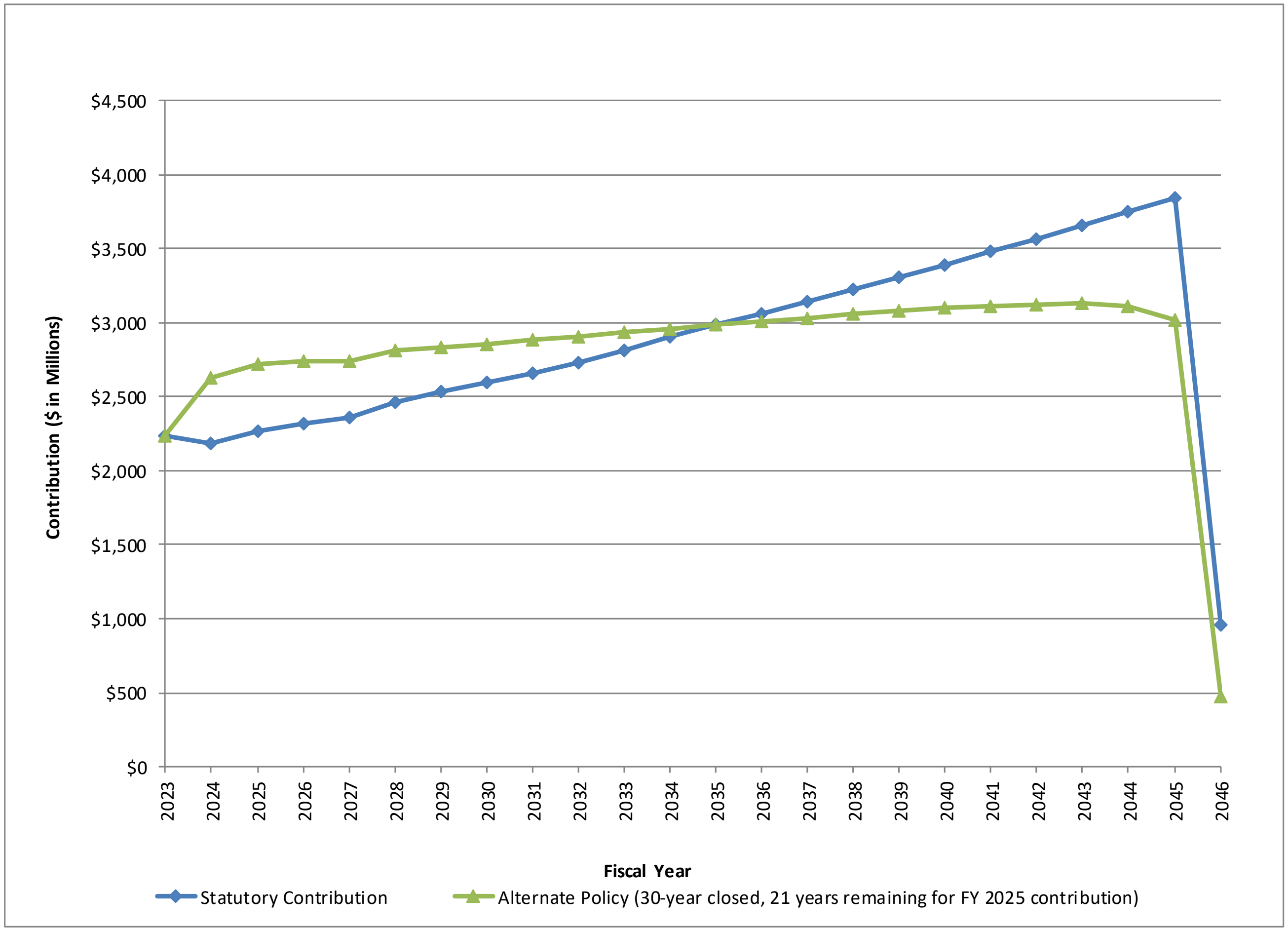
[3] *Alternate funding policy of normal cost plus 30-year closed period amortization of the unfunded liability as a level percentage of defined benefit plan capped payroll beginning in FY 2016 with 21 years remaining as of FY 2025.*

[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 2				Tier 2			Combined			
	Tier 1	Current	Future	Total	Tier 1	Current	Future	Total	Tier 2	Tier 1	Tier 2	Total
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%

[1]*Expected 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	RSP Total	Number of Defined Benefit Plan Active				Defined Benefit Plan Payroll [1]				Member Contributions			
Year	Active		Tier 2				Tier 2				Tier 2		
Ending	Members	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	Present Value of Future Benefits						Benefit Payments					
Year	Current	Current	Tier 1	Tier 2 Actives			Current	Current	Tier 1	Tier 2 Actives		
Ending	Retirees	Inactives	Actives	Current	Future	Total	Retirees	Inactives	Actives	Current	Future	Total
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: Current Retirees	Current Inactives	Tier 1 Actives	Tier 2 Actives: Current	Tier 2 Actives: Future	Total	Fiscal Year Ending	Employer Normal Cost Dollar: Tier 1	Tier 2	Total
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 2				Tier 2	
	Tier 1	Current	Future	Total	Tier 1	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

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.

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							
	Governor's Pay		Pay for Preceding Fiscal Year for Affected Members					
Contribution Year	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.*

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 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:

	Total Increase	
Service Year	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%

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:

	Future Life Expectancy (years) in 2023				Future Life Expectancy (years) in 2035			
	Academic		Non-Academic		Academic		Non-Academic	
Age	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

Disability. A table of disability incidence with rates follows:

	Academic		Non-Academic	
Age	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.

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

	Tier 1					
	Normal (Unreduced) Retirement				Early (Reduced) Retirement	
	Academic		Non-Academic		Academic	Non-Academic
Age	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.

Tier 2					
	Normal (Unreduced) Retirement			Early (Reduced) Retirement	
Age	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).

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.

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 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									
		Average Pay			Average Pay			Average Pay	
Age	Number Males	Tier 2 Capped Male	Uncapped Male	Number Females	Tier 2 Capped Female	Uncapped Female	Total Number	Tier 2 Capped Total	Uncapped Total
<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

Non-Academic

Summary of New Entrants - Non-Academic									
		Average Pay			Average Pay			Average Pay	
		Tier 2			Tier 2			Tier 2	
Age	Number Males	Capped Male	Uncapped Male	Number Females	Capped Female	Uncapped Female	Total Number	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

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.

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.

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:

	Tier 1 and Tier 2	
Year of Service	General	Police/Fire
1st 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.

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 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.

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.

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

- 7/8ths 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.

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.

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.

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

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

(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.

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

P: 312.456.9800 | www.grsconsulting.com

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:

120 North LaSalle Street | Suite 1350 | Chicago, Illinois 60602-3495

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.

<u>Number of Active Members Scenario</u>

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
	Total Contributions	PV Contributions	MVA Funded Ratio in 2045	UAAL	PV of UAAL	Contributions + 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

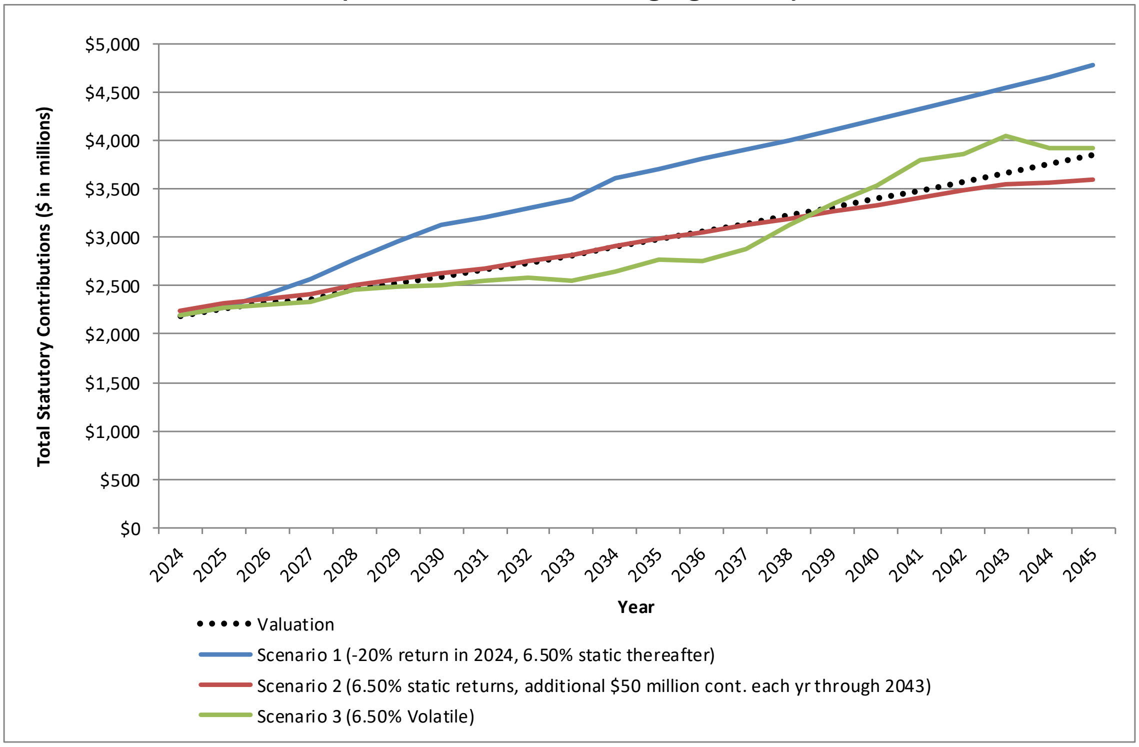
Amy Williams, ASA, FCA, MAAA
Senior Consultant

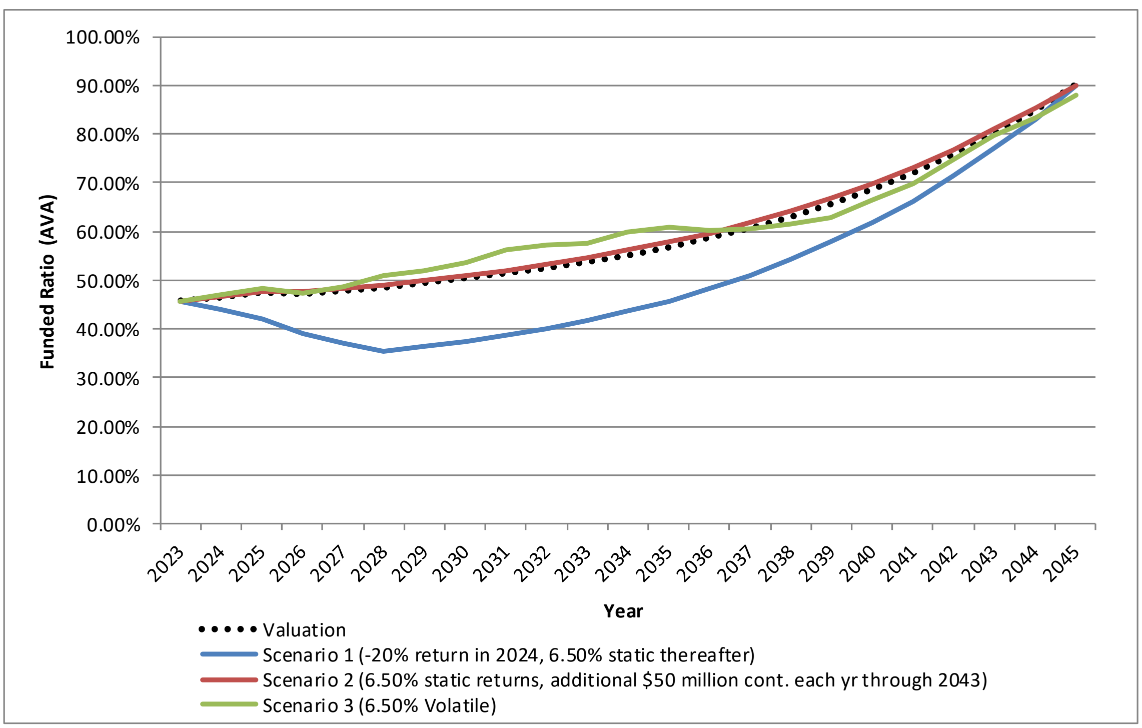
Mark Buis

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

Kevin Noelke, ASA, FCA, MAAA
Consultant

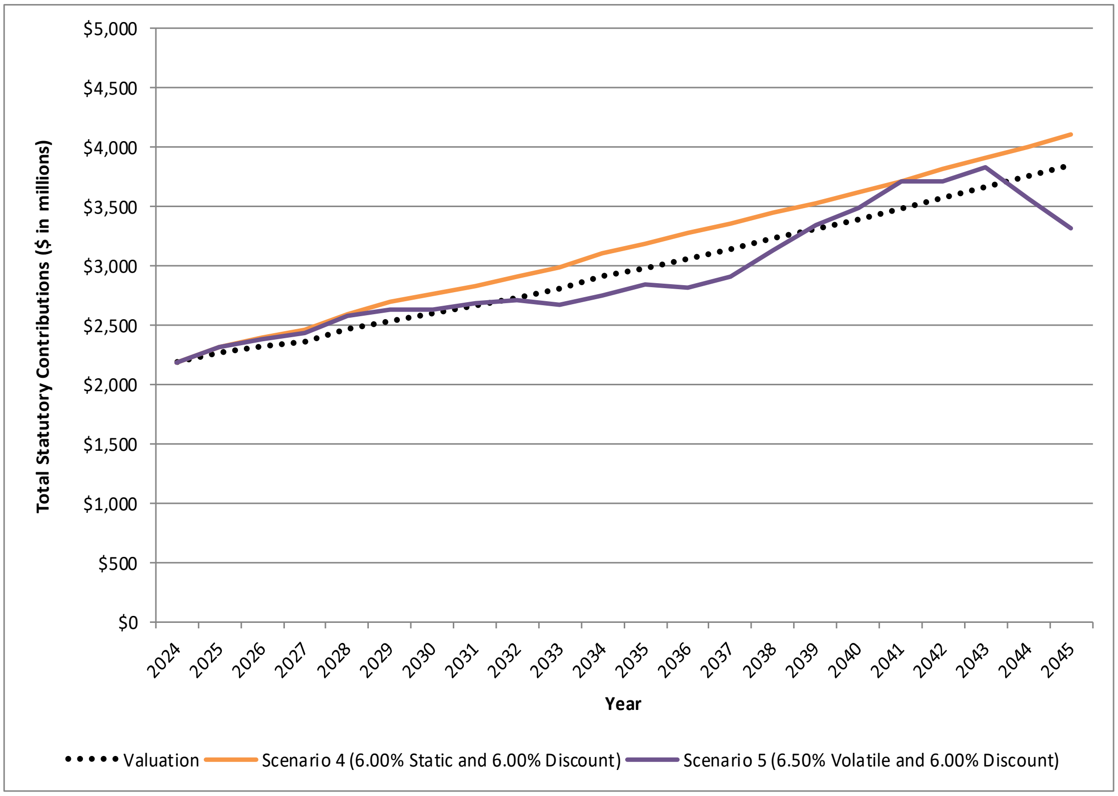
State Universities Retirement System
Comparison of Total Statutory Contributions and Funded Ratio Assuming an Annual Return of 6.50% (Valuation Assumption) and Rates under the Volatile Investment Return Stress Testing Scenarios (Volatile Returns Averaging 6.50%)

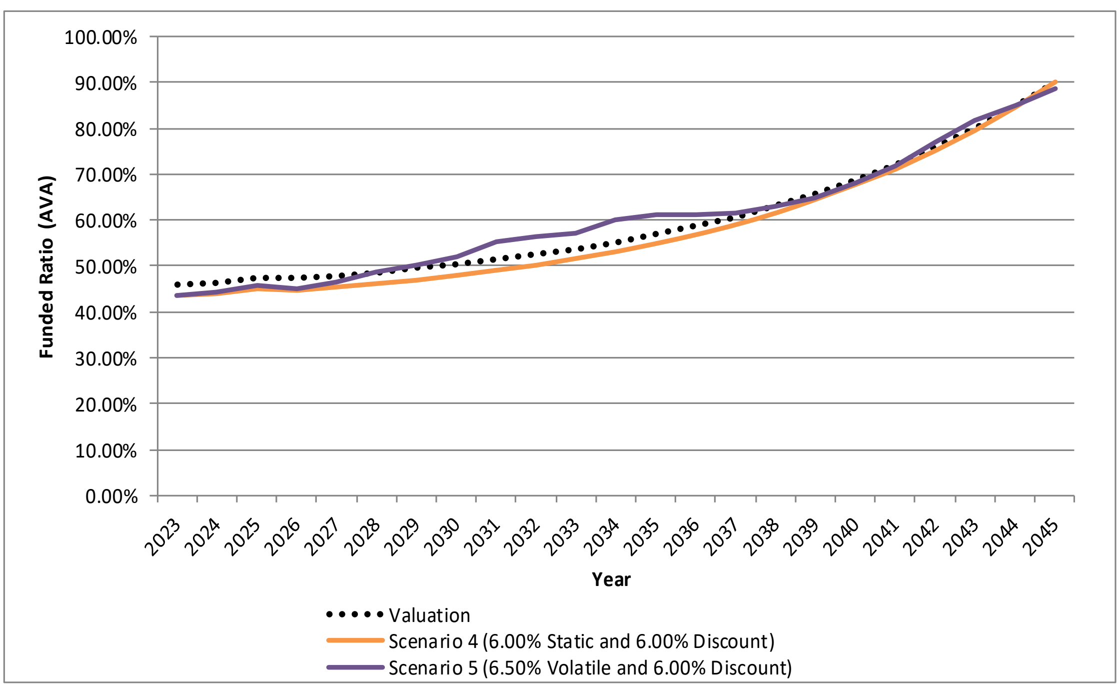




Total statutory contributions include contributions from both the State and employers and include total RSP contributions. Total statutory contributions exclude EBA and DCP administrative expense contributions.

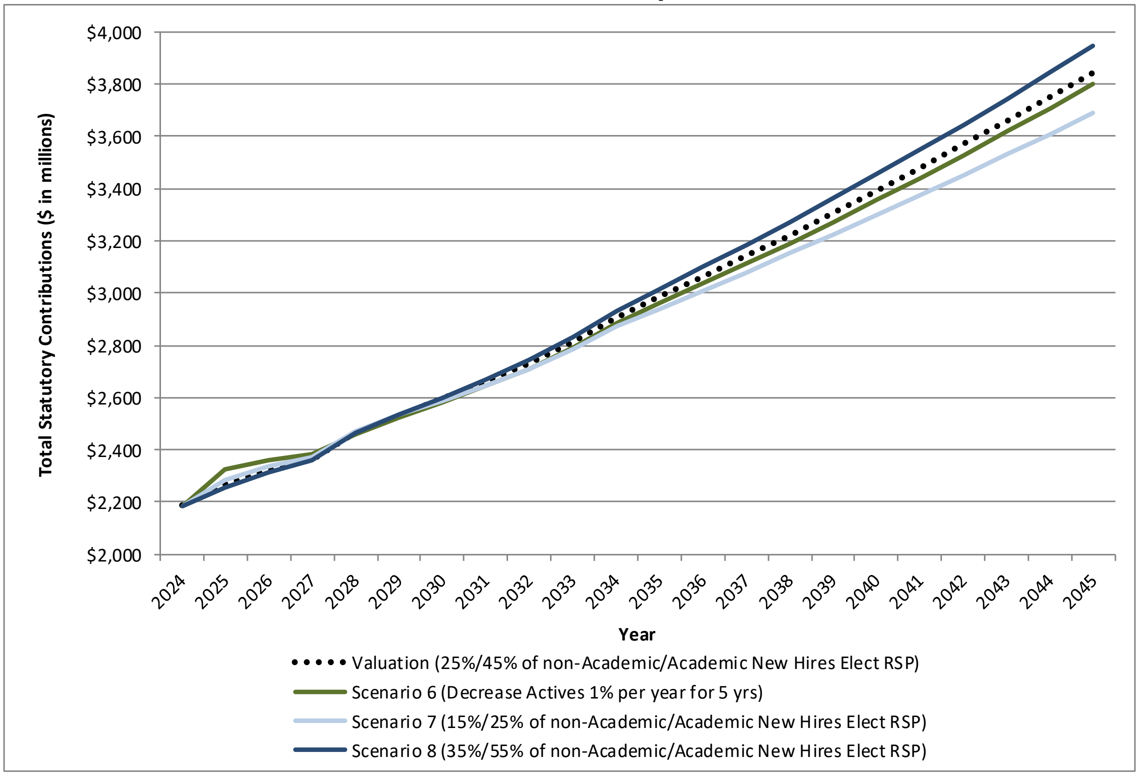
State Universities Retirement System
Comparison of Total Statutory Contributions and Funded Ratio
Assuming an Annual Return of 6.50% (Valuation Assumption) and
Rates under the Volatile Investment Return Stress Testing Scenarios
(Liabilities Discounted at 6.00%)

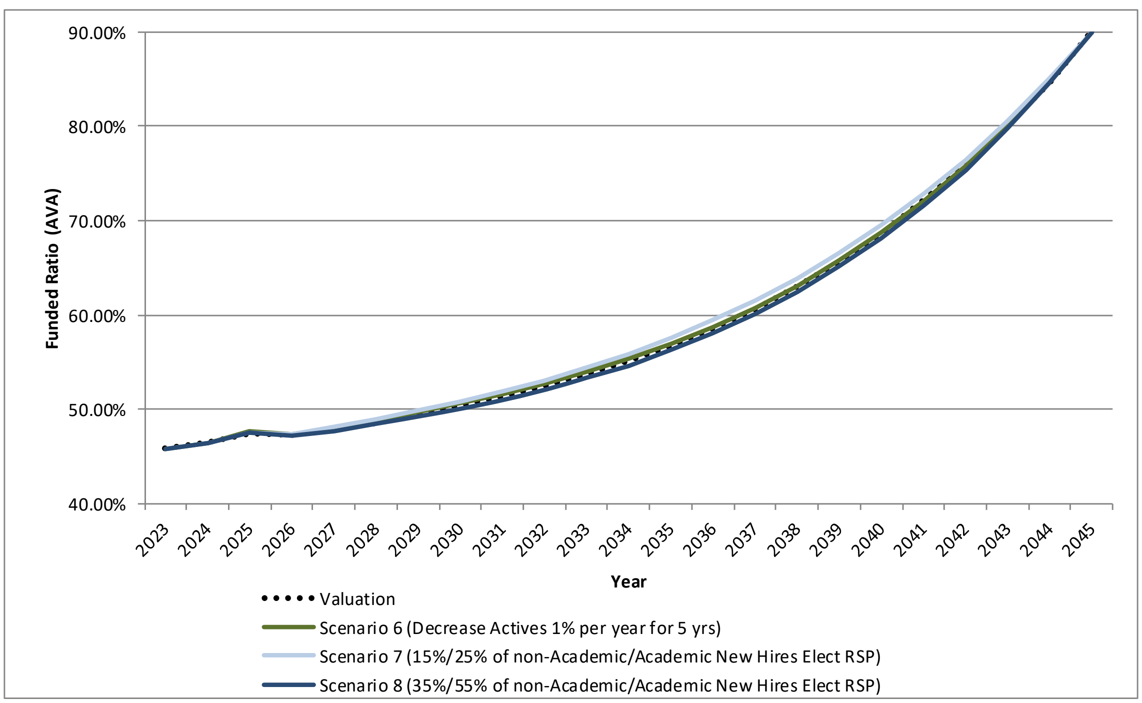




Total statutory contributions include contributions from both the State and employers and include total RSP contributions. Total statutory contributions exclude EBA and DCP administrative expense contributions.

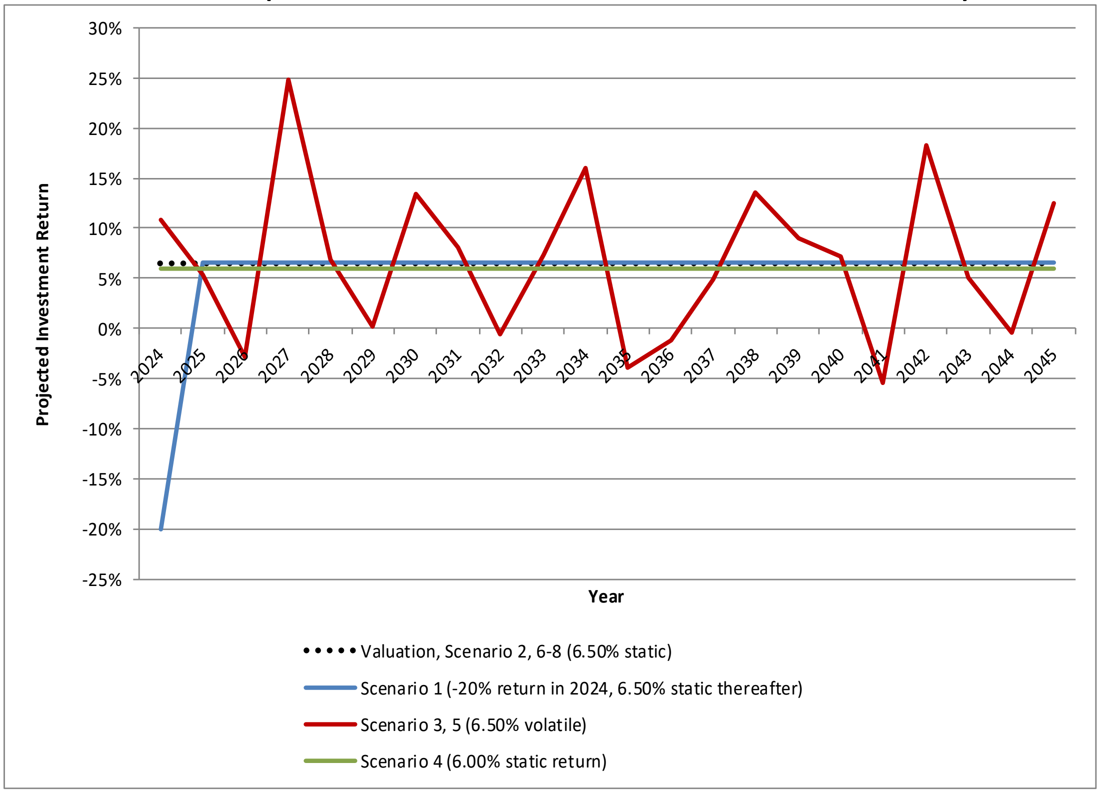
State Universities Retirement System
Comparison of Total Statutory Contributions and Funded Ratio
Assuming an Annual Return of 6.50% (Valuation Assumption) and
Rates under the Number of Active Members Sensitivity and Future New Hire Election Scenarios





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 Contributions	PV Contributions	MVA Funded Ratio in 2045	UAAL	PV of UAAL	Contributions + 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 Increase	Maximum Decrease	(AVA)	(MVA)	Maximum Increase	Maximum 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

	Full -Time Active Count (DB and RSP)		Total Statutory Contributions ($ in Millions)								
Year	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

	Full -Time Active Count (DB and RSP)		Funded Ratio Based on Actuarial Value of Assets (AVA)								
Year	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 June 30	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%	-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%	3.75%	1.03%	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 June 30	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 June 30	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 June 30	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 June 30	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 June 30	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 June 30	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 June 30	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

		Scenario 1 (Unfavorable 1st Year)		Scenario 2 (Additional $50 Million Cont.)		Scenario 3 and 5 (6.50% Volatile)		Scenario 4 (6.00% Static)	
Year	Baseline [1]	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%

[1] *An annual return of 6.50% is assumed for the baseline and scenarios 6, 7 and 8.*
[2] *Nominal one-year rate of return.*
[3] *Cumulative average geometric return from 2024 through the current year.*

State Universities Retirement System of Illinois

GASB Statement Nos. 67 and 68 Accounting and Financial Reporting for Pensions

Measured as of June 30, 2023

Applicable to Plan's Fiscal Year End June 30, 2023

Applicable to Employer's Fiscal Year End June 30, 2024

P: 312.456.9800 | www.grsconsulting.com

November 7, 2023

The Board of Trustees
State Universities Retirement System of Illinois

Dear Board Members:

This report provides accounting and financial reporting information that is intended to comply with the Governmental Accounting Standards Board (GASB) Statement Nos. 67 and 68 for the State Universities Retirement System of Illinois ("SURS"). These calculations have been made on a basis that is consistent with our understanding of these Statements.

GASB Statement No. 67 is the accounting standard that applies to the stand-alone financial reports issued by retirement systems. GASB Statement No. 68 establishes accounting and financial reporting for state and local government employers who provide their employees (including former employees) pension benefits through a trust.

Our calculation of the liability associated with the benefits described in this report was performed for the purpose of providing reporting and disclosure information that satisfies the requirements of GASB Statement Nos. 67 and 68. The calculation of the plan's liability for this report is not applicable for funding purposes of the plan. A calculation of the plan's liability for purposes other than satisfying the requirements of GASB Statement Nos. 67 and 68 may produce significantly different results. This report may be provided to parties other than the State Universities Retirement System of Illinois ("SURS") only in its entirety and only with the permission of SURS. GRS is not responsible for unauthorized use of this report.

This report is based upon information, furnished to us by SURS, concerning retirement and ancillary benefits, active members, deferred vested members, retirees and beneficiaries, and financial data. This information was checked for internal consistency, but it was not audited.

This report complements the funding actuarial valuation report that was provided to SURS and should be considered in conjunction with that report. Please see the actuarial valuation reports as of June 30, 2022, and June 30, 2023, for additional discussion of the nature of actuarial calculations and more information related to participant data, economic and demographic assumptions and benefit provisions.

Public Act (PA) 100-0023, which was effective July 6, 2017, created a new plan option (Optional Hybrid Plan) and changed the State and Employer's required contributions. SURS is currently not moving forward with the implementation of the Optional Hybrid Plan (OHP) created under PA 100-0023 and therefore, the results presented in this report do not include any of the changes under PA 100-0023 related to the OHP.

120 North LaSalle Street | Suite 1350 | Chicago, Illinois 60602-3495

Public Act 102-0718 extended the buyout through June 30, 2026. The buyout election assumption is 0% and therefore, does not have an impact on the actuarial valuation results.

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.

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). All other economic and demographic actuarial assumptions remain unchanged from the prior actuarial valuation based on recommendations from the experience study report covering the period June 30, 2017 through June 30, 2020, and are consistent with the assumptions used in the funding actuarial valuation as of June 30, 2022 (with the exception of the single discount rate). 45% of assumed academic new hires and 25% of assumed non-academic new hires in the actuarial valuation projections are assumed to elect the Retirement Savings Plan and 55% of academic and 75% of non-academic are assumed to elect Tier 2 under Public Act 96-0889.

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.

To the best of our knowledge, the information contained in this report is accurate and fairly represents the actuarial position of the State Universities Retirement System of Illinois in accordance with the requirements of GASB Statement Nos. 67 and 68. All calculations have been made in conformity with generally accepted actuarial principles and practices, with the Actuarial Standards of Practice issued by the Actuarial Standards Board, and with our understanding of GASB Statement Nos. 67 and 68.

This report was prepared using our proprietary valuation model and related software which, in our professional judgment, has the capability to provide results that are consistent with the purposes of the valuation, and has no material limitations or known weaknesses. We performed tests to ensure that the model reasonably represents that which is intended to be modeled. We are relying on the GRS actuaries and Internal Software, Training and Processes Team who developed and maintain the model.

The signing actuaries are independent of the plan sponsor.

Amy Williams, Kevin Noelke and Mark Buis 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

Amy Williams, ASA, MAAA, FCA
Senior Consultant

Kevin Noelke, ASA, MAAA, FCA
Consultant

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

Auditor’s Note: This information is intended to assist in preparation of the financial statements of the State Universities Retirement System of Illinois. Financial statements are the responsibility of management, subject to the auditor’s review. Please let us know if the auditor recommends any changes.

Table of Contents

SECTION A

EXECUTIVE SUMMARY

Executive Summary
as of June 30, 2023

Actuarial Valuation Date		June 30, 2022
Measurement Date of the Net Pension Liability		June 30, 2023
Pension Plan's Fiscal Year Ending Date (Reporting Date) for GASB 67		June 30, 2023
Employer's Fiscal Year Ending Date (Reporting Date) for GASB 68		June 30, 2024
Membership as of the Actuarial Valuation Date		
Number of		
- Retirees and Beneficiaries		71,458
- Inactive, Nonretired Members		87,829
- Active Members		60,281
- Total		219,568
Estimated Covered Payroll [1]	$	3,744,812,813
Net Pension Liability		
Total Pension Liability	$	52,637,785,999
Plan Fiduciary Net Position		23,193,247,901
Net Pension Liability	$	29,444,538,098
Plan Fiduciary Net Position as a Percentage of Total Pension Liability		44.06 %
Net Pension Liability as a Percentage of Estimated Covered Payroll		786.28 %
Development of the Single Discount Rate		
Single Discount Rate, Beginning of Year		6.39 %
Single Discount Rate, End of Year		6.37 %
Long-Term Expected Rate of Investment Return, Beginning of Year		6.50 %
Long-Term Expected Rate of Investment Return, End of Year		6.50 %
Long-Term Municipal Bond Rate, Beginning of Year*		3.69 %
Long-Term Municipal Bond Rate, End of Year*		3.86 %
Last year ending June 30 in the 2023 to 2122 projection period for which projected benefit payments are fully funded		2074
Total Pension Expense	$	1,948,148,283

Deferred Outflows and Deferred Inflows of Resources by Source to be recognized in Future Pension Expenses

	Deferred Outflows of Resources	Deferred Inflows of Resources
Difference between expected and actual experience	$ 62,591,844	$ 12,277,871
Changes in assumptions	70,957,694	420,880,693
Net difference between projected and actual earnings on pension plan investments	187,992,691	0
Total	$ 321,542,229	$ 433,158,564

1 *Defined benefit payroll for fiscal year ending June 30, 2023 is based on the employee contributions in the financial statements for fiscal year 2023 and an employee contribution rate of 8.00%.*

**Source: Fixed-income municipal bonds with 20 years to maturity that include only federally tax-exempt municipal bonds as reported in Fidelity Index's "20-Year Municipal GO AA Index" as of June 30, 2022 for beginning of year and as of June 30, 2023 for end of year. In describing this index, Fidelity notes that the municipal curves are constructed using option-adjusted analytics of a diverse population of over 10,000 tax exempt securities.*

Discussion

Accounting Standard

For pension plans that are administered through trusts or equivalent arrangements, Governmental Accounting Standards Board (GASB) Statement No. 67 establishes standards of financial reporting for separately issued financial reports and specifies the required approach for measuring the pension liability. Similarly, GASB Statement No. 68 establishes standards for state and local government employers (as well as non-employer contributing entities) to account for and disclose the net pension liability, pension expense and other information associated with providing retirement benefits to their employees (and former employees) on their basic financial statements.

The following discussion provides a summary of the information that is required to be disclosed under these accounting standards. A number of these disclosure items are provided in this report. However, certain non-actuarial information, such as notes regarding accounting policies and investments, is not included in this report and the retirement system and/or plan sponsor will be responsible for preparing and disclosing that information to comply with these accounting standards.

Financial Statements

GASB Statement No. 68 requires state or local governments to recognize the net pension liability and the pension expense on their financial statements. The net pension liability is the difference between the total pension liability and the plan's fiduciary net position. In traditional actuarial terms, this is analogous to the accrued liability less the market value of assets (not the smoothed actuarial value of assets that is often encountered in actuarial valuations performed to determine the employer's contribution requirement).

Paragraph 57 of GASB Statement No. 68 states, "Contributions to the pension plan from the employer subsequent to the measurement date of the collective net pension liability and before the end of the employer's reporting period should be reported as a deferred outflow of resources related to pensions." The information contained in this report does not incorporate any contributions made to SURS subsequent to the measurement date of June 30, 2023.

The pension expense recognized each fiscal year is equal to the change in the net pension liability from the beginning of the year to the end of the year, adjusted for deferred recognition of the liability and investment experience.

Pension plans that prepare their own, stand-alone financial statements are required to present two financial statements – a statement of fiduciary net position and a statement of changes in fiduciary net position in accordance with GASB Statement No. 67. The *statement of fiduciary net position* presents the assets and liabilities of the pension plan at the end of the pension plan's reporting period. The *statement of changes in fiduciary net position* presents the additions, such as contributions and investment income, and deductions, such as benefit payments and expenses, and net increase or decrease in the fiduciary net position.

Notes to Financial Statements

GASB Statement No. 68 requires disclosure of the total pension expense, the pension plan's liabilities and assets, and deferred outflows and inflows of resources related to pensions in the notes of the employer's financial statements.

GASB Statement Nos. 67 and 68 require disclosure of certain additional information in the notes of the financial statements for the employers and pension plans. The list of disclosure items should include:

- A description of benefits provided by the plan;
- The type of employees and number of members covered by the pension plan;
- A description of the plan's funding policy, which includes member and employer contribution requirements;
- The pension plan's investment policies;
- The pension plan's fiduciary net position and the net pension liability;
- The net pension liability using a discount rate that is 1% higher and 1% lower than the rate used to calculate the total pension liability and net pension liability for financial reporting purposes;
- Significant assumptions and methods used to calculate the total pension liability;
- Inputs to the discount rates; and
- Certain information about mortality assumptions and the dates of experience studies.

Retirement systems that issue stand-alone financial statements are required to disclose additional information in accordance with GASB Statement No. 67. This information includes:

- The composition of the pension plan's Board and the authority under which benefit terms may be amended;
- A description of how fair value is determined;
- Information regarding certain reserves and investments, which include concentrations of investments greater than or equal to 5%, receivables and insurance contracts excluded from plan assets; and
- Annual money-weighted rate of return.

Required Supplementary Information

GASB Statement No. 67 requires a 10-year fiscal history of:

- Sources of changes in the net pension liability;
- Information about the components of the net pension liability and related ratios, including the pension plan's fiduciary net position as a percentage of the total pension liability, and the net pension liability as a percent of covered-employee payroll; and
- A comparison of the actual employer contributions to the actuarially determined contributions based on the plan's funding policy.

General Implications of SURS Statutory Funding Policy on Future Expected Plan Contributions and Funded Status

Given the plan's statutorily defined funding policy, if all actuarial assumptions are met (including the assumption of the plan earning 6.50% on the actuarial value of assets), then the following outcomes are expected:

1. The unfunded liability is not expected to be fully amortized during the lifetimes of current members.
2. The funded status of the plan is expected to increase gradually towards a 90% funded ratio at 2045 and then remain level at 90% funded thereafter.

This statutory funding policy results in an expected crossover date in 2075 and a GASB single discount rate of 6.37% to measure the total pension liability as of June 30, 2023. The projections in this report are strictly for the purpose of determining the GASB single discount rate and are different from a funding projection for the ongoing plan.

Timing of the Valuation

An actuarial valuation to determine the total pension liability is required to be performed at least every two years. For employer reporting, the net pension liability and pension expense should be measured as of a date (measurement date) no earlier than the end of the employer's prior fiscal year, consistently applied from period to period. If the actuarial valuation used to determine the total pension liability is not calculated as of the measurement date, the total pension liability is required to be rolled forward from the actuarial valuation date to the measurement date.

Roll-Forward Methodology

The Total Pension Liability (TPL) shown in this report is based on an actuarial valuation performed as of June 30, 2022, measured using the assumptions from the most recent experience study and first adopted for use in the funding actuarial valuation as of June 30, 2021 (and a discount rate of 6.37%), and projected to a measurement date of June 30, 2023. The Total Pension Liability was rolled-forward to the June 30, 2023 measurement date by applying one year of service cost (increases TPL), actual benefit payments and refunds during the year (reduces TPL) and an interest rate adjustment assuming the end of year Single Discount Rate of 6.37%. A full year of interest was applied to the beginning of year TPL and one-half year of interest was applied to the service cost and benefit payments.

Single Discount Rate

Projected benefit payments are required to be discounted to their actuarial present values using a Single Discount Rate that reflects (1) a long-term expected rate of return on pension plan investments (to the extent that the plan's fiduciary net position is projected to be sufficient to pay benefits) and (2) a tax-exempt municipal bond rate based on an index of 20-year mixed maturity general obligation bonds with an average Standard & Poor's Corp.'s AA credit rating as of the measurement date (to the extent that the contributions for use with the long-term expected rate of return are not met).

For the purpose of this valuation, the long-term expected rate of return on pension plan investments is 6.50%; the municipal bond rate is 3.86% (based on the most recent daily rate available on or before the measurement date of the Fidelity "20-Year Municipal GO AA Index"); and the resulting Single Discount Rate is 6.37%.

The last year for which projected benefits for current members are fully funded by projected assets attributable to those members changed from 2075 to 2074 between the measurement performed in the last actuarial valuation and in this year's actuarial valuation.

Effective Date and Transition

GASB Statement Nos. 67 and 68 are effective for fiscal years beginning after June 15, 2013 and June 15, 2014, respectively.

Benefit Changes

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 funding actuarial valuation as of June 30, 2023 and this GASB Statement Nos. 67 and 68 valuation applicable to the plan's fiscal year ending June 30, 2023 and the employer's fiscal year ending June 30, 2024.

Actuarial Assumption Changes

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). All other economic and demographic actuarial assumptions remain unchanged from the prior actuarial valuation based on recommendations from the experience study report covering the period June 30, 2017 through June 30, 2020, and are consistent with the assumptions used in the funding actuarial valuation as of June 30, 2022 (with the exception of the single discount rate). 45% of assumed academic new hires and 25% of assumed non-academic new hires in the actuarial valuation projections are assumed to elect the Retirement Savings Plan and 55% of academic and 75% of non-academic are assumed to elect Tier 2 under Public Act 96-0889.

SECTION B

FINANCIAL STATEMENTS

Auditor's Note: This information is intended to assist in preparation of the financial statements of the State Universities Retirement System of Illinois. Financial statements are the responsibility of management, subject to the auditor's review. Please let us know if the auditor recommends any changes.

Statement of Pension Expense under GASB Statement No. 68
Fiscal Year Ended June 30, 2023*

A. Expense

1. Service Cost	$	677,569,791
2. Interest on the Total Pension Liability		3,221,915,693
3. Current-Period Benefit Changes		119,703
4. Employee Contributions (made negative for addition here)		(299,585,024)
5. Projected Earnings on Plan Investments (made negative for addition here)		(1,442,917,778)
6. Pension Plan Administrative Expense		23,715,248
7. Other Changes in Plan Fiduciary Net Position[1]		(430,000)
8. Recognition of Outflow (Inflow) of Resources due to Liabilities		(189,071,741)
9. Recognition of Outflow (Inflow) of Resources due to Assets		(43,167,609)
10. Total Pension Expense	**$**	**1,948,148,283**

[1] *Includes difference from restated plan net position as of June 30, 2022 reported for the June 30, 2023 actuarial valuation.*

* *Based on a measurement date of June 30, 2023. Will be used for fiscal year ending June 30, 2024. Employers' proportionate share of calculations of the net pension liability, pension expense and deferred inflows and outflows are outside the scope of this report.*

Recognition of Deferred Outflows and Inflows of Resources

Differences between expected and actual experience and changes in assumptions are recognized in pension expense using a systematic and rational method over a closed period equal to the average of the expected remaining service lives of all employees who are provided with pensions through the pension plan (active employees and inactive employees) determined as of the beginning of the measurement period.

At the beginning of the current measurement period, the expected remaining service lives of all active employees in the plan were approximately 595,209 years. Additionally, the total plan membership (active employees, inactive employees and retired members and beneficiaries) was 219,568. As a result, the average of the expected remaining service lives for purposes of recognizing the applicable deferred outflows and inflows of resources established in the current measurement period is 2.7108 years.

Additionally, differences between projected and actual earnings on pension plan investments should be recognized in pension expense using a systematic and rational method over a closed five-year period. For this purpose, the deferred outflows and inflows of resources are recognized in the pension expense as a level dollar amount over the closed period identified above.

Statement of Outflows and Inflows Arising from
Current Reporting Period
Fiscal Year Ended June 30, 2023*

Year Ending June 30	Difference between expected and actual experience	Recognition Period (Years)	Total Deferred (2024-2027)	Increase (Decrease) in Pension Expense Arising from difference between expected and actual experience Recognized in Year Ending June 30 2021 & Prior**	2022	2023	2024	2025	2026	2027
2018	$ (281,807,425)	2.7952	$ -	$ (281,807,425)						
2019	254,283,755	2.7008	-	254,283,755						
2020	167,491,408	2.6805	-	124,970,272	$ 42,521,136					
2021	109,919,610	2.8204	-	38,973,057	38,973,057	$ 31,973,496				
2022	(45,071,327)	2.7488	(12,277,871)		(16,396,728)	(16,396,728)	$ (12,277,871)			
2023	99,178,145	2.7108	62,591,844			36,586,301	36,586,301	$ 26,005,543		
Total			50,313,973	136,419,659	65,097,465	52,163,069	24,308,430	26,005,543	-	-

Year Ending June 30	Changes in assumptions	Recognition Period (Years)	Total Deferred (2024-2027)	Increase (Decrease) in Pension Expense Arising from changes in assumptions Recognized in Year Ending June 30 2021 & Prior**	2022	2023	2024	2025	2026	2027
2018	$ 1,992,356,758	2.7952	$ -	$ 1,992,356,758						
2019	327,945,723	2.7008	-	327,945,723						
2020	618,763,571	2.6805	-	461,677,726	$ 157,085,845					
2021	960,402,037	2.8204	-	340,519,798	340,519,798	$ 279,362,441				
2022	(1,545,027,843)	2.7488	(420,880,693)		(562,073,575)	(562,073,575)	$ (420,880,693)			
2023	112,434,018	2.7108	70,957,694			41,476,324	41,476,324	$ 29,481,370		
Total			(349,922,999)	3,122,500,005	(64,467,932)	(241,234,810)	(379,404,369)	29,481,370	-	-

Year Ending June 30	Difference between projected and actual earnings on pension plan investments	Recognition Period (Years)	Total Deferred (2024-2027)	Increase (Decrease) in Pension Expense Arising from net difference between projected and actual earnings on pension plan investments Recognized in Year Ending June 30 2021 & Prior**	2022	2023	2024	2025	2026	2027
2018	$ (183,313,712)	5.0000	$ -	$ (146,650,968)	$ (36,662,744)					
2019	150,007,091	5.0000	-	90,004,254	30,001,418	$ 30,001,419				
2020	767,412,581	5.0000	153,482,517	306,965,032	153,482,516	153,482,516	$ 153,482,517			
2021	(3,459,127,877)	5.0000	(1,383,651,152)	(691,825,575)	(691,825,575)	(691,825,575)	(691,825,575)	$ (691,825,577)		
2022	2,212,674,012	5.0000	1,327,604,408		442,534,802	442,534,802	442,534,802	442,534,802	$ 442,534,804	
2023	113,196,147	5.0000	90,556,918			22,639,229	22,639,229	22,639,229	22,639,229	$ 22,639,231
Total			187,992,691	(441,507,257)	(102,469,583)	(43,167,609)	(73,169,027)	(226,651,546)	465,174,033	22,639,231

Year Ending June 30	Total Difference	Recognition Period (Years)	Total Deferred (2024-2027)	Increase (Decrease) in Pension Expense Arising from All Sources Recognized in Year Ending June 30 2021 & Prior**	2022	2023	2024	2025	2026	2027
2018	$ 1,527,235,621	Varies by Type	$ -	$ 1,563,898,365	$ (36,662,744)					
2019	732,236,569	Varies by Type	-	672,233,732	30,001,418	$ 30,001,419				
2020	1,553,667,560	Varies by Type	153,482,517	893,613,030	353,089,497	153,482,516	$ 153,482,517			
2021	(2,388,806,230)	Varies by Type	(1,383,651,152)	(312,332,720)	(312,332,720)	(380,489,638)	(691,825,575)	$ (691,825,577)		
2022	622,574,842	Varies by Type	894,445,844		(135,935,501)	(135,935,501)	9,376,238	442,534,802	$ 442,534,804	
2023	324,808,310	Varies by Type	224,106,456			100,701,854	100,701,854	78,126,142	22,639,229	$ 22,639,231
Total			(111,616,335)	2,817,412,407	(101,840,050)	(232,239,350)	(428,264,966)	(171,164,633)	465,174,033	22,639,231

* *Based on a measurement date of June 30, 2023. Will be used for fiscal year ending June 30, 2024. Employers' proportionate share of calculations of the net pension liability, pension expense and deferred inflows and outflows are outside the scope of this report.*

** *Excludes amounts from the years ending June 30, 2014 through June 30, 2017 that were fully recognized before year ending June 30, 2023.*

Statement of Outflows and Inflows Arising from Current Reporting Period Fiscal Year Ended June 30, 2023*

	Total Deferred (2024-2027)	Outflow of Resources Recognized in Year Ending June 30						
		2021 & Prior**	2022	2023	2024	2025	2026	2027
Difference between expected and actual experience	$ 62,591,844	$ 418,227,084	$ 81,494,193	$ 68,559,797	$ 36,586,301	$ 26,005,543	$ -	$ -
Changes in assumptions	70,957,694	3,122,500,005	497,605,643	320,838,765	41,476,324	29,481,370	-	-
Net difference between projected and actual earnings on investments	187,992,691	(441,507,257)	(102,469,583)	(43,167,609)	(73,169,027)	(226,651,546)	465,174,033	22,639,231
Total	321,542,229	$ 3,099,219,832	476,630,253	346,230,953	4,893,598	(171,164,633)	465,174,033	22,639,231

	Total Deferred (2024-2027)	(Inflows) of Resources Recognized in Year Ending June 30						
		2021 & Prior**	2022	2023	2024	2025	2026	2027
Difference between expected and actual experience	$ (12,277,871)	$ (281,807,425)	$ (16,396,728)	$ (16,396,728)	$ (12,277,871)	$ -	$ -	$ -
Changes in assumptions	(420,880,693)	-	(562,073,575)	(562,073,575)	(420,880,693)	-	-	-
Net difference between projected and actual earnings on investments	-	-	-	-	-	-	-	-
Total	(433,158,564)	$ (281,807,425)	(578,470,303)	(578,470,303)	(433,158,564)	-	-	-

	Total Deferred (2024-2027)	Increase (Decrease) in Pension Expense Arising from Assets and Liabilities Recognized in Year Ending June 30						
		2021 & Prior**	2022	2023	2024	2025	2026	2027
Total Liabilities	$ (299,609,026)	$ 3,258,919,664	$ 629,533	$ (189,071,741)	$ (355,095,939)	$ 55,486,913	$ -	$ -
Total Assets	187,992,691	(441,507,257)	(102,469,583)	(43,167,609)	(73,169,027)	(226,651,546)	465,174,033	22,639,231
Total	(111,616,335)	$ 2,817,412,407	(101,840,050)	(232,239,350)	(428,264,966)	(171,164,633)	465,174,033	22,639,231

* *Based on a measurement date of June 30, 2023. Will be used for fiscal year ending June 30, 2024. Employers' proportionate share of calculations of the net pension liability, pension expense and deferred inflows and outflows are outside the scope of this report.*

** *Excludes amounts from the years ending June 30, 2014 through June 30, 2017 that were fully recognized before year ending June 30, 2023.*

Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods
Fiscal Year Ended June 30, 2023*

A. Outflows and Inflows of Resources due to Liabilities and Assets to be Recognized in Current Pension Expense

	Outflows of Resources	Inflows of Resources	Net Outflows (Inflows) of Resources
1. Due to Liabilities	$ 389,398,562	$ 578,470,303	$ (189,071,741)
2. Due to Assets	0	43,167,609	(43,167,609)
3. Total	$ 389,398,562	$ 621,637,912	$ (232,239,350)

B. Outflows and Inflows of Resources by Source to be Recognized in Current Pension Expense

	Outflows of Resources	Inflows of Resources	Net Outflows (Inflows) of Resources
1. Differences between expected and actual experience	$ 68,559,797	$ 16,396,728	$ 52,163,069
2. Assumption Changes	320,838,765	562,073,575	(241,234,810)
3. Net difference between projected and actual earnings on pension plan investments	0	43,167,609	(43,167,609)
4. Total	$ 389,398,562	$ 621,637,912	$ (232,239,350)

C. Deferred Outflows and Deferred Inflows of Resources by Source to be Recognized in Future Pension Expenses

	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows (Inflows) of Resources
1. Differences between expected and actual experience	$ 62,591,844	$ 12,277,871	$ 50,313,973
2. Assumption Changes	70,957,694	420,880,693	(349,922,999)
3. Net difference between projected and actual earnings on pension plan investments	187,992,691	0	187,992,691
4. Total	$ 321,542,229	$ 433,158,564	$ (111,616,335)

D. Deferred Outflows and Deferred Inflows of Resources by Year to be Recognized in Future Pension Expenses

Year Ending June 30	Net Deferred Outflows (Inflows) of Resources
2024	$ (428,264,966)
2025	(171,164,633)
2026	465,174,033
2027	22,639,231
2028	0
Thereafter	0
Total	$ (111,616,335)

* *Based on a measurement date of June 30, 2023. Will be used for fiscal year ending June 30, 2024. Employers' proportionate share of calculations of the net pension liability, pension expense and deferred inflows and outflows are outside the scope of this report.*

Statement of Fiduciary Net Position
as of June 30, 2023

Assets	
Cash and short-term investments	$ 237,096,814
Receivables	
Members	$ 12,060,620
Non-employer contributing entity	-
Federal, trust funds and other	6,670,893
Pending investment sales	28,349,977
Interest and dividends	65,494,336
Total Receivables	$ 112,575,826
Prepaid expenses	$ 213,682,809
Investments, at fair value	
Equity investments	$ 8,298,495,950
Fixed income investments	5,547,651,496
Real estate investments	2,600,700,821
Alternative investments	6,249,490,239
Total Investments	$ 22,696,338,506
Securities lending collateral	$ 3,287,942,382
Capital assets, at cost, net of accumulated depreciation	$ 22,237,138
Total Assets	$ 26,569,873,475
Liabilities	
Payables	
Benefits payable	$ 16,345,740
Refunds payable	3,891,456
Securities lending collateral	3,287,946,154
Reverse repurchase agreements	-
Payable to brokers for unsettled trades	56,010,310
Investment expenses payable	6,502,729
Administrative expenses payable	5,929,185
Total Liabilities	$ 3,376,625,574
Net Position Restricted for Pensions	$ 23,193,247,901

Statement of Changes in Fiduciary Net Position for Year Ended June 30, 2023

Additions	
Contributions	
Employer	$ 63,759,762
Non-employer contributing entity	2,074,951,940 [1]
Member	299,585,024
Total Contributions	$ 2,438,296,726
Investment Income	
Net Appreciation in Fair Value of Investments	$ 1,000,441,425
Interest	181,395,783
Dividends	261,258,010
Securities lending	3,901,358
Gross Investment Income	$ 1,446,996,576
Less investment expense	
Asset management expense	116,960,634
Securities lending expense	314,311
Net investment income	$ 1,329,721,631
Total Additions	$ 3,768,018,357
Deductions	
Benefits	$ 2,995,372,248
Refunds of contributions	79,236,365
Administrative expense	23,715,248
Total Deductions	$ 3,098,323,861
Net Increase in Net Position	$ 669,694,496
Net Position Restricted for Pensions	
Beginning of Year	$ 22,523,123,405
Impact of adoption of new accounting standards	$ 430,000
End of Year	$ 23,193,247,901

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

SECTION C

REQUIRED SUPPLEMENTARY INFORMATION

Auditor's Note: This information is intended to assist in preparation of the financial statements of the State Universities Retirement System of Illinois. Financial statements are the responsibility of management, subject to the auditor's review. Please let us know if the auditor recommends any changes.

Schedule of Changes in Net Pension Liability and Related Ratios
Current Reporting Period
Fiscal Year Ended June 30, 2023

A. Total pension liability		
1. Service cost	$	677,569,791
2. Interest on the total pension liability		3,221,915,693
3. Changes of benefit terms		119,703
4. Difference between expected and actual experience of the total pension liability		99,178,145
5. Changes of assumptions		112,434,018
6. Benefit payments, including refunds of employee contributions		(3,074,608,613)
7. Net change in total pension liability		1,036,608,737
8. Total pension liability – beginning		51,601,177,262
9. Total pension liability – ending	$	52,637,785,999
B. Plan fiduciary net position		
1. Contributions – employer & non-employer contributing entity	$	2,138,711,702
2. Contributions – employee		299,585,024
3. Net investment income		1,329,721,631
4. Benefit payments, including refunds of employee contributions		(3,074,608,613)
5. Pension plan administrative expense		(23,715,248)
6. Other		0
7. Net change in plan fiduciary net position		669,694,496
8. Plan fiduciary net position – beginning		22,523,123,405
8a. Impact of adoption of new accounting standards		430,000
9. Plan fiduciary net position – ending	$	23,193,247,901
C. Net pension liability	$	29,444,538,098
D. Plan fiduciary net position as a percentage of the total pension liability		44.06 %
E. Estimated covered-employee payroll	$	3,744,812,813
F. Net pension liability as a percentage of estimated covered-employee payroll		786.28 %

Schedules of Required Supplementary Information
Schedule of Changes in Net Pension Liability and Related Ratios Multiyear

Last 10 Fiscal Years

Fiscal year ending June 30,	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Total pension liability										
Service cost	$ 677,569,791	$ 723,509,163	$ 657,103,880	$ 634,453,468	$ 631,537,687	$ 628,356,344	$ 658,715,745	$ 666,374,861	$ 654,968,438	$ 675,257,078
Interest on the total pension liability	3,221,915,693	3,133,079,773	3,190,005,705	3,123,586,563	3,047,548,381	3,050,584,303	2,951,246,535	2,876,930,310	2,723,714,885	2,643,353,237
Changes of benefit terms	119,703	-	2,341,698	-	-	-	-	-	-	-
Difference between expected and actual experience	99,178,145	(45,071,327)	109,919,610	167,491,408	254,283,755	(281,807,425)	210,625,398	(3,426,377)	40,408,204	-
Changes of assumptions	112,434,018	(1,545,027,843)	960,402,037	618,763,571	327,945,723	1,992,356,758	(396,096,848)	532,522,898	831,624,586	130,585,622
Benefit payments	(2,995,372,248)	(2,879,643,912)	(2,780,374,481)	(2,676,192,703)	(2,558,990,197)	(2,446,291,238)	(2,339,897,357)	(2,235,812,995)	(2,129,977,721)	(2,002,869,428)
Refunds	(79,236,365)	(82,458,931)	(79,128,037)	(69,001,514)	(80,538,398)	(93,492,132)	(89,569,617)	(85,015,923)	(83,715,720)	(82,897,092)
Net change in total pension liability	1,036,608,737	(695,613,077)	2,060,270,412	1,799,100,793	1,621,786,951	2,849,706,610	995,023,856	1,751,572,774	2,037,022,672	1,363,429,417
Total pension liability - beginning	51,601,177,262	52,296,790,339	50,236,519,927	48,437,419,134	46,815,632,183	43,965,925,573	42,970,901,717	41,219,328,943	39,182,306,271	37,818,876,854
Total pension liability - ending (a)	$ 52,637,785,999	$ 51,601,177,262	$ 52,296,790,339	$ 50,236,519,927	$ 48,437,419,134	$ 46,815,632,183	$ 43,965,925,573	$ 42,970,901,717	$ 41,219,328,943	$ 39,182,306,271
Plan fiduciary net position										
Employer & non-employer contributing entity contributions	$ 2,138,711,702	$ 2,136,059,142	$ 1,978,743,433	$ 1,838,786,080	$ 1,642,054,264	$ 1,607,880,320	$ 1,650,550,710	$ 1,582,294,952	$ 1,528,525,398	$ 1,502,863,618
Employee contributions	299,585,024	289,070,662	288,476,321	282,367,290	280,017,618	282,726,126	278,642,830	278,883,776	267,682,083	283,081,326
Pension plan net investment income	1,329,721,631	(685,632,964)	4,762,969,585	542,177,767	1,129,812,762	1,499,829,456	1,994,310,048	17,043,679	503,199,957	2,667,900,403
Benefit payments	(2,995,372,248)	(2,879,643,912)	(2,780,374,481)	(2,676,192,703)	(2,558,990,197)	(2,446,291,238)	(2,339,897,357)	(2,235,812,995)	(2,129,977,721)	(2,002,869,428)
Refunds	(79,236,365)	(82,458,931)	(79,128,037)	(69,001,514)	(80,538,398)	(93,492,132)	(89,569,617)	(85,015,923)	(83,715,720)	(82,897,092)
Pension plan administrative expense	(23,715,248)	(22,583,852)	(19,389,167)	(18,469,275)	(16,083,589)	(14,396,609)	(14,847,009)	(14,731,372)	(14,069,273)	(13,857,522)
Other	-	-	-	-	-	-	-	-	-	-
Net change in plan fiduciary net position	669,694,496	(1,245,189,855)	4,151,297,654	(100,332,355)	396,272,460	836,255,923	1,479,189,605	(457,337,883)	71,644,724	2,354,221,305
Plan fiduciary net position - beginning	22,523,123,405	23,768,313,260	19,617,015,606	19,717,347,961	19,321,075,501	18,484,819,578	17,005,629,973	17,462,967,856	17,391,323,132	15,037,101,827
Impact of adoption of new accounting standards	430,000	-	-	-	-	-	-	-	-	-
Plan fiduciary net position - ending (b)	$ 23,193,247,901	$ 22,523,123,405	$ 23,768,313,260	$ 19,617,015,606	$ 19,717,347,961	$ 19,321,075,501	$ 18,484,819,578	$ 17,005,629,973	$ 17,462,967,856	$ 17,391,323,132
Net pension liability - ending (a) - (b)	$ 29,444,538,098	$ 29,078,053,857	$ 28,528,477,079	$ 30,619,504,321	$ 28,720,071,173	$ 27,494,556,682	$ 25,481,105,995	$ 25,965,271,744	$ 23,756,361,087	$ 21,790,983,139
Plan fiduciary net position as a percentage of total pension liability	44.06 %	43.65 %	45.45 %	39.05 %	40.71 %	41.27 %	42.04 %	39.57 %	42.37 %	44.39 %
Estimated Covered-employee payroll	$ 3,744,812,813	$ 3,613,383,275	$ 3,638,243,951	$ 3,642,617,015	$ 3,506,649,518	$ 3,470,226,046	$ 3,458,319,586	$ 3,513,107,948	$ 3,606,536,514	$ 3,522,245,937
Net pension liability as a percentage of estimated covered-employee payroll	786.28 %	804.73 %	784.13 %	840.59 %	819.02 %	792.30 %	736.81 %	739.10 %	658.70 %	618.67 %
Single Discount Rate, Beginning of Year	6.39 %	6.12 %	6.49 %	6.59 %	6.65 %	7.09 %	7.01 %	7.12 %	7.09 %	7.12 %
Single Discount Rate, End of Year	6.37 %	6.39 %	6.12 %	6.49 %	6.59 %	6.65 %	7.09 %	7.01 %	7.12 %	7.09 %
Long-Term Municipal Bond Rate	3.86 %	3.69 %	1.92 %	2.45 %	3.13 %	3.62 %	3.56 %	2.85 %	3.80 %	4.29 %
Long-Term Municipal Bond Rate Date	June 30, 2023	June 30, 2022	June 30, 2021	June 30, 2020	June 28, 2019	June 29, 2018	June 30, 2017	June 30, 2016	June 25, 2015	June 26, 2014

Defined benefit payroll for fiscal years ending 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%. Estimated 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 (3.00% beginning in 2021, 3.25% for 2018 to 2020 and 3.75% prior to 2018).

Schedules of Required Supplementary Information
Schedule of the Net Pension Liability Multiyear

Last 10 Fiscal Years

FY Ending June 30,	Total Pension Liability	Plan Net Position	Net Pension Liability	Plan Net Position as a % of Total Pension Liability	Estimated Covered Payroll	Net Pension Liability as a % of Estimated Covered Payroll
2014	$ 39,182,306,271	$ 17,391,323,132	$ 21,790,983,139	44.39 %	$ 3,522,245,937	618.67 %
2015	41,219,328,943	17,462,967,856	23,756,361,087	42.37 %	3,606,536,514	658.70 %
2016	42,970,901,717	17,005,629,973	25,965,271,744	39.57 %	3,513,107,948	739.10 %
2017	43,965,925,573	18,484,819,578	25,481,105,995	42.04 %	3,458,319,586	736.81 %
2018	46,815,632,183	19,321,075,501	27,494,556,682	41.27 %	3,470,226,046	792.30 %
2019	48,437,419,134	19,717,347,961	28,720,071,173	40.71 %	3,506,649,518	819.02 %
2020	50,236,519,927	19,617,015,606	30,619,504,321	39.05 %	3,642,617,015	840.59 %
2021	52,296,790,339	23,768,313,260	28,528,477,079	45.45 %	3,638,243,951	784.13 %
2022	51,601,177,262	22,523,123,405	29,078,053,857	43.65 %	3,613,383,275	804.73 %
2023	52,637,785,999	23,193,247,901	29,444,538,098	44.06 %	3,744,812,813	786.28 %

Defined benefit payroll for fiscal years ending 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%. Estimated 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 (3.00% beginning in 2021, 3.25% for 2018 to 2020 and 3.75% prior to 2018).

Schedule of Contributions Multiyear
Last 10 Fiscal Years
($ in 000s)

FY Ending June 30,	Actuarially Determined Contribution	Actual Contribution	Contribution Deficiency (Excess)	Estimated Covered Payroll	Actual Contribution as a % of Estimated 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 normal cost plus 29-year closed period amortization of the unfunded actuarial accrued liability (from June 30, 2016) as a level percentage of pensionable (capped) payroll.

Contributions include combined amounts from both the employers and the State.

Defined benefit payroll for fiscal years ending 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%. Estimated 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 (3.00% beginning in 2021, 3.25% for 2018 to 2020 and 3.75% prior to 2018).

Notes to Schedule of Contributions

Valuation Date:	June 30, 2022
Notes	Actuarially determined contributions are calculated as of June 30, which is at the beginning of the fiscal year to which they apply.

Methods and Assumptions Used for Actuarially Determined Contributions:

Actuarial Cost Method	Projected Unit Credit
Amortization Method	Level Percentage of Defined Benefit Plan Pensionable (Capped) Payroll
Remaining Amortization Period	22 Years Remaining for Fiscal Year 2023
Asset Valuation Method	5-Year smoothed market.
Inflation	2.25%.
Salary Increases	3.00% to 12.75% including inflation.
Investment Rate of Return	6.50% beginning with the actuarial valuation as of June 30, 2021.
Retirement Age	Experience-based table of rates. Last updated for the 2021 actuarial valuation pursuant to an experience study of the period 2018-2020.
Mortality	Members classified as an employee type of academic: Non-disabled post-retirement mortality uses Pub-2010 Healthy Retiree Mortality (for Teachers), sex distinct with rates for males multiplied by 99% and rates for females multiplied by 105%. Disabled post-retirement mortality uses Pub-2010 Disabled Retiree Mortality Table (for Non-Safety Employees), sex distinct with rates for males multiplied by 112% and rates for females multiplied by 110%. Pre-retirement mortality uses Pub-2010 Employee Mortality Table (for Teachers), sex distinct with rates multiplied by 101% for males and multiplied by 97% for females. Members classified as an employee type of non-academic: Non-disabled post-retirement mortality uses Pub-2010 Healthy Retiree Mortality (for General Employees), sex distinct with rates for males multiplied by 99% and rates for females multiplied by 107%. Disabled post-retirement mortality uses Pub-2010 Disabled Retiree Mortality Table (for Non-Safety Employees), sex distinct with rates for males multiplied by 112% and rates for females multiplied by 110%. Pre-retirement mortality uses Pub-2010 Employee Mortality Table (for General Employees), sex distinct with rates multiplied by 114% for males and multiplied by 105% for females. The provision for future mortality improvement is based on the generational application of the MP-2020 improvement scales from 2010.
Cost-of-Living Adjustment	3.00% compound for members hired before January 1, 2011. The lesser of 1/2 of CPI-U or 3.00% simple for members hired on or after January 1, 2011.

Other Information:

Notes	The actuarially determined contribution for fiscal year ending June 30, 2023 was determined in the funding actuarial valuation as of June 30, 2022 and the statutory contribution (upon which the actual contribution was based) for fiscal year ending June 30, 2023 was determined in the funding actuarial valuation as of June 30, 2021. The total pension liability as of June 30, 2023 and projected future contributions for purposes of calculating the single discount rate were based on the same actuarial assumptions first effective with the funding actuarial valuation as of June 30, 2021. The GASB Statement Nos. 67 and 68 actuarial valuation does not include provisions related to the Option Hybrid Plan created under PA 100-0023 which became effective July 6, 2017. SURS is currently not moving forward with implementation of the OHP.

Schedule of Investment Returns Multiyear
Last 10 Fiscal Years

FY Ending June 30,	Annual Return[1]
2014	
2015	
2016	
2017	
2018	
2019	
2020	
2021	
2022	
2023	

[1] *Annual money-weighted rate of return, net of investment expenses.*

To be provided by SURS.

SECTION D

NOTES TO FINANCIAL STATEMENTS

Auditor's Note: This information is intended to assist in preparation of the financial statements of the State Universities Retirement System of Illinois. Financial statements are the responsibility of management, subject to the auditor's review. Please let us know if the auditor recommends any changes.

Single Discount Rate

A Single Discount Rate of 6.37% was used to measure the total pension liability. This Single Discount Rate was based on an expected rate of return on pension plan investments of 6.50% and a municipal bond rate of 3.86%. The projection of cash flows used to determine this Single Discount Rate were the amounts of contributions attributable to current plan members, and assumed that plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the statutory contribution rates under the System's funding policy. Based on these assumptions, the pension plan's fiduciary net position and future contributions were sufficient to fully finance the benefit payments through the year 2074. As a result, the long-term expected rate of return on pension plan investments was applied to fully funded projected benefit payments, and the municipal bond rate was applied to all unfunded projected benefit payments.

Regarding the sensitivity of the net pension liability to changes in the Single Discount Rate, the following presents the plan's net pension liability, calculated using a Single Discount Rate of 6.37%, as well as what the plan's net pension liability would be if it were calculated using a Single Discount Rate that is one percent lower or one percent higher:

Sensitivity of Net Pension Liability to the Single Discount Rate Assumption

	1% Decrease 5.37%	Current Single Discount Rate Assumption 6.37%	1% Increase 7.37%
Total Pension Liability (TPL)	$ 58,888,682,583	$ 52,637,785,999	$ 47,429,737,219
Net Position Restricted for Pensions	23,193,247,901	23,193,247,901	23,193,247,901
Net Pension Liability (NPL)	$ 35,695,434,682	$ 29,444,538,098	$ 24,236,489,318

Summary of Population Statistics as of June 30, 2022

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	71,458
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	87,829
Active Plan Members	60,281
Total Plan Members	219,568

Excludes RSP.

SECTION E

SUMMARY OF BENEFITS

It should be noted that the purpose of this Section 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.

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) has been 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.

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.

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 Tier 1 police officers and firefighters, separation from service on or after the attainment of the earlier of:

1. Age 55 with 20 years of service; or
2. Age 50 with 25 years of service.

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

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

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); or
3. Minimum Benefit (Applicable to all Tiers).

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

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	Tier 1 and Tier 2 Police/Fire
1st 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.

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 they 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 page 33 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 50% 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 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 table on the following page.

Calendar Year [1]	CPI-U [2]	½ CPI-U [2]	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%

[1]*Increase effective January 1.*

[2]*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.

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.

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 50% 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.

Traditional Plan

Benefit

With Eligible Survivor

- 7/8$^{\text{ths}}$ 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.

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.

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.

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.

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. Disability is defined in accordance with the Social Security disability definition.

Benefit

35% of the compensation being earned at disablement.

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 50% 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 item 2 under Accelerated Pension Benefit Options on pages 33 and 34 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 50% 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 (simple COLA) payable as of the later of age 67 or the first anniversary of the annuity start. The survivor AAI is first payable one 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.

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

SECTION F

ACTUARIAL COST METHOD AND ACTUARIAL ASSUMPTIONS

Valuation Methods – Calculation of the Total Pension Liability
Entry Age Normal Method

Actuarial Cost Method – Normal cost and the allocation of benefit values between service rendered before and after the valuation date were determined using an Individual Entry-Age Actuarial Cost Method having the following characteristics:

(i) The annual normal cost for each individual active member, payable from the date of employment to the date of retirement, is sufficient to accumulate the value of the member's benefit at the time of retirement; and

(ii) Each annual normal cost is a constant percentage of the member's year by year projected covered pay.

Valuation Methods – Calculation of Contributions
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.

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%, 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%. Prior to the effective date of Public Act 100-0587, the payment from employers was for pay increases in excess of 6%.

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

Following 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.

Valuation Year Ending 6/30	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
Applicable Fiscal Year Ending 6/30	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**
	$ in Millions					
	After Impact of Bonds					
Contribution Before Assumption Change:						
(1) Contribution Dollar	$ 2,159.5	$ 2,186.0				
(2) Contribution Rate	43.41%	42.24%				
Contribution After Assumption Change:						
(3) Contribution Dollar	2,146.5	2,186.0				
(4) Contribution Rate	42.98%	42.24%				
(5) Assumption Impact as Percentage of Payroll						
=(4)-(2)	-0.43%	0.00%				
(6) Assumption Change Impact Recognized						
This Year (5 year recognition)						
(6a) From This Year	-0.09%	0.00%				
(6b) From One Year Ago	0.00%	-0.09%	0.00%			
(6c) From Two Years Ago	0.00%	0.00%	-0.09%	0.00%		
(6d) From Three Years Ago	0.67%	0.00%	0.00%	-0.09%	0.00%	
(6e) From Four Years Ago	0.00%	0.68%	0.00%	0.00%	-0.07%	0.00%
(6f) Total Recognized Assumption Change Impact	0.58%	0.59%	-0.09%	-0.09%	-0.07%	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					
	Governor's Pay		Pay for Preceding Fiscal Year for Affected Members					
Contribution Year	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	2016	$ 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

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

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	6.50%

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. The rates are based on service at the beginning of the year and are as follows:

	Total Increase	
Service Year	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%

Payroll Growth. 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 back from 2010 using the 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:

	Future Life Expectancy (years) in 2022				Future Life Expectancy (years) in 2035			
	Academic		Non-Academic		Academic		Non-Academic	
Age	Male	Female	Male	Female	Male	Female	Male	Female
35	53.50	55.24	51.10	53.42	54.48	56.13	52.30	54.46
40	48.25	49.98	45.83	48.12	49.23	50.88	47.03	49.17
45	43.02	44.74	40.59	42.84	43.99	45.64	41.77	43.88
50	37.81	39.51	35.48	37.67	38.78	40.41	36.63	38.70
55	32.69	34.38	30.59	32.72	33.65	35.27	31.70	33.72
60	27.72	29.44	25.87	27.89	28.65	30.29	26.92	28.84
65	22.96	24.63	21.37	23.20	23.82	25.42	22.32	24.07
70	18.43	19.96	17.12	18.71	19.19	20.67	17.93	19.48
75	14.23	15.54	13.19	14.51	14.87	16.17	13.87	15.17

Disability. A table of disability incidence with rates follows:

	Academic		Non-Academic	
Age	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.

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

	Tier 1					
	Normal (Unreduced) Retirement				Early (Reduced) Retirement	
	Academic		Non-Academic		Academic	Non-Academic
Age	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%		

Tier 2					
	Normal (Unreduced) Retirement			Early (Reduced) Retirement	
Age	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%		

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).

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.

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 2024 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 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 38.0 and average capped pay of $48,903 and average uncapped pay of $50,949 (2022 dollars). These values are based on the average age and average pay of current members. The new entrant data is based on the age at hire and assumed pay at hire (using the actuarial assumptions, inflated to 2022 dollars) of current active members with hire dates between July 1, 2018 and July 1, 2021.

Academic

Summary of New Entrants - Academic									
		Average Pay			Average Pay			Average Pay	
Age	Number Males	Tier 2 Capped Male	Uncapped Male	Number Females	Tier 2 Capped Female	Uncapped Female	Total Number	Tier 2 Capped Total	Uncapped Total
<20	-	$ -	$ -	-	$ -	$ -	-	$ -	$ -
20 - 24	47	32,155	32,155	49	30,508	30,508	96	31,314	31,314
25 - 29	234	43,834	44,728	305	42,792	43,265	539	43,244	43,900
30 - 34	440	66,976	73,388	613	54,723	57,981	1,053	59,843	64,419
35 - 39	465	61,015	67,456	511	55,080	58,194	976	57,907	62,607
40 - 44	309	57,961	65,611	354	49,211	52,250	663	53,289	58,477
45 - 49	227	49,920	56,773	263	45,480	49,575	490	47,537	52,909
50 - 54	138	52,182	57,487	180	42,862	44,825	318	46,907	50,320
55 - 59	135	52,585	62,936	132	43,288	50,437	267	47,988	56,757
60 - 64	95	38,475	49,256	81	36,951	40,719	176	37,773	45,327
65 - 69	13	36,770	43,819	6	55,062	79,530	19	42,546	55,096
Total	2,103	$55,770	$62,042	2,494	$49,067	$52,128	4,597	$52,133	$56,663

Non-Academic

Summary of New Entrants - Non-Academic									
		Average Pay			Average Pay			Average Pay	
Age	Number Males	Tier 2 Capped Male	Uncapped Male	Number Females	Tier 2 Capped Female	Uncapped Female	Total Number	Tier 2 Capped Total	Uncapped Total
<20	14	$22,837	$22,837	21	$19,503	$19,503	35	$20,837	$20,837
20 - 24	453	35,466	35,466	705	34,135	34,135	1,158	34,656	34,656
25 - 29	1,040	44,798	44,841	1,633	44,284	44,287	2,673	44,484	44,503
30 - 34	967	51,711	53,506	1,382	48,857	49,474	2,349	50,032	51,134
35 - 39	633	56,172	58,066	1,091	48,926	49,439	1,724	51,587	52,608
40 - 44	460	57,646	59,793	856	49,876	51,073	1,316	52,592	54,121
45 - 49	413	55,503	58,590	725	47,944	49,205	1,138	50,687	52,611
50 - 54	357	54,799	58,706	585	46,671	47,962	942	49,751	52,034
55 - 59	282	57,611	63,494	457	44,192	45,475	739	49,313	52,351
60 - 64	147	51,804	58,131	202	44,118	48,430	349	47,356	52,516
65 - 69	7	52,283	52,283	9	38,367	40,377	16	44,455	45,586
Total	4,773	$50,653	$52,586	7,666	$45,904	$46,632	12,439	$47,726	$48,917

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 2023 are $1,122,835 and actual FY 2022 RSP employer forfeitures used to reduce the certified contributions for FY 2024 are $8,393,643 (as provided by SURS). Estimated RSP expenses for FY 2024 and after are assumed to increase by 3.00%. Estimated RSP employer forfeitures used to reduce the certified contributions for FY 2025 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 $184,800 as of June 30, 2022, and budgeted as $190,700 for fiscal year ending June 30, 2023, 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%).

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 and 101-0010. 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, 101-0010 and 102-0718.

	$ in millions Buyout Activity from Inception Through								
	5/31/2020			6/30/2021			6/30/2022		
	AAI	VIB	Total	AAI	VIB	Total	AAI	VIB	Total
Number Eligible for the buyout*	2,454	23,669	26,123	5,765	23,669	29,434	8,862	23,669	32,531
Buyout applications received	80	59	139	221	94	315	338	120	458
Buyout election forms sent	22	31	53	106	67	173	203	96	299
Buyout election forms approved	14	19	33	72	42	114	136	67	203
Application %	3.3%	0.2%	0.5%	3.8%	0.4%	1.1%	3.8%	0.5%	1.4%
Approved %	0.6%	0.1%	0.1%	1.2%	0.2%	0.4%	1.5%	0.3%	0.6%
Approved buyout amount**	$1.4	$3.0	$4.3	$6.8	$17.5	$24.3	$13.0	$21.1	$34.2
Estimated Approved buyout (non EBA)	1.4	3.0	4.3	6.8	9.1	15.9	13.0	12.7	25.8
Estimated Liability Reduction	2.0	4.9	6.9	9.6	15.2	24.8	18.6	21.2	39.9

* *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:

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

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

SECTION G

CALCULATION OF THE SINGLE DISCOUNT RATE

Calculation of the Single Discount Rate

GASB Statement No. 67 includes a specific requirement for the discount rate that is used for the purpose of the measurement of the Total Pension Liability. This rate considers the ability of the Fund to meet benefit obligations in the future. To make this determination, employer contributions, employee contributions, benefit payments, expenses and investment returns are projected into the future. The Plan Net Position (assets) in future years can then be determined and compared to its obligation to make benefit payments in those years. As long as assets are projected to be on hand in a future year, the assumed valuation discount rate is used. In years where assets are not projected to be sufficient to meet benefit payments, the use of a municipal bond rate is required, as described in the following paragraph.

The Single Discount Rate (SDR) is equivalent to applying these two rates to the benefits that are projected to be paid during the different time periods. The SDR reflects (1) the long-term expected rate of return on pension plan investments (during the period in which the fiduciary net position is projected to be sufficient to pay benefits) and (2) a tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating as of the measurement date (to the extent that the contributions for use with the long-term expected rate of return are not met).

For the purpose of this valuation, the expected rate of return on pension plan investments is 6.50%; the municipal bond rate is 3.86%; and the resulting Single Discount Rate is 6.37%.

The tables in this section provide detailed information on the development of the Single Discount Rate.

The **Projection of Contributions** table shows the development of expected contributions in future years. Normal Cost contributions for future hires are not included (nor are their liabilities).

The **Projection of Plan Fiduciary Net Position** table shows the development of expected asset levels in future years.

The **Present Values of Projected Benefit Payments** table shows the development of the Single Discount Rate (SDR). It breaks down the benefit payments into present values for funded and unfunded portions and shows the equivalent total at the SDR.

As shown on page 55, the sum of the present value of (1) the funded portion of projected benefit payments using the expected 6.50% rate of return on assets plus (2) the present value of the unfunded projected benefit payments using a tax-exempt municipal bond rate of 3.86% is equal to the present value of all projected benefit payments using a single equivalent discount rate of 6.37%.

Single Discount Rate Development
Projection of Contributions Ending June 30 for 2023 to 2082

Year Ending June 30,	Projected Contributions from Current Employees	Projected Service Cost and Expense Contributions	Projected UAL Contributions	Projected Total Contributions
2023	$ 282,808,711	$ 406,036,815	$ 1,685,865,159	$ 2,374,710,685
2024	266,470,334	379,912,603	1,717,783,631	2,364,166,568
2025	250,924,652	355,211,624	1,771,353,018	2,377,489,293
2026	237,134,797	331,456,768	1,824,938,926	2,393,530,491
2027	224,827,309	309,599,411	1,869,777,627	2,404,204,348
2028	213,375,594	289,411,059	1,967,847,492	2,470,634,145
2029	202,324,855	270,289,668	2,033,127,534	2,505,742,057
2030	191,693,353	251,669,427	2,095,555,768	2,538,918,548
2031	181,329,045	233,668,456	2,159,526,415	2,574,523,916
2032	171,341,266	216,173,420	2,230,175,276	2,617,689,962
2033	161,846,112	199,411,135	2,308,128,717	2,669,385,965
2034	152,795,883	183,563,279	2,402,879,238	2,739,238,399
2035	143,925,439	168,577,619	2,476,792,351	2,789,295,409
2036	135,191,786	154,243,715	2,550,708,882	2,840,144,383
2037	126,555,946	140,509,924	2,625,112,438	2,892,178,309
2038	118,180,097	127,303,501	2,700,682,003	2,946,165,600
2039	110,251,790	114,830,914	2,777,310,686	3,002,393,390
2040	102,647,563	103,315,073	2,854,835,838	3,060,798,475
2041	95,760,321	92,656,830	2,933,890,266	3,122,307,417
2042	89,418,717	83,280,634	3,013,799,629	3,186,498,980
2043	83,579,637	74,950,722	3,094,556,173	3,253,086,532
2044	77,985,404	67,611,319	3,175,652,881	3,321,249,603
2045	72,630,952	60,961,847	3,257,327,009	3,390,919,808
2046	67,492,106	54,939,466	415,206,261	537,637,834
2047	62,505,577	49,461,846	415,090,992	527,058,415
2048	57,536,596	44,478,308	414,982,250	516,997,155
2049	52,609,391	39,854,202	414,827,879	507,291,471
2050	47,750,117	35,530,622	414,771,263	498,052,002
2051	42,857,382	31,529,116	414,760,037	489,146,534
2052	38,109,520	27,737,444	414,743,884	480,590,848
2053	33,445,103	24,266,045	414,879,806	472,590,954
2054	28,997,460	20,986,910	415,147,728	465,132,098
2055	24,852,746	17,960,731	415,699,657	458,513,135
2056	20,938,196	15,241,962	416,515,871	452,696,030
2057	17,345,963	12,732,381	417,446,888	447,525,232
2058	14,063,400	10,480,661	418,462,926	443,006,988
2059	11,090,448	8,465,451	419,605,825	439,161,723
2060	8,518,594	6,654,577	420,786,409	435,959,580
2061	6,279,632	5,119,055	422,104,426	433,503,113
2062	4,486,703	3,767,024	423,604,710	431,858,436
2063	3,159,232	2,681,369	425,250,346	431,090,947
2064	2,178,194	1,888,735	426,995,380	431,062,310
2065	1,481,558	1,302,577	428,828,101	431,612,237
2066	999,299	885,478	430,725,113	432,609,890
2067	677,337	594,016	432,652,693	433,924,045
2068	455,545	402,591	434,599,879	435,458,015
2069	302,911	270,868	436,600,031	437,173,810
2070	200,170	179,854	438,667,748	439,047,773
2071	131,145	118,503	440,817,402	441,067,050
2072	85,523	77,165	443,081,482	443,244,170
2073	56,010	50,119	445,494,405	445,600,534
2074	35,560	32,802	448,084,594	448,152,956
2075	22,076	20,415	450,891,623	450,934,113
2076	12,970	12,270	453,950,394	453,975,634
2077	7,188	6,723	457,296,629	457,310,540
2078	3,484	3,668	460,958,488	460,965,640
2079	1,506	1,724	464,965,219	464,968,449
2080	605	691	469,333,331	469,334,627
2081	252	232	474,072,285	474,072,768
2082	71	96	479,182,753	479,182,921

The projections in this report are strictly for the purpose of determining the GASB single discount rate and are different from a funding projection for the ongoing plan.

Single Discount Rate Development
Projection of Plan Fiduciary Net Position Ending June 30 for 2023 to 2082

Year Ending June 30,	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 6.500%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
2023	$ 22,523,123,405	$ 2,374,710,685	$ 3,139,189,638	$ 28,118,000	$ 1,438,649,135	$ 23,169,175,587
2024	23,169,175,587	2,364,166,568	3,225,689,829	26,904,430	1,477,577,058	23,758,324,953
2025	23,758,324,953	2,377,489,293	3,327,753,607	25,705,310	1,513,071,443	24,295,426,773
2026	24,295,426,773	2,393,530,491	3,420,248,575	24,560,613	1,545,574,046	24,789,722,122
2027	24,789,722,122	2,404,204,348	3,506,336,270	23,536,567	1,575,323,636	25,239,377,268
2028	25,239,377,268	2,470,634,145	3,592,300,415	22,589,982	1,603,956,628	25,699,077,643
2029	25,699,077,643	2,505,742,057	3,674,189,695	21,683,667	1,632,369,684	26,141,316,022
2030	26,141,316,022	2,538,918,548	3,756,378,667	20,783,099	1,659,576,157	26,562,648,960
2031	26,562,648,960	2,574,523,916	3,835,636,933	19,903,045	1,685,594,564	26,967,227,463
2032	26,967,227,463	2,617,689,962	3,911,586,296	19,038,036	1,710,871,152	27,365,164,245
2033	27,365,164,245	2,669,385,965	3,981,249,212	18,198,188	1,736,189,176	27,771,291,985
2034	27,771,291,985	2,739,238,399	4,042,796,315	17,378,020	1,762,879,389	28,213,235,438
2035	28,213,235,438	2,789,295,409	4,099,692,505	16,579,921	1,791,412,469	28,677,670,891
2036	28,677,670,891	2,840,144,383	4,150,268,463	15,783,354	1,821,634,988	29,173,398,444
2037	29,173,398,444	2,892,178,309	4,193,158,080	14,982,795	1,854,175,399	29,711,611,276
2038	29,711,611,276	2,946,165,600	4,145,542,787	14,179,625	1,892,435,026	30,390,489,490
2039	30,390,489,490	3,002,393,390	4,167,418,176	13,394,219	1,937,686,111	31,149,756,596
2040	31,149,756,596	3,060,798,475	4,181,590,483	12,633,640	1,988,477,737	32,004,808,685
2041	32,004,808,685	3,122,307,417	4,182,593,560	11,910,201	2,046,014,749	32,978,627,091
2042	32,978,627,091	3,186,498,980	4,171,535,439	11,240,516	2,111,741,482	34,094,091,597
2043	34,094,091,597	3,253,086,532	4,149,566,933	10,618,103	2,187,099,349	35,374,092,442
2044	35,374,092,442	3,321,249,603	4,118,259,289	10,028,213	2,273,500,180	36,840,554,724
2045	36,840,554,724	3,390,919,808	4,077,849,742	9,456,346	2,372,359,794	38,516,528,238
2046	38,516,528,238	537,637,834	4,031,237,956	8,900,519	2,391,535,042	37,405,562,639
2047	37,405,562,639	527,058,415	3,978,377,003	8,356,176	2,320,692,208	36,266,580,082
2048	36,266,580,082	516,997,155	3,921,809,463	7,812,508	2,248,163,393	35,102,118,659
2049	35,102,118,659	507,291,471	3,862,669,318	7,261,052	2,174,072,369	33,913,552,130
2050	33,913,552,130	498,052,002	3,802,253,976	6,703,895	2,098,470,400	32,701,116,661
2051	32,701,116,661	489,146,534	3,741,117,697	6,136,508	2,021,351,023	31,464,360,013
2052	31,464,360,013	480,590,848	3,679,460,993	5,561,330	1,942,678,855	30,202,607,393
2053	30,202,607,393	472,590,954	3,617,787,323	4,986,587	1,862,400,256	28,914,824,692
2054	28,914,824,692	465,132,098	3,555,872,770	4,416,257	1,780,454,574	27,600,122,337
2055	27,600,122,337	458,513,135	3,493,343,290	3,866,204	1,696,805,002	26,258,230,981
2056	26,258,230,981	452,696,030	3,429,719,361	3,338,381	1,611,448,095	24,889,317,363
2057	24,889,317,363	447,525,232	3,363,354,660	2,835,061	1,524,442,303	23,495,095,177
2058	23,495,095,177	443,006,988	3,293,176,305	2,363,209	1,435,933,315	22,078,495,966
2059	22,078,495,966	439,161,723	3,219,608,678	1,923,367	1,346,098,741	20,642,224,385
2060	20,642,224,385	435,959,580	3,140,428,515	1,523,979	1,255,184,277	19,191,415,749
2061	19,191,415,749	433,503,113	3,056,090,554	1,169,356	1,163,512,315	17,731,171,267
2062	17,731,171,267	431,858,436	2,966,776,451	864,941	1,071,410,564	16,266,798,876
2063	16,266,798,876	431,090,947	2,870,298,599	624,502	979,295,668	14,806,262,390
2064	14,806,262,390	431,062,310	2,767,412,503	443,255	887,656,837	13,357,125,780
2065	13,357,125,780	431,612,237	2,658,961,111	309,024	796,954,026	11,926,421,908
2066	11,926,421,908	432,609,890	2,545,487,702	212,996	707,623,089	10,520,954,189
2067	10,520,954,189	433,924,045	2,427,403,980	146,363	620,089,163	9,147,417,054
2068	9,147,417,054	435,458,015	2,305,626,492	100,585	534,755,246	7,811,903,239
2069	7,811,903,239	437,173,810	2,181,599,280	68,500	451,970,188	6,519,379,457
2070	6,519,379,457	439,047,773	2,056,156,112	46,218	372,029,523	5,274,254,423
2071	5,274,254,423	441,067,050	1,929,990,812	30,969	295,197,300	4,080,496,992
2072	4,080,496,992	443,244,170	1,803,858,924	20,607	221,707,794	2,941,569,425
2073	2,941,569,425	445,600,534	1,678,451,696	13,698	151,764,673	1,860,469,239
2074	1,860,469,239	448,152,956	1,554,467,937	9,022	85,540,997	839,686,232
2075	839,686,232	450,934,113	1,432,594,931	5,781	23,177,689	0
2076	0	453,975,634	1,313,519,734	3,580	0	0
2077	0	457,310,540	1,197,910,162	2,098	0	0
2078	0	460,965,640	1,086,417,368	1,132	0	0
2079	0	464,968,449	979,640,201	540	0	0
2080	0	469,334,627	878,119,233	233	0	0
2081	0	474,072,768	782,304,706	96	0	0
2082	0	479,182,921	692,554,202	37	0	0

The projections in this report are strictly for the purpose of determining the GASB single discount rate and are different from a funding projection for the ongoing plan.

Single Discount Rate Development
Present Values of Projected Benefits Ending June 30 for 2023 to 2122

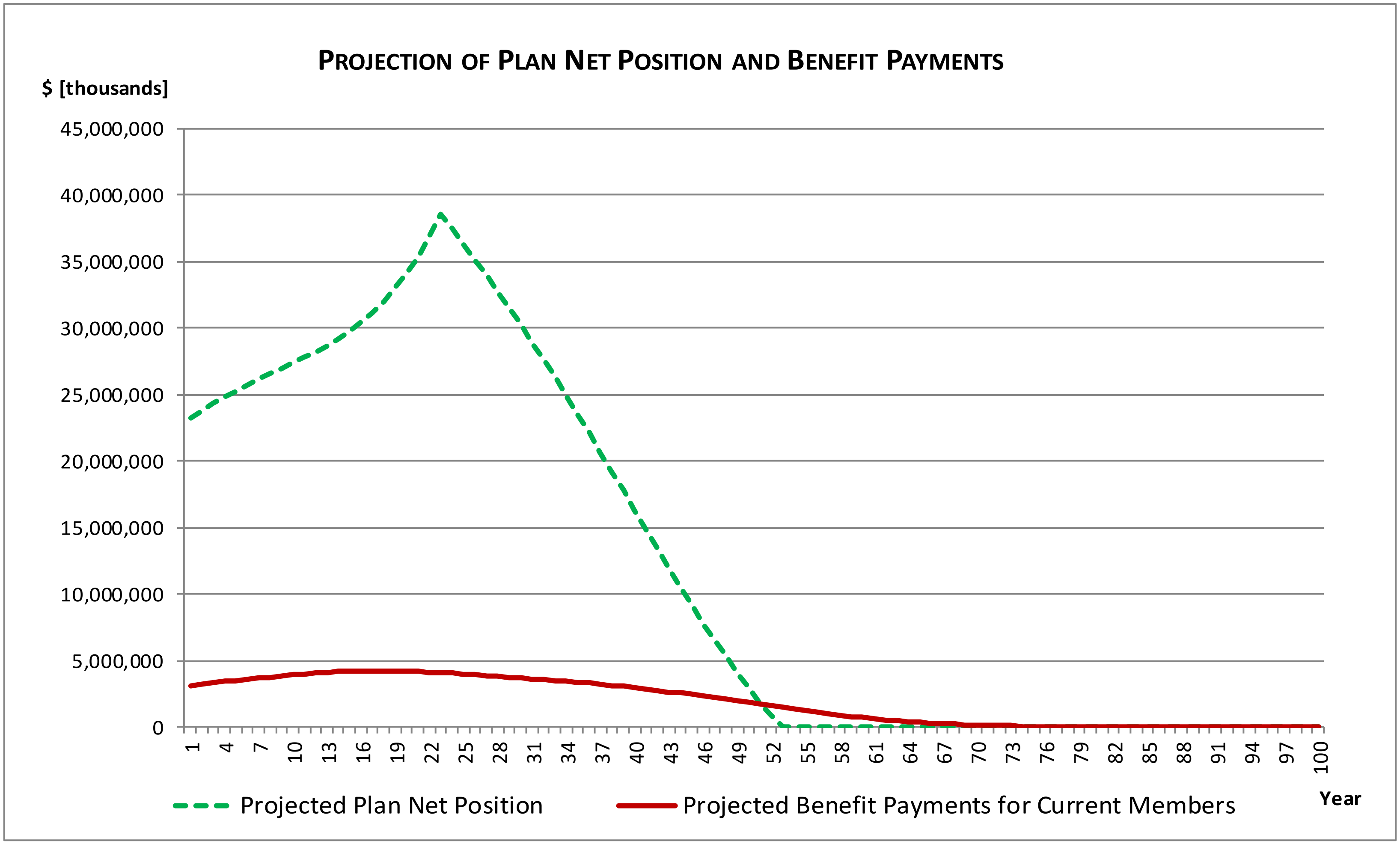
Year Ending June 30,	Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Projected Benefit Payments	Unfunded Portion of Projected Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate of 6.50% (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate of 3.86% (vf)	Present Value of All Benefit Payments using Single Discount Rate (SDR) of 6.37%
	(a)	(b)	(c)	(d)	(e)	(f)=(d)*v^((a)-.5)	(g)=(e)*vf ^((a)-.5)	(h)=((c)/(1+SDR)^(a-.5)
2023	1	$ 22,523,123,405	$ 3,139,189,638	$ 3,139,189,638	$ 0	$ 3,041,884,699	$ 0	$ 3,043,714,412
2024	2	23,169,175,587	3,225,689,829	3,225,689,829	0	2,934,933,012	0	2,940,232,341
2025	3	23,758,324,953	3,327,753,607	3,327,753,607	0	2,843,001,857	0	2,851,562,568
2026	4	24,295,426,773	3,420,248,575	3,420,248,575	0	2,743,683,701	0	2,755,256,972
2027	5	24,789,722,122	3,506,336,270	3,506,336,270	0	2,641,072,536	0	2,655,404,583
2028	6	25,239,377,268	3,592,300,415	3,592,300,415	0	2,540,679,046	0	2,557,540,277
2029	7	25,699,077,643	3,674,189,695	3,674,189,695	0	2,439,996,055	0	2,459,144,819
2030	8	26,141,316,022	3,756,378,667	3,756,378,667	0	2,342,325,828	0	2,363,548,904
2031	9	26,562,648,960	3,835,636,933	3,835,636,933	0	2,245,772,842	0	2,268,848,075
2032	10	26,967,227,463	3,911,586,296	3,911,586,296	0	2,150,461,353	0	2,175,171,664
2033	11	27,365,164,245	3,981,249,212	3,981,249,212	0	2,055,173,456	0	2,081,290,404
2034	12	27,771,291,985	4,042,796,315	4,042,796,315	0	1,959,572,661	0	1,986,862,790
2035	13	28,213,235,438	4,099,692,505	4,099,692,505	0	1,865,869,161	0	1,894,130,931
2036	14	28,677,670,891	4,150,268,463	4,150,268,463	0	1,773,603,288	0	1,802,634,171
2037	15	29,173,398,444	4,193,158,080	4,193,158,080	0	1,682,565,279	0	1,712,163,922
2038	16	29,711,611,276	4,145,542,787	4,145,542,787	0	1,561,933,291	0	1,591,322,506
2039	17	30,390,489,490	4,167,418,176	4,167,418,176	0	1,474,343,072	0	1,503,891,766
2040	18	31,149,756,596	4,181,590,483	4,181,590,483	0	1,389,067,540	0	1,418,612,217
2041	19	32,004,808,685	4,182,593,560	4,182,593,560	0	1,304,601,641	0	1,333,953,093
2042	20	32,978,627,091	4,171,535,439	4,171,535,439	0	1,221,739,417	0	1,250,729,889
2043	21	34,094,091,597	4,149,566,933	4,149,566,933	0	1,141,131,818	0	1,169,615,357
2044	22	35,374,092,442	4,118,259,289	4,118,259,289	0	1,063,401,135	0	1,091,256,068
2045	23	36,840,554,724	4,077,849,742	4,077,849,742	0	988,701,161	0	1,015,820,332
2046	24	38,516,528,238	4,031,237,956	4,031,237,956	0	917,746,320	0	944,053,949
2047	25	37,405,562,639	3,978,377,003	3,978,377,003	0	850,433,864	0	875,864,676
2048	26	36,266,580,082	3,921,809,463	3,921,809,463	0	787,175,361	0	811,690,126
2049	27	35,102,118,659	3,862,669,318	3,862,669,318	0	727,985,826	0	751,560,591
2050	28	33,913,552,130	3,802,253,976	3,802,253,976	0	672,863,405	0	695,489,038
2051	29	32,701,116,661	3,741,117,697	3,741,117,697	0	621,637,993	0	643,314,344
2052	30	31,464,360,013	3,679,460,993	3,679,460,993	0	574,077,828	0	594,810,688
2053	31	30,202,607,393	3,617,787,323	3,617,787,323	0	530,005,035	0	549,807,032
2054	32	28,914,824,692	3,555,872,770	3,555,872,770	0	489,140,439	0	508,026,267
2055	33	27,600,122,337	3,493,343,290	3,493,343,290	0	451,210,308	0	469,195,585
2056	34	26,258,230,981	3,429,719,361	3,429,719,361	0	415,955,360	0	433,055,874
2057	35	24,889,317,363	3,363,354,660	3,363,354,660	0	383,010,956	0	399,236,933
2058	36	23,495,095,177	3,293,176,305	3,293,176,305	0	352,130,713	0	367,490,168
2059	37	22,078,495,966	3,219,608,678	3,219,608,678	0	323,252,882	0	337,758,688
2060	38	20,642,224,385	3,140,428,515	3,140,428,515	0	296,059,240	0	309,717,003
2061	39	19,191,415,749	3,056,090,554	3,056,090,554	0	270,524,323	0	283,344,673
2062	40	17,731,171,267	2,966,776,451	2,966,776,451	0	246,589,918	0	258,586,801
2063	41	16,266,798,876	2,870,298,599	2,870,298,599	0	224,010,288	0	235,191,329
2064	42	14,806,262,390	2,767,412,503	2,767,412,503	0	202,798,704	0	213,177,234
2065	43	13,357,125,780	2,658,961,111	2,658,961,111	0	182,958,948	0	192,553,584
2066	44	11,926,421,908	2,545,487,702	2,545,487,702	0	164,461,052	0	173,293,918
2067	45	10,520,954,189	2,427,403,980	2,427,403,980	0	147,259,904	0	155,355,658
2068	46	9,147,417,054	2,305,626,492	2,305,626,492	0	131,335,400	0	138,722,423
2069	47	7,811,903,239	2,181,599,280	2,181,599,280	0	116,685,857	0	123,397,224
2070	48	6,519,379,457	2,056,156,112	2,056,156,112	0	103,264,184	0	109,334,995
2071	49	5,274,254,423	1,929,990,812	1,929,990,812	0	91,012,127	0	96,478,611
2072	50	4,080,496,992	1,803,858,924	1,803,858,924	0	79,872,446	0	84,771,734

The projections in this report are strictly for the purpose of determining the GASB single discount rate and are different from a funding projection for the ongoing plan.

Single Discount Rate Development
Present Values of Projected Benefits Ending June 30 for 2023 to 2122 (Concluded)

Year Ending June 30,	Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Projected Benefit Payments	Unfunded Portion of Projected Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate of 3.86% (vf)	Present Value of All Benefit Payments using Single Discount Rate (SDR) of 6.37%
	(a)	(b)	(c)	(d)	(e)	(f)=(d)*v^((a)-.5)	(g)=(e)*vf ^((a)-.5)	(h)=((c)/(1+SDR)^(a-.5)
2073	51	$ 2,941,569,425	$ 1,678,451,696	$ 1,678,451,696	$ 0	$ 69,783,646	$ 0	$ 74,153,225
2074	52	1,860,469,239	1,554,467,937	1,554,467,937	0	60,684,387	0	64,561,805
2075	53	839,686,232	1,432,594,931	866,546,428	566,048,503	31,764,164	77,502,719	55,935,819
2076	54	0	1,313,519,734	0	1,313,519,734	0	173,161,594	48,214,303
2077	55	0	1,197,910,162	0	1,197,910,162	0	152,051,568	41,336,741
2078	56	0	1,086,417,368	0	1,086,417,368	0	132,774,611	35,243,691
2079	57	0	979,640,201	0	979,640,201	0	115,275,394	29,876,105
2080	58	0	878,119,233	0	878,119,233	0	99,489,028	25,175,817
2081	59	0	782,304,706	0	782,304,706	0	85,339,349	21,085,248
2082	60	0	692,554,202	0	692,554,202	0	72,740,927	17,548,065
2083	61	0	609,114,697	0	609,114,697	0	61,599,307	14,509,326
2084	62	0	532,127,176	0	532,127,176	0	51,813,612	11,916,159
2085	63	0	461,630,806	0	461,630,806	0	43,278,768	9,718,256
2086	64	0	397,570,140	0	397,570,140	0	35,887,694	7,868,284
2087	65	0	339,805,258	0	339,805,258	0	29,533,408	6,322,212
2088	66	0	288,124,422	0	288,124,422	0	24,111,000	5,039,550
2089	67	0	242,257,186	0	242,257,186	0	19,519,267	3,983,465
2090	68	0	201,886,202	0	201,886,202	0	15,661,926	3,120,784
2091	69	0	166,660,723	0	166,660,723	0	12,448,684	2,421,938
2092	70	0	136,206,884	0	136,206,884	0	9,795,823	1,860,808
2093	71	0	110,135,579	0	110,135,579	0	7,626,428	1,414,499
2094	72	0	88,050,117	0	88,050,117	0	5,870,501	1,063,109
2095	73	0	69,551,914	0	69,551,914	0	4,464,841	789,459
2096	74	0	54,246,027	0	54,246,027	0	3,352,869	578,844
2097	75	0	41,746,219	0	41,746,219	0	2,484,377	418,777
2098	76	0	31,680,301	0	31,680,301	0	1,815,270	298,764
2099	77	0	23,695,576	0	23,695,576	0	1,307,287	210,077
2100	78	0	17,462,928	0	17,462,928	0	927,625	145,546
2101	79	0	12,680,363	0	12,680,363	0	648,543	99,355
2102	80	0	9,076,231	0	9,076,231	0	446,955	66,855
2103	81	0	6,411,144	0	6,411,144	0	303,981	44,395
2104	82	0	4,478,774	0	4,478,774	0	204,466	29,156
2105	83	0	3,105,592	0	3,105,592	0	136,508	19,006
2106	84	0	2,149,265	0	2,149,265	0	90,961	12,365
2107	85	0	1,496,157	0	1,496,157	0	60,967	8,092
2108	86	0	1,058,030	0	1,058,030	0	41,511	5,380
2109	87	0	768,243	0	768,243	0	29,021	3,672
2110	88	0	577,953	0	577,953	0	21,022	2,597
2111	89	0	452,432	0	452,432	0	15,844	1,911
2112	90	0	367,706	0	367,706	0	12,399	1,460
2113	91	0	307,878	0	307,878	0	9,996	1,149
2114	92	0	262,779	0	262,779	0	8,214	922
2115	93	0	226,221	0	226,221	0	6,809	746
2116	94	0	194,793	0	194,793	0	5,645	604
2117	95	0	166,645	0	166,645	0	4,650	486
2118	96	0	140,892	0	140,892	0	3,785	386
2119	97	0	117,258	0	117,258	0	3,033	302
2120	98	0	95,734	0	95,734	0	2,384	232
2121	99	0	76,456	0	76,456	0	1,833	174
2122	100	0	0	0	0	0	0	0
					Totals	$ 55,921,204,726	$ 1,241,892,405	$ 57,163,097,131

The projections in this report are strictly for the purpose of determining the GASB single discount rate and are different from a funding projection for the ongoing plan.



Year 1 is the year beginning June 30, 2022, and ending June 30, 2023.

The projections in this report are strictly for the purpose of determining the GASB single discount rate and are different from a funding projection for the ongoing plan.

SECTION H

GLOSSARY OF TERMS

Glossary of Terms

Accrued Service	Service credited under the system that was rendered before the date of the actuarial valuation.
Actuarial Accrued Liability (AAL)	The AAL is the difference between the actuarial present value of all benefits and the actuarial value of future normal costs. The definition comes from the fundamental equation of funding which states that the present value of all benefits is the sum of the Actuarial Accrued Liability and the present value of future normal costs. The AAL may also be referred to as "accrued liability" or "actuarial liability."
Actuarial Assumptions	These assumptions are estimates of future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and compensation increases. Actuarial assumptions are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (compensation increases, payroll growth, inflation and investment return) consist of an underlying real rate of return plus an assumption for a long-term average rate of inflation.
Actuarial Cost Method	A mathematical budgeting procedure for allocating the dollar amount of the actuarial present value of the pension trust benefits between future normal cost and actuarial accrued liability. The actuarial cost method may also be referred to as the “actuarial funding method.”
Actuarial Equivalent	A single amount or series of amounts of equal actuarial value to another single amount or series of amounts, computed on the basis of appropriate actuarial assumptions.
Actuarial Gain (Loss)	The difference in liabilities between actual experience and expected experience during the period between two actuarial valuations is the gain (loss) on the accrued liabilities.
Actuarial Present Value (APV)	The amount of funds currently required to provide a payment or series of payments in the future. The present value is determined by discounting future payments at predetermined rates of interest and probabilities of payment.
Actuarial Valuation	The actuarial valuation report determines, as of the actuarial valuation date, the service cost, total pension liability and related actuarial present value of projected benefit payments for pensions.
Actuarial Valuation Date	The date as of which an actuarial valuation is performed.
Actuarially Determined Contribution (ADC) or Annual Required Contribution (ARC)	A calculated contribution into a defined benefit pension plan for the reporting period, most often determined based on the funding policy of the plan. Typically, the Actuarially Determined Contribution has a normal cost payment and an amortization payment.

Glossary of Terms (Continued)

Amortization Method	The method used to determine the periodic amortization payment may be a level dollar amount, or a level percent of pay amount. The period will typically be expressed in years, and the method will either be "open" (meaning, reset each year) or "closed" (the number of years remaining will decline each year).
Amortization Payment	The amortization payment is the periodic payment required to pay off an interest-discounted amount with payments of interest and principal.
Cost-of-Living Adjustments	Postemployment benefit changes intended to adjust benefit payments for the effects of inflation.
Cost-Sharing Multiple-Employer Defined Benefit Pension Plan (cost-sharing pension plan)	A multiple-employer defined benefit pension plan in which the pension obligations to the employees of more than one employer are pooled and pension plan assets can be used to pay the benefits of the employees of any employer that provides pensions through the pension plan.
Covered-Employee Payroll	The payroll of employees that are provided with pensions through the pension plan.
Deferred Inflows and Outflows	The deferred inflows and outflows of pension resources are amounts used under GASB Statement No. 68 in developing the annual pension expense. Deferred inflows and outflows arise with differences between expected and actual experiences; changes of assumptions. The portion of these amounts not included in pension expense should be included in the deferred inflows or outflows of resources.
Deferred Retirement Option Program (DROP)	A program that permits a plan member to elect a calculation of benefit payments based on service credits and salary, as applicable, as of the DROP entry date. The plan member continues to provide service to the employer and is paid for the service by the employer after the DROP entry date; however, the pensions that would have been paid to the plan member are credited to an individual member account within the defined benefit pension plan until the end of the DROP period. Other variations for DROP exist and will be more fully detailed in the plan provision section of the valuation report.
Discount Rate	For GASB purposes, the discount rate is the single rate of return that results in the present value of all projected benefit payments to be equal to the sum of the funded and unfunded projected benefit payments, specifically: 1. The benefit payments to be made while the pension plans' fiduciary net position is projected to be greater than the benefit payments that are projected to be made in the period; and 2. The present value of the benefit payments not in (1) above, discounted using the municipal bond rate.

Glossary of Terms (Continued)

Entry Age Actuarial Cost Method (EAN)	The EAN is a cost method for allocating the costs of the plan between the normal cost and the accrued liability. The actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis (either level dollar or level percent of pay) over the earnings or service of the individual between entry age and assumed exit age(s). The portion of the actuarial present value allocated to a valuation year is the normal cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future normal costs is the actuarial accrued liability. The sum of the accrued liability plus the present value of all future normal costs is the present value of all benefits.
Fiduciary Net Position	The fiduciary net position is the market value of the assets of the trust dedicated to the defined benefit provisions.
GASB	The Governmental Accounting Standards Board is an organization that exists in order to promulgate accounting standards for governmental entities.
Long-Term Expected Rate of Return	The long-term rate of return is the expected return to be earned over the entire trust portfolio based on the asset allocation of the portfolio.
Money-Weighted Rate of Return	The money-weighted rate of return is a method of calculating the returns that adjusts for the changing amounts actually invested. For purposes of GASB Statement No. 67, money-weighted rate of return is calculated as the internal rate of return on pension plan investments, net of pension plan investment expense.
Multiple-Employer Defined Benefit Pension Plan	A multiple-employer plan is a defined benefit pension plan that is used to provide pensions to the employees of more than one employer.
Municipal Bond Rate	The Municipal Bond Rate is the discount rate to be used for those benefit payments that occur after the assets of the trust have been depleted.
Net Pension Liability (NPL)	The NPL is the liability of employers and non-employer contributing entities to plan members for benefits provided through a defined benefit pension plan.
Non-Employer Contributing Entities	Non-employer contributing entities are entities that make contributions to a pension plan that is used to provide pensions to the employees of other entities. For purposes of the GASB accounting statements, plan members are not considered non-employer contributing entities.
Normal Cost	The portion of the actuarial present value allocated to a valuation year is called the "normal cost." For purposes of application to the requirements of this Statement, the term normal cost is the equivalent of service cost.

Glossary of Terms (Concluded)

Other Postemployment Benefits (OPEB)	All postemployment benefits other than retirement income (such as death benefits, life insurance, disability and long-term care) that are provided separately from a pension plan, as well as postemployment healthcare benefits regardless of the manner in which they are provided. Other postemployment benefits do not include termination benefits.
Real Rate of Return	The real rate of return is the rate of return on an investment after adjustment to eliminate inflation.
Service Cost	The service cost is the portion of the actuarial present value of projected benefit payments that is attributed to a valuation year.
Total Pension Expense	The total pension expense is the sum of the following items that are recognized at the end of the employer's fiscal year: 1. Service Cost 2. Interest on the Total Pension Liability 3. Current-Period Benefit Changes 4. Employee Contributions (made negative for addition here) 5. Projected Earnings on Plan Investments (made negative for addition here) 6. Pension Plan Administrative Expense 7. Other Changes in Plan Fiduciary Net Position 8. Recognition of Outflow (Inflow) of Resources due to Liabilities 9. Recognition of Outflow (Inflow) of Resources due to Assets
Total Pension Liability (TPL)	The TPL is the portion of the actuarial present value of projected benefit payments that is attributed to past periods of member service.
Unfunded Actuarial Accrued Liability (UAAL)	The UAAL is the difference between actuarial accrued liability and valuation assets.
Valuation Assets	The valuation assets are the assets used in determining the unfunded liability of the plan. For purposes of GASB Statement Nos. 67 and 68, the valuation assets are equal to the market value of assets.

S·U·R·S
STATE UNIVERSITIES RETIREMENT SYSTEM
1901 Fox Drive, Champaign, IL 61820-7333
800-275-7877 • 217-378-8800 • (Fax) 217-378-9800
www.surs.org

To: Administration Committee
From: Tara R. Myers
Date: December 7, 2023
Re: Actuarial Valuation Report as of June 30, 2023
GASB 67 and 68 Report as of June 30, 2023

At the December 7, 2023, Administration Committee meeting, Gabriel Roeder Smith & Company (GRS) will present the Actuarial Valuation report and the GASB 67/68 report as of June 30, 2023 for the State Universities Retirement System.

<u>Recommendation</u>

- **SURS staff and Gabriel Roeder Smith & Company jointly recommend that the Actuarial Valuation Report and GASB 67/68 Report as of June 30, 2023, be received as presented.**

S·U·R·S
STATE UNIVERSITIES RETIREMENT SYSTEM

1901 Fox Drive, Champaign, IL 61820-7333
800-275-7877 • 217-378-8800 • (Fax) 217-378-9800
www.surs.org

To:	Administration Committee
From:	Tara R. Myers
Date:	December 7, 2023
Re:	State Contribution for Fiscal Year 2025

Overview

The proposed State contribution for Fiscal Year 2025 will be certified at $2,212,810,000.

Section 15-165 (a-5) of the Illinois Pension Code requires the following: On or before January 15, the Board is required to certify to the Governor and the General Assembly the amount of the State Contribution for the next fiscal year (which begins July 1).

The Statutory contribution calculated by Gabriel, Roeder, Smith & Company (GRS) for Fiscal Year 2025 is $2,286,784,000 (includes $100,345,000 projected Retirement Savings Plan (RSP) State contribution).[1] The contribution is 39.3% of the $5.5 billion assumed pensionable payroll for Fiscal Year 2025.[2]

The Statutory contribution is increased by the projected excess benefit arrangement (EBA) contribution required. For Fiscal Year 2025 the EBA amount is projected to be $18,300,000. The estimated trust, federal, and other funds is projected to be $70,500,000 for Fiscal Year 2025. The State contribution is reduced by the projected trust, federal and other funds and the employer normal cost contribution of the pensionable earnings that exceed the Governor's salary.

Combined State and Employer Contribution Amount	**$2,286,784,000**
Less projected trust, federal and other funds	**70,500,000**
Less projected contributions from earnings that exceed Governor's salary	**3,474,000**
Net State contribution (including EBA) to be certified	**$2,212,810,000**

Recommendation

Based on the recommendation of Gabriel Roeder Smith & Company, the amount of $2,212,810,000 should be certified for Fiscal Year 2025 as the proposed State Contribution.

[1]This is the gross State contribution. The certified State Contribution will be this amount less amounts estimated to be received from "trust, federal, and other" funds including contributions from earnings that exceed Governor's salary.

[2]Table 15 of the GRS Actuarial Valuation as of June 30, 2023.

Exhibit 6

CHEIRON

Classic Values, Innovative Advice

The State Actuary's Preliminary Report on the State Universities Retirement System of Illinois Pursuant to 30 ILCS 5/2-8.1

Regarding Gabriel, Roeder, Smith & Company's June 30, 2023 Actuarial Valuation

Produced by Cheiron

December 2023

TABLE OF CONTENTS

CHEIRON

Classic Values, Innovative Advice

December 1, 2023

Mr. Frank Mautino
Auditor General
400 W. Monroe Street
Springfield, Illinois 62704

Board of Trustees
State Universities Retirement System of Illinois
1901 Fox Drive
P.O. Box 2710
Champaign, Illinois 61825-2710

Dear Trustees and Auditor General:

In accordance with the Illinois State Auditing Act (30 ILCS 5/2-8.1), Cheiron is submitting this preliminary report concerning the proposed certification prepared by Gabriel, Roeder, Smith & Company (GRS), of the required State contribution to the State Universities Retirement System of Illinois (SURS or System) for Fiscal Year 2025.

In summary, we believe that the assumptions and methods used in the June 30, 2023 Actuarial Valuation, which are used to determine the required Fiscal Year 2025 State contribution, are reasonable. We also find that the certified contributions, notwithstanding the inadequate State funding requirements that do not conform to generally accepted actuarial principles and practices, were properly calculated in accordance with State law.

Section I of this report describes the review process undertaken by Cheiron. Section II summarizes our findings and recommendations. Section III provides the supporting analysis for those findings and presents more details on our assessment of the actuarial assumptions and methods employed in GRS's Actuarial Certification, as well as our assessment of GRS's determination of the required State contribution for Fiscal Year 2025. Section III also includes comments on other issues impacting the funding of the State Universities Retirement System, including the implications of Article 15 of the Illinois Pension Code, which establishes the statutory minimum funding requirements for the System. **We agree with GRS that the statutory mandated minimum funding requirements have been inadequate. In addition, the past inadequate funding has resulted in current and future contribution levels, measured as a percent of payroll, to be among the highest in the country. Making adequate contributions in the future to fully fund the system will be challenging.** Section IV reviews the projections contained in the June 30, 2023 Actuarial Valuation. Finally, Section V provides an analysis of funding adequacy.

In preparing this report, we relied on information (some oral and some written) supplied by SURS and GRS. This information includes actuarial assumptions and methods adopted by the SURS Board, plan provisions, the June 30, 2023 Actuarial Valuation, the September 2023 Investment Return Assumption Review, the 2021 Experience Review Report, the July 21, 2023 letter on buyout assumptions, the Meketa 2021 Asset-Liability Study, 2023 minutes of the SURS Board of Trustee meetings, and various memos prepared by the System's advisors, staff, and Executive Director. A detailed description of all information provided for this review is contained in the body of our report as Appendix C.

This report and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices and our understanding of the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board as well as applicable laws and regulations. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this report. This report does not address any contractual or legal issues. We are not attorneys, and our firm does not provide any legal services or advice.

This report was prepared exclusively for the Office of the Auditor General and the State Universities Retirement System of Illinois for the purpose described herein. Other users of this report are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any other user.

Sincerely,
Cheiron

William R. Hallmark

William R. Hallmark, ASA, EA, FCA, MAAA
Consulting Actuary

Coralie Taylor

Coralie A. Taylor, FSA, EA, FCA, MAAA
Consulting Actuary

Matthew Wells

Matthew Wells, FSA, EA, MAAA
Associate Actuary

THE STATE ACTUARY'S PRELIMINARY REPORT ON THE STATE UNIVERSITIES RETIREMENT SYSTEM OF ILLINOIS PURSUANT TO 30 ILCS 5/2-8.1

SECTION I – REPORT SCOPE

Illinois Public Act 097-0694 (the Act) amended the Illinois State Auditing Act (30 ILCS 5/2-8.1) and requires Cheiron, as the State Actuary, to review the actuarial assumptions and valuation of the State Universities Retirement System of Illinois (SURS or System), and to issue to the SURS Board this preliminary report on the proposed certification prepared by Gabriel, Roeder, Smith & Company (GRS) of the required State contributions for Fiscal Year (FY) 2025. The purpose of this review is to identify any recommended changes to the actuarial assumptions for the SURS Board to consider before finalizing its certification of the required State contribution for FY 2025.

While the Act states that just the actuarial assumptions and valuation are to be reviewed, we have also reviewed the actuarial methodologies (funding and asset smoothing methods) employed in preparing the Actuarial Certification, as these methods can have a material effect on the amount of the State contribution being certified. Finally, we have offered our opinion on the implications of Article 15-155 of the Illinois Pension Code, which impacts the contribution amount certified by GRS.

In conducting this review, Cheiron reviewed the June 30, 2023 Actuarial Valuation prepared by GRS, the 2023 Experience Review Report, the July 21, 2023 letter on buyout assumptions, the Meketa 2021 Asset-Liability Study, 2023 minutes of the SURS Board of Trustees meetings, and various memos prepared by the System's advisors, staff, and Executive Director. The specific materials we reviewed are listed in Appendix C.

In addition to reviewing the actuarial certification of the required State contribution to SURS, the Act requires the State Actuary to conduct a review of the "actuarial practices" of the Board. While the term "actuarial practices" was not defined in the Act, we continue to interpret this language to mean that we review: (1) the use of a qualified actuary (as defined in the Qualification Standards of the American Academy of Actuaries) to prepare the annual actuarial valuation for determining the required State contribution; and (2) the conduct of periodic formal experience studies to justify the assumptions used in the actuarial valuation. In addition, we have included comments on actuarial communication and compliance with Actuarial Standards of Practice (ASOP) reflected in the June 30, 2023 Actuarial Valuation.

SECTION II – SUMMARY OF RECOMMENDATIONS

This section summarizes recommendations from our review of the actuarial assumptions and methods employed in the June 30, 2023 Actuarial Valuation of SURS as well as the "actuarial practices" of the SURS Board. Section III of this report provides detailed analysis and rationale for these recommendations.

Proposed Certification of the Required State Contribution

Gabriel, Roeder, Smith & Company (GRS) has determined that the FY 2025 required State contribution calculated under the current statutory funding requirements is $2,214,123,000. We have verified the arithmetic calculations made by GRS to develop this required State contribution and have reviewed the assumptions on which it was based. We have accepted GRS's 2023 actuarial liability as well as the annual projections of future payroll, total normal costs, employee contributions, combined benefit payments and expenses, and total contributions.

State Mandated Funding Method

1. We recommend that the funding method be changed to employ a methodology that produces a Reasonable Actuarially Determined Contribution and fully funds plan benefits within a reasonable period.

Recognition of Changes in Actuarial Assumptions

Public Act 100-0023 (P.A. 100-0023), effective July 6, 2017, modified the State's funding policy to require that the contribution impact of all assumption changes be phased-in over a five-year period.

2. Because experience studies are performed every three years, we recommend that the phase-in period for the impact of assumption changes be reduced to no longer than three years. However, we understand that changing the funding method is under the jurisdiction of State law and not the Retirement System.

Assessment of Actuarial Assumptions Used in the 2023 Valuation

30 ILCS 5/2-8.1 requires the State Actuary to identify recommended changes in actuarial assumptions that the SURS Board must consider before finalizing its certification of the required State contribution. We have reviewed all the actuarial assumptions used in the draft June 30, 2023 Actuarial Valuation and conclude that the recommended assumptions are reasonable in general, based on the evidence provided to us.

Recommended Changes for the 2023 Valuation

3. Section 3.2 of ASOP 51 requires the actuary to identify risks that "may reasonably be anticipated to **significantly affect** the plan's future financial condition." [emphasis added]. The

risks currently identified appear to largely duplicate the list of examples in ASOP 51 and could apply to almost any pension plan. In future valuations, we recommend that the actuary explain how each risk identified would reasonably be anticipated to significantly affect the specific plan's future financial condition.

4. For each risk identified above, Section 3.3 of ASOP 51 requires the actuary to provide an assessment that takes into account "circumstances specific to the plan." For some of the identified risks, the actuary has provided a quantitative assessment specific to the plan while for other identified risks, the actuary has only provided a generic statement that could apply to any plan. We recommend that for each identified risk the actuary provide an assessment, preferably quantitative, that considers the specific circumstances of this plan.

Recommended Changes for Future Valuations

5. We recommend the SURS Board continue to annually review the economic assumptions (interest rate and inflation), as they did for this valuation, prior to commencing the valuation work and adjust assumptions accordingly.

GASB 67 and 68

The 2023 SURS GASB 67 and 68 information was provided in a separate report. We find that the assumptions and methods used to prepare the 2023 SURS GASB 67 and 68 schedules are reasonable based on the evidence provided to us.

SECTION III – SUPPORTING ANALYSIS

In this section, we provide detailed analysis and supporting rationale for the recommendations that were presented in Section II of this report.

Proposed Certification of the Required State Contribution

As stated in our summary of recommendations in Section II, we have verified the arithmetic calculations made by GRS to develop the required State contribution, reviewed the assumptions on which it is based, and accepted GRS's 2023 actuarial liability as well as the annual projections of future payroll, total normal costs, benefits, expenses, and total contributions. However, in accordance with 30 ILCS 5/2-8.1, our review does not include a replication of the actuarial valuation results.

State Mandated Methods

The Illinois Pension Code (40 ILCS 5/15-155) establishes a method that does not adequately fund the System. This law requires the actuary to calculate the employer contribution as the level percentage of projected payroll that would accumulate assets equal to 90% of the Actuarial Accrued Liability in the year 2045 if all assumptions are met. This contribution methodology does not conform to generally accepted actuarial principles and practices. Generally accepted actuarial funding methods target the accumulation of assets equal to 100% of the Actuarial Accrued Liability, not 90%.

We recommend that the funding method be changed to employ a methodology that produces a Reasonable Actuarially Determined Contribution and fully funds plan benefits within a reasonable period (Recommendation #1).

The State Mandated Method is entering a period in which the contribution amount it produces may be reasonable even though the overall methodology is not. This period offers an opportunity to change the methodology to one that is consistent with actuarial standards for a Reasonable Actuarially Determined Contribution (ADC) without significantly affecting the immediate contribution amount. Such a method would set contributions at a level that is expected to prevent the unfunded actuarial liability from growing and remain high enough to reduce the unfunded actuarial liability each year until the plan is ultimately 100% funded within a reasonable period.

The State Mandated Contribution for FY 2025 is sufficient to pay the employer normal cost, administrative expenses, and an amortization payment on the UAL that, if continued at the same percentage of payroll, would be expected to pay off the UAL in 25.9 years. According to "Actuarial Funding Policies and Practices for Public Plans" published by the Conference of Consulting Actuaries, an amortization period greater than 25 years but not greater than 30 years is considered a reasonable transition policy but is a "Non-Recommended Practice" on an ongoing basis. The declining normal cost combined with the State Mandated Method will produce shorter amortization periods and a reasonable contribution amount in the future.

The State Mandated Method will produce increasingly volatile contribution levels as the remaining period to achieve 90% funding shortens. Consequently, when changing to a reasonable ADC as

SECTION III – SUPPORTING ANALYSIS

described above, consideration should be given to a method, such as layered amortization, that produces more stable contribution requirements.

The GRS June 30, 2023 Actuarial Valuation includes a recommended funding policy which would contribute the normal cost plus an amortization payment that would seek to fully pay off the total unfunded accrued liability over a closed period by the year 2045. Under this policy, GRS calculated a fiscal year 2025 State contribution amount of $2,719,560,000 (including Retirement Savings Plan (RSP) and Employer contributions). We agree that GRS's recommended funding policy is reasonable and conforms to a goal of full funding within a reasonable time period and with generally accepted actuarial principles and practices. However, it is not the only reasonable approach, and there are other reasonable funding policies that would result in a contribution closer to the State Mandated Contribution.

Recognition of Changes in Actuarial Assumptions

Public Act 100-0023 (P.A. 100-0023), effective July 6, 2017, modified the State's funding policy to require that the contribution impact of all assumption changes, including changes prior to P.A. 100-0023, be phased-in over a five-year period. As such, the Act delays the funding of the System. Assumption changes are intended to more accurately anticipate the obligations for funding based on the most recent experience analysis and forward-looking changes to future investment returns. However, only one-fifth of the impact of these changes are now recognized from the date of adoption. The remainder of the impact is recognized over four additional years such that the full impact is only recognized at the end of a five-year period beginning at the date of adoption. This phase-in provides time to adjust to a higher level of contributions. However, the Conference of Consulting Actuaries White Paper on Actuarial Funding Policies and Practices for Public Pension Plans recommends that the "phase-in period should be no longer than the time period until the next review of assumptions." **Since experience studies are performed every three years, we recommend the phase-in period for the impact of assumption changes be reduced to no longer than three years** (Recommendation #2).

Optional Hybrid Plan

P.A. 100-0023 created an Optional Hybrid Plan for current Tier 2 members and future new hires. The Optional Hybrid Plan consists of a reduced defined benefit plan and a defined contribution plan. Employers are required to contribute for each employee who participates in the Optional Hybrid Plan or Tier 2 in lieu of the Optional Hybrid Plan, the normal cost plus for fiscal year 2021 and after an additional 2% of pay.

GRS reflected the hybrid plan in the June 30, 2017 valuation by anticipating that future participants elect the Optional Hybrid Plan. However, in subsequent valuations, GRS has not reflected the Optional Hybrid Plan because SURS is still not moving forward with the implementation of the Optional Hybrid Plan until additional clarifying legislation is adopted. Based on consultation with SURS staff, GRS has assumed that, when available, 0% of new members will elect the Optional Hybrid Plan. In the 2021 Experience Review Report, GRS studied Plan election and has adopted appropriate assumptions for the election of the Tier 2 Plan and the Retirement Saving Plan

SECTION III – SUPPORTING ANALYSIS

(formerly Self-Managed Plan). The assumption that no members will elect the Optional Hybrid Plan is reasonable based on the Plan design and the expectations of GRS and SURS staff.

Stress Testing

Based on the June 30, 2023 Actuarial Valuation, the funded ratio, measured as the ratio of the Actuarial Value of Assets to the actuarial liability, is currently at 45.8%. The unfunded actuarial liability is currently about $27.7 billion and is expected to increase through 2026 before it begins to drop in future years reaching its current level again in 2030. The required State contribution rate for FY 2025 is 39.33% of payroll and scheduled to vary around that rate until reaching 39.66% of payroll for FY 2034 and remain level thereafter until 2045. However, if there is a significant market downturn, the unfunded actuarial liability and the required State contribution rate would increase, putting the sustainability of the system further into question. .Stress testing was performed and included in the 2023 final Actuarial Valuation report in Appendix J to allow the users and public better understand these risks and the potential advantages of additional contributions in the near term to maintain the sustainability of the system.

Actuarial Standard of Practice 51

Actuarial Standard of Practice (ASOP) 51 provides guidance to actuaries on the assessment and disclosure of risks to help readers of the actuarial valuation report "*understand the effects of future experience differing from the assumptions used*" and "*the potential volatility of future measurements resulting from such differences.*"

ASOP 51's first requirement is to *"identify risks that, in the actuary's professional judgment, may reasonably be anticipated to significantly affect the Plan's future financial condition."* GRS identified six sources of risk to SURS: investment risk, asset/liability mismatch risk, contribution risk, salary and payroll risk, longevity risk, and other demographic risks. The risks currently identified appear to largely duplicate the list of examples in ASOP 51 and could apply to almost any pension plan. The discussion that follows seems to imply that investment risk and contribution risk are really the key risks for SURS. If that is the actuary's professional judgment, then the other four risks may not need to be identified. **We recommend that the actuary explain how each risk identified would reasonably be anticipated to significantly affect the specific plan's future financial condition** (Recommendation #3).

ASOP 51 requires the actuary to assess each of the risks identified. While the assessment does not have to be quantitative, it does have to take into account the specifics of the individual plan. ASOP 51 also describes several quantitative methods that may be used to assess risk.

- <u>Investment Risk.</u> GRS included additional stress testing in last year's final actuarial valuation report that adequately assessed the investment risk with various investment return scenarios.

- <u>Asset/Liability Mismatch Risk.</u> GRS does not appear to provide an assessment of asset/liability mismatch risk other than to indicate that asset value changes that do not match liability changes will either increase or decrease costs. If GRS continues to identify this as a key risk, ASOP 51 requires that they also provide an assessment that takes into account "circumstances specific to the plan."

- Contribution Risk. GRS discusses several issues with the statutorily required contribution amounts in the risk section as well as in other parts of the valuation report. The stress testing included in last year's final actuarial valuation report adequately assessed the impact of a declining contribution base (i.e., payroll).

- Salary and Payroll Risk. The stress testing included in last year's final actuarial valuation report adequately assessed the salary and payroll risk with alternative projected decreases in the active population.

- Longevity Risk. GRS does not appear to provide an assessment of longevity risk. The valuation report simply states that experience that differs from the assumptions will either increase or decrease costs. If GRS continues to identify this as a key risk, ASOP 51 requires that they also provide an assessment that takes into account "circumstances specific to the plan."

- Other Demographic Risk. GRS provides an explanation of demographic risks. The stress testing included in last year's final actuarial valuation report adequately assessed the impact of participants selecting the RSP. However, there does not appear to provide an assessment of other demographic risk. If GRS continues to identify this as a key risk, ASOP 51 requires that they also provide an assessment that takes into account "circumstances specific to the plan."

GRS identified the primary drivers and provided background information about these identified risks but did not in our opinion adequately communicate the significance of all of these risks to this Plan. For investment, salary and payroll, and plan selection risks, the actuary has provided a quantitative assessment specific to the plan while for other risks (asset/liability mismatch, longevity, and other demographic risks), the actuary has only provided a generic statement that could apply to any plan. **We recommend that for each identified risk the actuary provide an assessment, preferably quantitative, that considers the specific circumstances of this plan** (Recommendation #4).

ASOP 51 requires the actuary to recommend a more detailed assessment of risks if it "*would be significantly beneficial.*" GRS notes that an additional risk assessment is outside the scope of the annual actuarial valuation. However, there is no indication of whether the actuary recommends such an assessment or views the assessments included within the valuation to be sufficient.

ASOP 51 requires the actuary to *"calculate and disclose plan maturity measures that … are significant to understanding the risks associated with the plan."* GRS calculates and discloses the ratios of the market value of assets to payroll, actuarial liability to payroll, actives to retirees and beneficiaries, and net cash flow to market value of assets. In addition, GRS calculates and discloses

SECTION III – SUPPORTING ANALYSIS

the duration of the present value of future benefits. These maturity measures are useful to understand the risks to the plan.

ASOP 51 requires the actuary to "*identify and disclose relevant historical values of the plan's actuarial measurements that, in the actuary's professional judgment, are significant to understanding the risks identified….*" GRS discloses a history of all of the maturity measures listed above as well as some additional metrics to assist with the understanding of the risks.

Changes to Actuarial Standard of Practice 4

Actuarial Standard of Practice No. 4 (ASOP 4) was amended and the changes are effective for SURS' actuarial valuations starting June 30, 2023. There are three primary changes that affected the SURS actuarial valuation:

1. The requirement to calculate and disclose a Reasonable Actuarially Determined Contribution as defined in ASOP 4,
2. The requirement to assess the implications of the funding policy, including four specific assessments, and
3. The requirement to calculate, disclose, and explain a Low-Default-Risk Obligation Measure (LDROM).

<u>Calculate and disclose a Reasonable Actuarially Determined Contribution</u>

GRS notes that the State Mandated Method "generates a contribution requirement that is less than a reasonable actuarially determined contribution." GRS clearly identifies the shortcomings in the State Mandated Method, but it is not clear on what basis they determine that the contribution requirement generated for FY 2025 is less than a reasonable Actuarially Determined Contribution. Some explanation is warranted.

GRS also calculates an "alternative policy contribution" that clearly meets the requirements of a Reasonable Actuarially Determined Contribution. However, it is not explicitly identified as the Reasonable ADC for ASOP 4 purposes. If the intent is for this calculation to satisfy the requirements of ASOP 4, it would be helpful to identify it as such.

<u>Implications of the Funding Policy</u>

In the draft June 30, 2023 Actuarial Valuation Report GRS includes disclosures of the implications of the State Mandated Funding Policy:

1. A qualitative assessment that future contributions are expected to be flat and the funded ratio will increase to 90 percent in 2045,
2. An estimate that the dollar amount of the unfunded actuarial liability will increase for three more years before it is expected to decrease, and
3. A statement that the unfunded actuarial liability is never expected to be paid off.

However, the draft June 30, 2023 Actuarial Valuation Report should also include an assessment of whether the funding policy is significantly inconsistent with accumulating assets adequate to

SECTION III – SUPPORTING ANALYSIS

make benefit payments, and, if applicable, an estimate of the approximate time until assets are depleted.

Calculation and Disclosure of Low Default Risk Obligation Measure (LDROM)

The draft June 30, 2023 Actuarial Valuation includes a description and calculation of LDROM. It includes an explanation of the discount rate curve, cost method, and assumptions used to calculate LDROM. GRS has also included a comparison of the LDROM to the Accrued Liability and commentary explaining the significance of the LDROM as required by ASOP 4 with respect to the funded status of the plan and plan contributions. However, while the basis for the security of participant benefits is mentioned, the significance of LDROM for the security of participant benefits is not discussed.

SECTION III – SUPPORTING ANALYSIS

Assessment of Actuarial Assumptions Used in the 2023 Valuation

A. Economic Assumptions

1. *Interest Rate*

The interest rate assumption (also called the investment return or discount rate) is the most impactful assumption affecting the required State contribution amount. This assumption, which is used to value liabilities for funding purposes, was maintained at 6.50% for the June 30, 2023 Actuarial Valuation.

After reviewing all the materials (see Appendix C of the report) that were made available, Cheiron concludes that the use of 6.50% for this valuation is reasonable.

In response to our recommendation, GRS included in this year's valuation report the immediate impact on the statutory contribution if there was a 50-basis point decrease in the discount rate. They also added some scenarios to their Stress Testing based on a discount rate 50 basis points lower than the current discount rate. These scenarios provide valuable information about the sensitivity of the projections to changes in the discount rate.

We recommend the SURS Board continue to annually review the economic assumptions (interest rate and inflation), as they did for this valuation, prior to commencing the valuation work and adjust assumptions accordingly (Recommendation #5).

Our rationale for these recommendations:

- A review of the interest and inflation rates does not involve the collection of significant data and can be updated annually. In addition, it keeps the Board focused more closely on these very important assumptions.

- GRS's September 2023 Investment Return Assumption Review presented the expectations for the SURS portfolios based on SURS's investment consultant's 2022 and 2023 capital market assumptions and the probability of exceeding the assumed 6.5% return based on their 2022 and 2023 Capital Market Assumption Modeler (CMAM). This modeler uses the forward-looking expectations from 12 independent investment consultants. The expectations were presented for both the current asset allocation and the long-term asset allocation target. Based on the 2023 capital market assumptions, the expected 10-year geometric average return would be 7.2% using the current portfolio and 7.3% using the long-term target portfolio. Based on the 2022 capital market assumptions, the expected returns were 5.6% and 6.0% respectively. Using the 2023 GRS CMAM, the probability of meeting or exceeding the 6.50% assumption over a 10-year time horizon is 52% with the current portfolio and 53% with the long-term target portfolio compared to 38% and 41% respectively using 2022 expectations. While the 2023 expectations are greater than 6.50%, GRS cautions

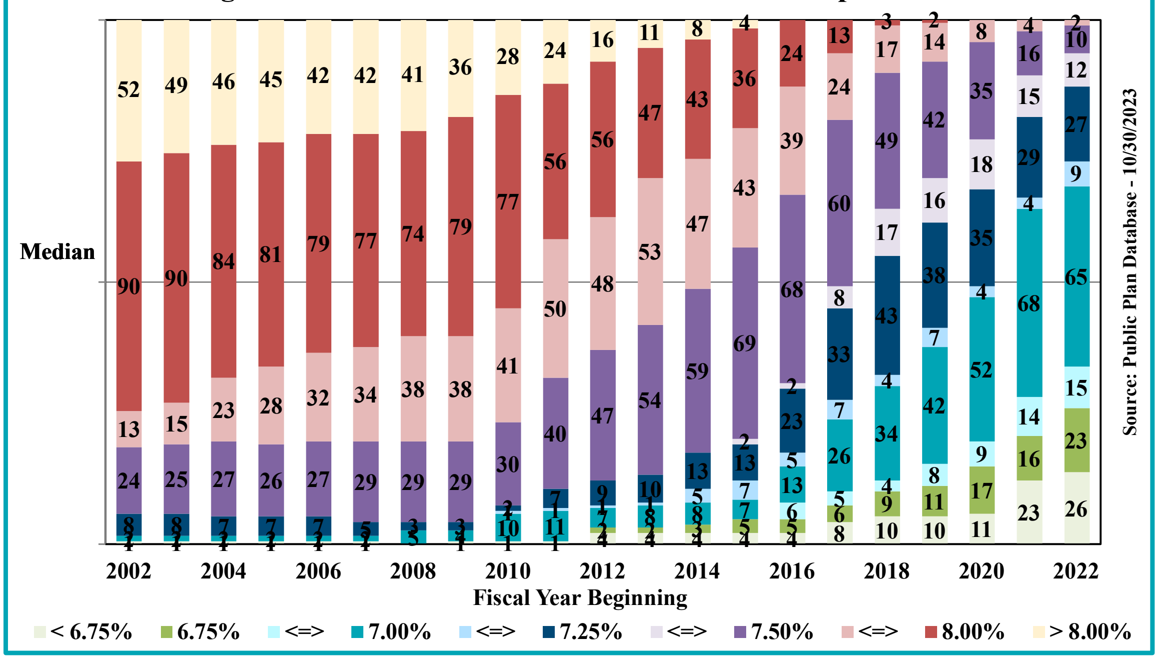
SECTION III – SUPPORTING ANALYSIS

against changing the assumption in reaction to the significant change in the capital market assumptions from one year to the next.

- The average expected geometric return for the current SURS portfolio using the 20-year capital market assumptions is 7.8% and 8.0% using the long-term target portfolio. GRS estimated SURS has a 57% chance of meeting or exceeding the 6.50% assumption over a 20-year time horizon using the current portfolio and a 58% chance using the long-term target portfolio.

- While the discount rate assumption should be based on the future expected investment returns for the System's investment portfolio, survey information can provide an important context for evaluating the assumption. The Public Plans Database is maintained by a partnership between the Center for State and Local Government Excellence (SLGE) and the Center for Retirement Research at Boston College with support from the National Association of State Retirement Administrators (NASRA). This database contains historical information on large public pension plans, including key assumptions used in their actuarial valuations. The chart on the next page shows the distribution of investment return assumptions for the 190 plans in the Public Plans Database with consistent information from 2002 through 2022 as of October 30, 2023.

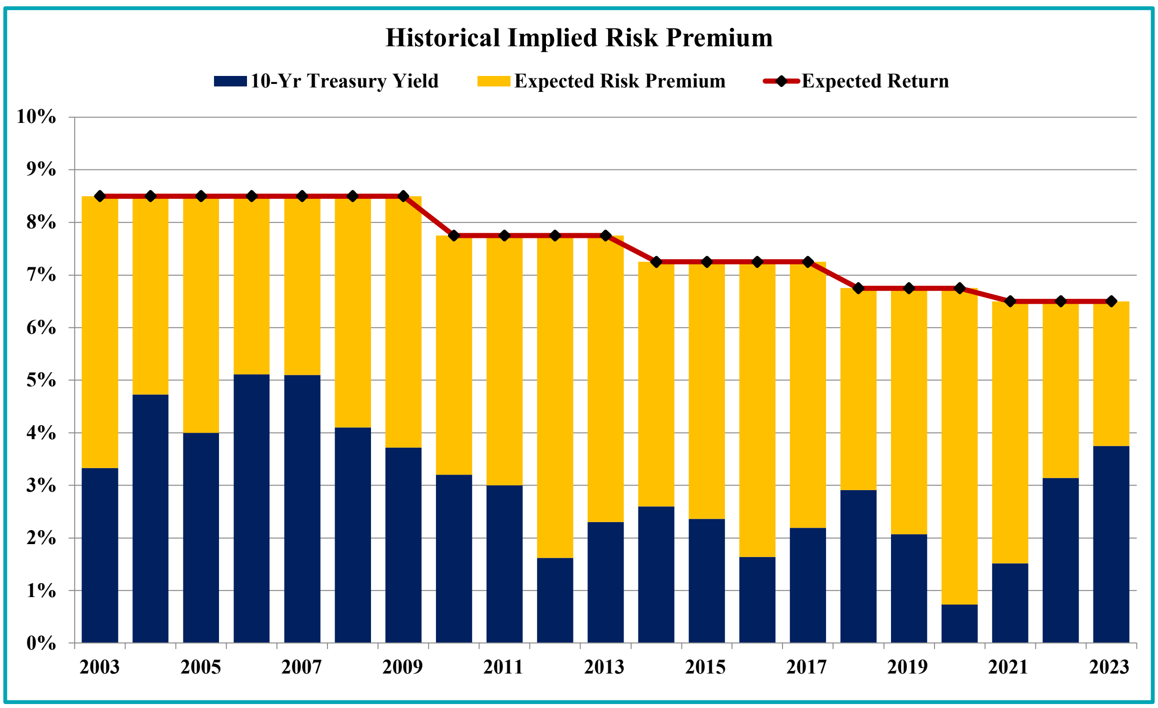
Change in Distribution of Investment Return Assumptions



Over the period shown, there continues to be a pattern of reducing discount rates partially reflecting long-term changes in capital markets, interest rates and underlying inflation. Of the 190 plans shown, 142 have reduced their discount rate assumption since 2018. For these plans, the average reduction is 0.40%.

SECTION III – SUPPORTING ANALYSIS

- Over the last two decades, declining interest rates have forced pension plans to either reduce their discount rates, increase their exposure to investment risk, or some combination of the two. For example, as shown in the following chart, in June 2006, the yield on 10-year Treasury bonds (a proxy for a risk-free investments) reached a high in the 20-year period of 5.1%. To achieve SURS' then assumed return of 8.50%, the System's investments had to outperform the yield on the 10-year Treasury by 3.4%. In June 2020, the yield on the 10-year Treasury had dropped to 0.7%, and to achieve SURS' assumed return of 7.00%, the System's investments need to exceed the 10-year Treasury yield by 6.3%. Even though SURS had reduced its return assumption by 150 basis points over the period, it still had to take more investment risk in 2020 to meet its assumption than it did in 2002. Since 2020, yields on 10-year Treasury bonds have increased, reducing the expected risk premium needed to achieve the System's assumed return. With recent action by the Federal Reserve, 10-year Treasury bond yields have increased rapidly from 1.5% in December 2021 to 3.1% in June 2022 and 3.75% in June 2023. If these higher Treasury bond yields persist, plans may be able to achieve the expected return with less exposure to investment risk. However, if these higher Treasury bond yields prove temporary, plans could quickly find the pressure returning to further reduce discount rates or increase their exposure to investment risk.
-



2. *Inflation Assumption*

SURS maintained its inflation assumption at 2.25% in the draft June 30, 2023 valuation.

We find the 2.25% inflation assumption to be reasonable.

SECTION III – SUPPORTING ANALYSIS

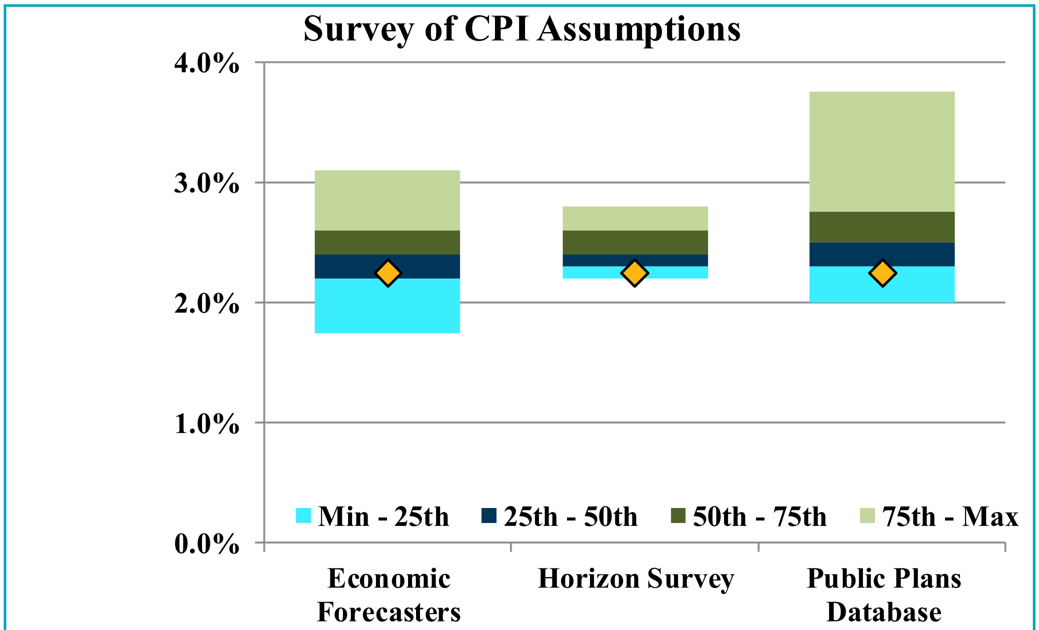
Our rationale for concurring with the 2.25% assumption:

- The March 2023 Old-Age, Survivors, and Disability Insurance (OASDI) Trustees Report projects that over the long-term (next 75 years), inflation will average between 1.8% and 3.0% (http://www.ssa.gov/oact/tr/2023/tr2023.pdf). Under the intermediate cost projection, the Social Security Administration uses an assumption of 2.4%.

- In the 2023 Economic experience review, GRS provides significant data on inflation forecasts that indicate expectations both above and below the current assumption. While some data presented point to slightly higher inflation than the current assumption, the current assumption remains within the reasonable range and GRS concludes they should maintain the current 2.25% assumption.

- The following chart shows the distribution of inflation expectations for the Third Quarter 2023 survey of professional economic forecasters published by the Philadelphia Federal Reserve, the 2023 Horizon survey of investment consultant capital market assumptions (20-year), and the 2022 inflation assumptions used by plans in the Public Plans Database compared to the SURS assumption (indicated by the gold diamonds). The assumption of 2.25% is in the second quartile of the range projected by professional economic forecasters, the lower quartile for investment consultants, and the lower quartile compared to other public pension plans.

SECTION III – SUPPORTING ANALYSIS



	Economic Forecasters	Horizon Survey	Public Plans Database
Minimum	**1.75%**	**2.20%**	**2.00%**
25th Percentile	**2.20%**	**2.30%**	**2.30%**
50th Percentile	**2.40%**	**2.40%**	**2.50%**
75th Percentile	**2.60%**	**2.60%**	**2.75%**
Maximum	**3.10%**	**2.80%**	**3.75%**

3. *Salary (Annual Compensation) Increase Assumption*

Salary Increases were maintained for the 2023 valuation and are shown below.

Illustrative rates of increase per individual employee per annum, compounded annually:

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%

SECTION III – SUPPORTING ANALYSIS

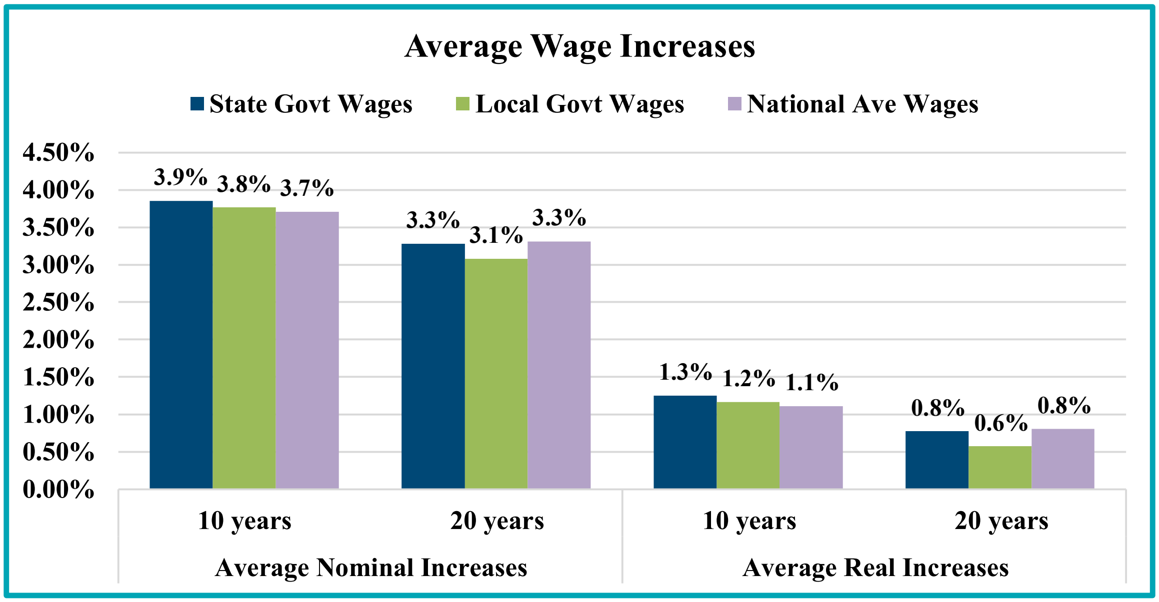
20-33	3.75%	3.25%
34+	3.50%	3.00%

The assumed rate of general wage inflation is 3.00%.

We find the assumption to keep real wage growth at 0.75% and the basis for setting it as reasonable and consistent with the inflation assumption.

Our rationale for concurring with GRS's recommended salary increase assumption:

- The following chart shows the average nominal and real increases in wages over the last 10 and 20 years for State governments, local governments, and National Average Wages. State and local government data is from the Quarterly Census of Employment and Wages as published by the Bureau of Labor Statistics. National Average Wages is published by the Social Security Administration.



- The March 2023 Old-Age, Survivors, and Disability Insurance (OASDI) Trustees Report projects that over the long-term (next 75 years), real wage differential will average somewhere between 0.54% and 1.74%. Under the intermediate cost projection, the Social Security Administration uses an assumption of 1.14%.

- During the year ending June 30, 2023, there was an experience loss from this assumption (i.e., salary increases were greater than assumed) as shown on page 33 of the June 30, 2023 Actuarial Valuation. The table on page 33 shows that there have been losses due to salary increases in three out of the four prior years.

4. *Cost-of-Living Adjustment Assumption*

SECTION III – SUPPORTING ANALYSIS

Benefits are increased annually as described on page 62 of the June 30, 2023 Actuarial Valuation. Annual increases are 3.0% for those hired prior to January 1, 2011 and based upon ½ of the Consumer Price Index for those hired on or after January 1, 2011, which is 1.125% based on the inflation assumption of 2.25%.

We find the assumption and the basis for setting it reasonable.

5. *Capped Pay Assumption*

Benefits for members hired after January 1, 2011 are calculated using pay that is capped under 40 ILCS 5/1-160. The pay cap is shown on page 72 of the June 30, 2023 Actuarial Valuation to be $119,892.41 for 2023. The Optional Hybrid Plan pay cap is equal to the Social Security Wage Base, which is $168,600 for 2024.

We find the assumption and the basis for setting it reasonable.

6. *Effective Rate of Interest*

The Effective Rate of Interest ("ERI") is the interest rate that is applied to member contribution balances. 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%.

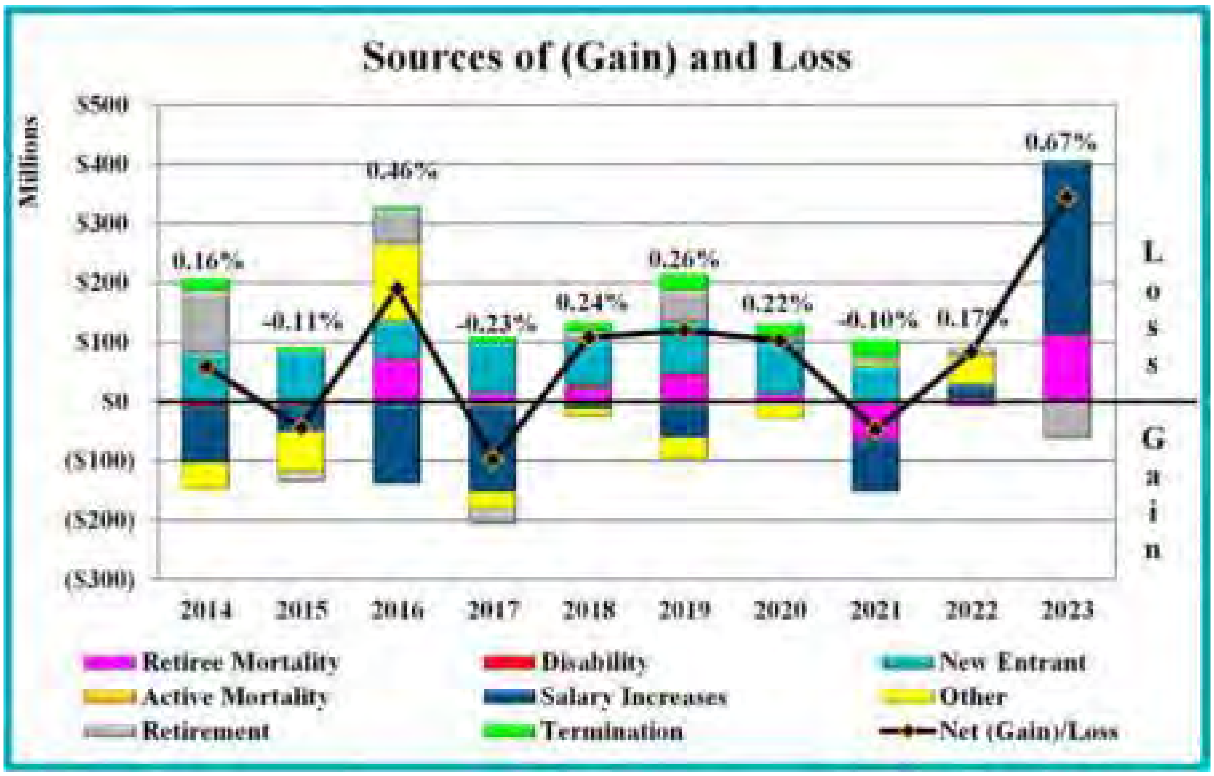
We find this assumption and the basis for setting it reasonable.

SECTION III – SUPPORTING ANALYSIS

B. Demographic Assumptions

In its annual actuarial valuation reports, GRS regularly reports sources of liability gains and losses. In the June 30, 2023 Actuarial Valuation, these are shown on page 35. In the chart below, we have collected similar data from GRS's past valuation reports dating back to 2014 and presented a historical review of past demographic and salary increase experience gains and losses.

The chart below shows the pattern of annual gains and losses attributable to eight different sources as shown in the legend. When the colored bar slices appear above zero on the Y-axis, it represents an experience loss with the value representing the increase in liabilities over what was expected. When the bar is below zero, it represents an experience gain for that year with liabilities less than expected. This net liability (gain)/loss is shown by the black line. This net (gain)/loss as a percent of liability is shown above the bars.



The percentages shown above the bars refer to net (gain)/loss as a percentage of liability.

Key observations from this chart are as follows:

1. In every year, there have been experience losses attributable to new entrants joining SURS. New entrant losses are expected because participants are hired and accrue service between valuations. GRS did not report the loss from new entrants in the June 30, 2023 draft valuation report separately and is included in the "other" category for 2023. However, there

is also an offsetting asset gain to this loss due to contributions made on behalf of these new entrants.

2. A trend of small salary fluctuations had appeared in most years. However, there was a significant loss due to higher-than-expected salaries in 2023.

3. Termination from employment experience has consistently shown losses, but they have been relatively small. This assumption was reexamined in the recent GRS 2021 Experience Review and was slightly modified to produce fewer expected number of terminations. Losses have been minor in recent years.

4. Retiree mortality gains and losses also include unexpected changes in benefit amounts from year to year. GRS notes that unexpected changes may occur when benefits that are initially paid as preliminary estimates are finalized.

5. Disability and active mortality experience are too small to be noticed on the chart, given their insignificant size relative to other experience items. Since there have been both gains and losses in each of these areas during the period shown, they are not an immediate area of concern.

6. The net liability (gain)/loss is shown by the black line on the graph above. This net (gain)/loss as a percent of liability is shown above the bars. The percent is generally quite small and there is not a consistent pattern of either gains or losses.

Below we summarize the demographic assumptions that we have reviewed, and we have concluded all are reasonable and meet the requirements of ASOP No. 35, Section 3.3.4.

1. Mortality

The mortality assumptions are as follows:

Employee Type of Academic:

Base Table with 2010 Base Year	Male Multiplier	Female Multiplier
Pub-2010 Employee Mortality Table (for Teachers) (pre-retirement)	101%	97%
Pub-2010 Healthy Retiree Mortality Table (for Teachers) (non-disabled post-retirement)	99%	105%
Pub-2010 Disabled Retiree Mortality Table (for Non-Safety Employees) (disabled post-retirement)	112%	110%

SECTION III – SUPPORTING ANALYSIS

Employee Type of Non-Academic:

Base Table with 2010 Base Year	Male Multiplier	Female Multiplier
Pub-2010 Employee Mortality Table (for General Employees) (pre-retirement)	114%	105%
Pub-2010 Healthy Retiree Mortality Table (for General Employees) (non-disabled post-retirement)	99%	107%
Pub-2010 Disabled Retiree Mortality Table (for Non-Safety Employees) (disabled post-retirement)	112%	110%

The provision for future mortality improvement is based on the generational application of the MP-2020 improvement scales.

Sample Mortality Rates								
	Future Life Expectancy (years) in 2023				Future Life Expectancy (years) in 2035			
	Academic		Non-Academic		Academic		Non-Academic	
Age	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

2. Marriage Assumption

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
45-59	80	75
60-89	80	70

SECTION III – SUPPORTING ANALYSIS

3. Termination Rates

The termination rates are based on the most recent experience study period. The assumption is a table of turnover rates for each classification 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 that 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, either refund of contributions or a deferred benefit.

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

4. Retirement Rates

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

	Members Hired before January 1, 2011 and Eligible for					
	Academic			Non-Academic		
	Normal Retirement		Early Retirement	Normal Retirement		Early Retirement
Age	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%	4.0%	25.0%	37.5%	8.0%
56	20.0%	30.0%	4.0%	25.0%	37.5%	5.5%
57	20.0%	30.0%	5.0%	25.0%	37.5%	5.5%
58	20.0%	30.0%	4.0%	25.0%	37.5%	5.5%
59	20.0%	30.0%	4.0%	25.0%	37.5%	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%	-

SECTION III – SUPPORTING ANALYSIS

	Members Hired on or After January 1, 2011 and Eligible for				
	Academic		Non-Academic		Police
Age	Normal Retirement	Early Retirement	Normal Retirement	Early Retirement	Normal Retirement
60	-	-	-	-	60.0%
61	-	-	-	-	25.0%
62	-	25.0%	-	35.0%	25.0%
63	-	10.0%	-	15.0%	25.0%
64	-	10.0%	-	15.0%	25.0%
65	-	10.0%	-	15.0%	15.0%
66	-	10.0%	-	15.0%	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 a member has 40 or more years of service and is less than 80 years old. The rates shown above are for members with less than 40 years of service.

Members that retire are assumed to elect the most valuable option on a present value basis, either 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).

SECTION III – SUPPORTING ANALYSIS

5. Disability Rates

A table of disability incidence with sample rates follows:

	Academic			Non-Academic	
Age	Males	Females	Age	Males	Females
20	0.00741%	0.01640%	20	0.02717%	0.037720%
21	0.00759%	0.01735%	21	0.02783%	0.039905%
22	0.00777%	0.01830%	22	0.02849%	0.042090%
23	0.00795%	0.01925%	23	0.02915%	0.044275%
24	0.00813%	0.02020%	24	0.02981%	0.046460%
25	0.00831%	0.02115%	25	0.03047%	0.048645%
26	0.00849%	0.02210%	26	0.03113%	0.050830%
27	0.00867%	0.02305%	27	0.03179%	0.053015%
28	0.00885%	0.02405%	28	0.03245%	0.055315%
29	0.00900%	0.02500%	29	0.03300%	0.057500%
30	0.00945%	0.02705%	30	0.03465%	0.062215%
31	0.00990%	0.02910%	31	0.03630%	0.066930%
32	0.01035%	0.03115%	32	0.03795%	0.071645%
33	0.01077%	0.03320%	33	0.03949%	0.076360%
34	0.01122%	0.03525%	34	0.04114%	0.081075%
35	0.01185%	0.03725%	35	0.04345%	0.085675%
36	0.01245%	0.03930%	36	0.04565%	0.090390%
37	0.01308%	0.04135%	37	0.04796%	0.095105%
38	0.01371%	0.04340%	38	0.05027%	0.099820%
39	0.01431%	0.04545%	39	0.05247%	0.104535%
40	0.01608%	0.04750%	40	0.05896%	0.109250%
41	0.01785%	0.04955%	41	0.06545%	0.113965%
42	0.01962%	0.05160%	42	0.07194%	0.118680%
43	0.02139%	0.05365%	43	0.07843%	0.123395%
44	0.02316%	0.05570%	44	0.08492%	0.128110%
45	0.02535%	0.05775%	45	0.09295%	0.132825%
46	0.02757%	0.05980%	46	0.10109%	0.137540%
47	0.02979%	0.06185%	47	0.10923%	0.142255%
48	0.03198%	0.06390%	48	0.11726%	0.146970%
49	0.03420%	0.06595%	49	0.12540%	0.151685%
50	0.03642%	0.06800%	50	0.13354%	0.156400%
51	0.03861%	0.07005%	51	0.14157%	0.161115%
52	0.04083%	0.07210%	52	0.14971%	0.165830%
53	0.04305%	0.07415%	53	0.15785%	0.170545%
54	0.04524%	0.07620%	54	0.16588%	0.175260%
55 and older	0.04656%	0.07825%	55 and older	0.17072%	0.179975%

Disability rates apply during the retirement eligibility period.

Members are assumed to first receive disability benefits and then receive disability retirement annuity 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.

6. 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%.

7. Spouse's Age

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

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

9. 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 with at least 30 years of service. For Tier 2 members, this is age 67 with 10 or more years of service.

10. Load on Final Average Salary

No load is assumed to account for higher than assumed pay increases in final years of employment before retirement.

11. 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.

12. 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.

13. 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.

14. 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% are assumed to elect to participate in the Retirement Saving Plan.
  - 55% are assumed to elect to participate in the Tier 2 Plan

- Non-Academic
  - 25% are assumed to elect to participate in the Self-Managed Plan.
  - 75% are assumed to 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). The new entrant profile 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.

SECTION III – SUPPORTING ANALYSIS

Summary of New Entrants - Academic									
		Average Pay			Average Pay			Average Pay	
Age	Number Males	Capped Male	Uncapped Male	Number Females	Capped Female	Uncapped Female	Total Number	Capped Total	Uncapped Total
<20	0	$0	$0	0	$0	$0	0	$0	$0
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

Summary of New Entrants – Non - Academic									
		Average Pay			Average Pay			Average Pay	
Age	Number Males	Capped Male	Uncapped Male	Number Females	Capped Female	Uncapped Female	Total Number	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	51,744	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

SECTION III – SUPPORTING ANALYSIS

15. Retirement Savings Plan (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 2023 RSP employer forfeitures used to reduce the certified contributions for FY 2025 are $8,977,663. 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.

16. 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.

17. Governor's Pay

The Governor's pay is $190,700 as of June 30, 2023, and budgeted as of $216,000 as of June 30, 2024, and is expected to increase each year by the assumed rate of Tier 2 capped payroll growth of 1.125%.

18. Buyout Election Assumption.

Zero percent 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 Act 100-0587, 101-0010, and 102-718. Zero percent 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 Act 100-0587 and 101-0010.

Comment: Again, this year GRS studied buyout option elections for the two options available in the Plan:

i) The vested inactive member buyout (VIB) which provides vested inactive members a payment equal to 60% of the present value of their pension benefit in lieu of any future payments, and
ii) The automatic annual increase buyout which provides Tier 1 members a payment equal to 70% of the difference between the present value of their current AAI provisions and the revised provision available to Tier 2 members

Their analysis showed that very few members have been approved for buyouts through 6/30/2023. We find this assumption and the basis for setting it as reasonable.

SECTION III – SUPPORTING ANALYSIS

19. 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.

SECTION III – SUPPORTING ANALYSIS

C. Funding Methods

Actuarial funding methods consist of three components: (1) the actuarial cost method, which is the attribution of total costs to past, current, and future years; (2) the asset valuation method (i.e., asset smoothing); and (3) the amortization method.

1. *Actuarial Cost Method*

The System uses the projected unit credit cost method (PUC) to assign costs to years of service, as required under the Pension Code (40 ILCS 5/15). **We have no objections with respect to using the PUC method, although we would prefer the Entry Age Normal (EAN) cost method as it is more consistent with the requirement in 40 ILCS 5/15 -155 requirement for level percentage of pay funding**.

Under the PUC method, which is used by some public sector pension funds, the benefits of active participants are calculated based on their compensation projected with assumed annual increases to ages at which they are assumed to leave the active workforce by any of these causes: retirement, disability, turnover, or death. Only past service (through the valuation date but not beyond) is taken into account in calculating these benefits. The present value of these benefits based on past service and future compensation is the actuarial liability for a given active participant. Under the PUC cost method, the value of an active participant's benefits tends to increase more sharply over his or her later years of service than over his or her earlier ones. While the PUC method is not an unreasonable method, as a result of this pattern of benefit values increasing, more plans use the EAN cost method to mitigate this effect. It should also be noted that the EAN cost method is the required method to calculate liability for GASB Nos 67 and 68.

2. *Asset Valuation Method*

The Actuarial Value of Assets for the System is a smoothed market value. Unanticipated changes in market value are recognized over five years in the Actuarial Value of Assets. The primary purpose for smoothing out gains and losses over multiple years is so fluctuations in the contributions will be less volatile over time than if based on the Market Value of Assets.

The 2023 Public Retirement Systems Study by the National Conference on Public Employee Retirement Systems (NCPERS) survey of 190 public retirement funds found that the majority of plans responding to the survey have a five-year smoothing period.

Smoothing the market gains and losses over a period of five years to determine the Actuarial Value of Assets is a generally accepted approach in determining actuarial cost, and we concur with its use.

SECTION III – SUPPORTING ANALYSIS

3. Amortization Method

The mandated State contribution is based on a determination of the level percentage of payroll that is expected to achieve a 90% funded ratio in 2045. While not a traditional amortization method, this methodology effectively amortizes a portion of the unfunded actuarial liability over the remaining period until 2045, which is currently 22 years.

One of the principles of funding public plans identified by the American Academy of Actuaries is that there should be "a plan to make up for any variations in actual assets from the funding target within a defined and reasonable time period." Because it only targets 90%, the State method does not include a plan to achieve the funding target over any period of time.

Typical public plan amortization methods are designed to increase each year by expected payroll growth. Under the State mandated method, however, the effective amortization payment increases each year by more than the expected growth in payroll. As a result, the State mandated method defers payments on the unfunded actuarial liability further into the future than under typical public plan amortization methods.

Finally, as the remaining period to achieve 90% funding shortens, the State mandated method will also produce more volatile contributions. Instead of a single fixed period, typical public plan amortization methods use layered amortization bases such that new assumption changes and experience gains and losses are amortized over a new period (e.g., 20 years) while the remaining period for the prior amortization layers becomes one year shorter.

SECTION IV– PROJECTION ANALYSIS

This section reviews the projections contained in the June 30, 2023 Actuarial Valuation of SURS. These projections are fundamental to the development of the required State contribution calculated under the current statutory funding requirement.

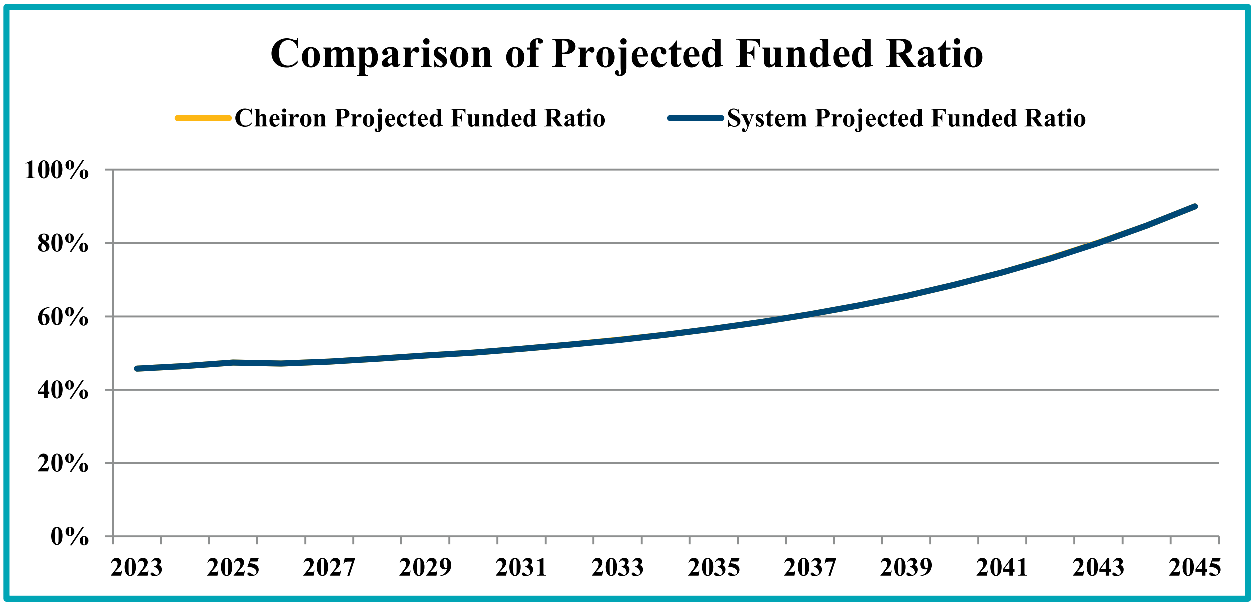
The following graphs are independent approximations of the projections performed by the State actuary to verify that the System's funding projections are reasonable. They do not reflect all the precision of the projections applied by the System's actuary, but instead they are intended to verify the reasonableness of the modeling done by the System's actuary.

The graph below shows our projection of the expected future liabilities and assets in the System through 2045. As pointed out on page 9 of the June 30, 2023 Actuarial Valuation, the majority of the funding of the System occurs in the later years of the projections. The **lines show the projected assets** (market value and actuarial value), and the **bars show the projected liabilities** of the System. The funded ratio for every other year is shown at the top of the bars. For example, in 2034, the funded ratio is projected to be approximately 55%, with assets being approximately $30 billion and liabilities being approximately $55 billion.

Source: Cheiron projection analysis.

SECTION IV– PROJECTION ANALYSIS

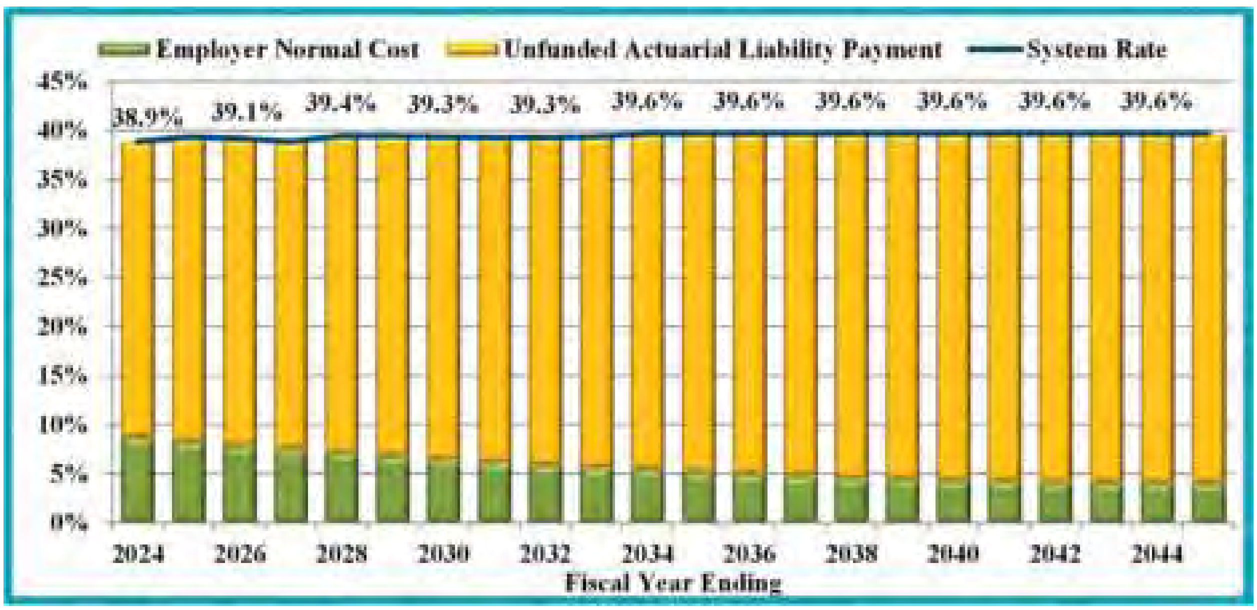
When we compare, in the chart below, our projected funded ratio (yellow line) against the results shown in the June 30, 2023 Actuarial Valuation (blue line), **we find a very close match in expected funded ratio**. This close match of the funded ratio, illustrated by the fact that the yellow line is completely hidden by the blue line, indicates that the projections done by the System's actuary are reasonable.



Source: Cheiron projection analysis.

SECTION IV– PROJECTION ANALYSIS

The following graph shows the expected contributions calculated under the statutory method. The contribution as a percentage of payroll is shown above each bar. The value shown for the fiscal year ending 2024 was set based on the June 30, 2022 Actuarial Valuation. The current valuation is the basis for setting the rates starting July 1, 2024 (Fiscal Year Ending June 30, 2025). The contribution requirement has two components: 1) the employer normal cost, which is the approximate value of the amount of benefits accrued by participants not covered by employee contributions based on the statutory funding method; and 2) an amortization of the unfunded liability. The normal cost amounts are shown by the green bars and the amortization of the unfunded actuarial liability (UAL) amounts by the yellow bars. The percentages shown are the total contribution rates calculated by Cheiron which are equal to the sum of the bars. The graph shows that a larger percentage of the total contribution is being made toward the UAL payment later in the period. The blue line shows the projected contribution rates as a percentage of payroll from the June 30, 2023 Actuarial Valuation. The difference between Cheiron's approximation and the System's projections is the difference between the top of the bars and the line.



Source: Cheiron projection analysis.

Our conclusion is that **the projections performed by the System's actuary are reasonable.**

SECTION V– ANALYSIS OF FUNDING ADEQUACY

In this section, we examine the adequacy of the funding for the System, including funded ratio, the sources of changes in the unfunded actuarial liability (UAL), and projections of the UAL and statutory funding requirements compared to contributions needed to pay down the UAL.

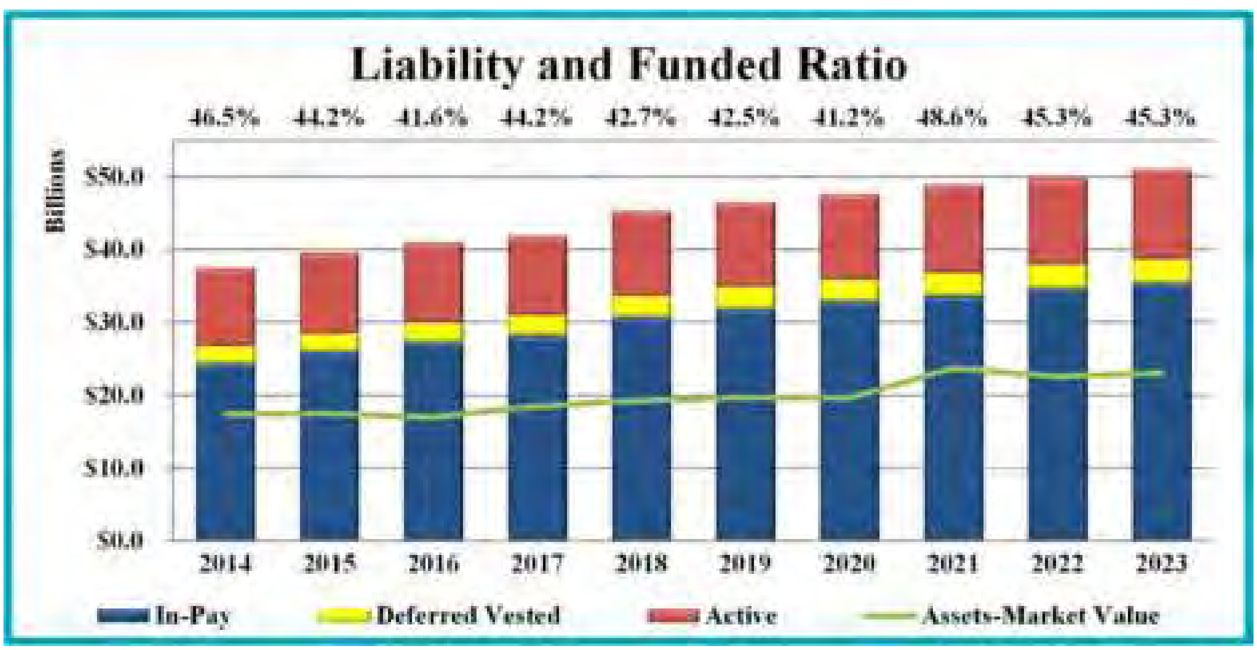
The actuarial valuation report prepared by GRS includes both traditional actuarial measurements, as well as additional risk measurements that are shown on pages 15, 16, and 17 in their 2023 valuation report. Given the unique and substantial funding challenges faced by the Illinois pension systems, this section on funding adequacy supplements the information from the GRS report to better inform the legislature and other stakeholders about the adequacy of the System's funding.

System Funded Ratio

The first funding adequacy measure is the historical trend of funded ratio for the past 10 years. Funded ratio for this purpose is defined as the ratio of the Market Value of Assets to the actuarial liability. The chart below shows SURS' funded ratio since 2014 has gone from 46.5% funded to 45.3% funded in 2023, a decrease of 1.2%. In addition to showing the funded ratio, this chart also shows the breakdown of the plan's liabilities by membership status:

- Active liability – the liability (attributable to service already performed) for future payments to members who are currently working in the System,
- Deferred Vested liability – the liability for future payments to members who are no longer working in the system, and
- In-Pay liability – the liability for future payments to retirees and beneficiaries who are currently receiving benefits.

This breakdown shows that today plan assets only cover about 65% of the liabilities for just those members currently in-pay status.



Source: Cheiron analysis of funding adequacy.

Sources of Changes in the UAL

As shown in the chart below, SURS' unfunded actuarial liability (UAL) has grown from about $20.1 billion in 2013 to $27.7 billion in 2023, an increase of $7.6 billion. In order to understand how to reverse this trend, it is important to understand the sources contributing to it.

Source: Cheiron analysis of funding adequacy.

The changes to the UAL from June 30, 2013 to June 30, 2023 can be separated into the following components:

- **Contribution Deficiencies** – Contributions that are less than the tread water contribution causes the UAL to increase. The tread water contribution consists of two components: the normal cost, which is the cost of benefits earned in a given year, and the interest on the unfunded actuarial liability. This sum is referred to as the tread water contribution because it is the contribution necessary so that the UAL will remain constant, or "tread water" (absent experience gains or losses). The difference between actual contributions and the tread water contributions have increased the UAL by $3.52 billion over this period.

- **Assumption Changes** are changes to actuarial assumptions as the System updated expectations on future investment returns and life expectancy. A positive aspect of the UAL increases due to assumption changes is that they will result in liability measurements that more accurately reflect future expectations. Over this period assumption changes have increased the UAL by $5.31 billion

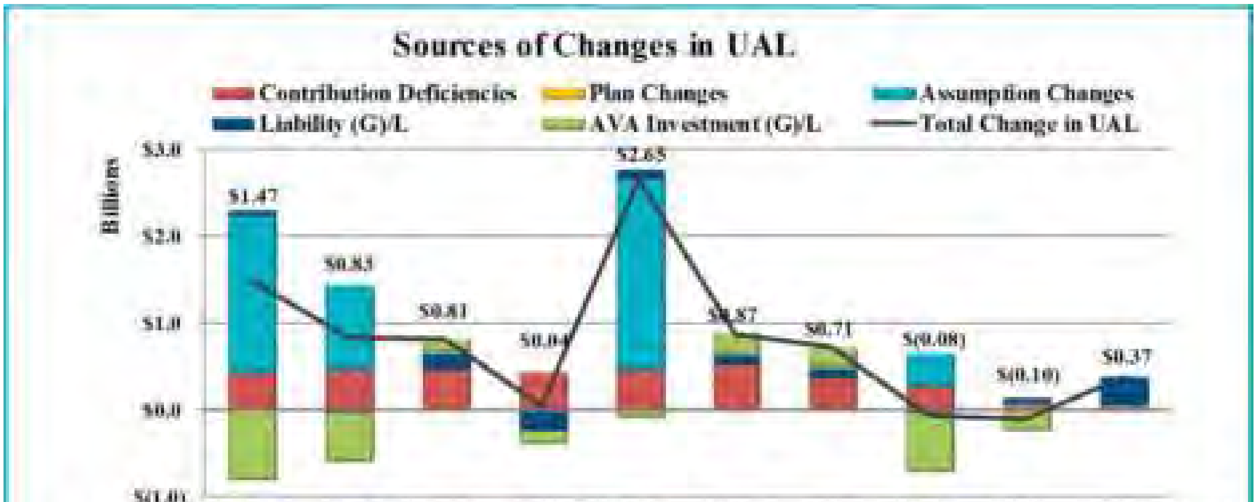
SECTION V– ANALYSIS OF FUNDING ADEQUACY

- **Plan Changes** are any modifications of the design of the Plan, which have affected benefits already accrued. Since most of the changes to the System's plan affect only future benefits the impact has been negligible during this period.

- **Liability (Gain) or Loss** are the changes in the UAL due to liability experience (i.e., mortality, terminations, salary increases, etc.). These were generally small and had a net effect of increasing the UAL by $0.66 billion during this period.

- **AVA (Actuarial Value of Assets) Investment (Gain) or Loss** is the net investment gain or loss due to assets earning more or less than assumed. These have decreased the UAL over this period by $1.92 billion.

  The chart below shows the changes in UAL each year broken into these five components. The sum of all the components (total change in UAL) is shown as the black line.



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
Contributions	$ 0.43	$ 0.46	$ 0.46	$ 0.43	$ 0.46	$ 0.52	$ 0.37	$ 0.28	$ 0.07	$ 0.05	$ 3.52
Assumptions	1.79	0.97	0.00	0.00	2.18	0.00	0.00	0.36	0.00	0.00	$ 5.31
Investments	(0.80)	(0.56)	0.15	(0.14)	(0.09)	0.23	0.23	(0.67)	(0.25)	(0.03)	$ (1.92)
Plan Changes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	$ 0.00
Liabilities	0.06	(0.04)	0.19	(0.25)	0.11	0.12	0.10	(0.05)	0.08	0.34	$ 0.66
Total	$ 1.47	$ 0.83	$ 0.81	$ 0.04	$ 2.65	$ 0.87	$ 0.71	$ (0.08)	$ (0.10)	$ 0.37	$ 7.58

Source: Cheiron analysis of funding adequacy.

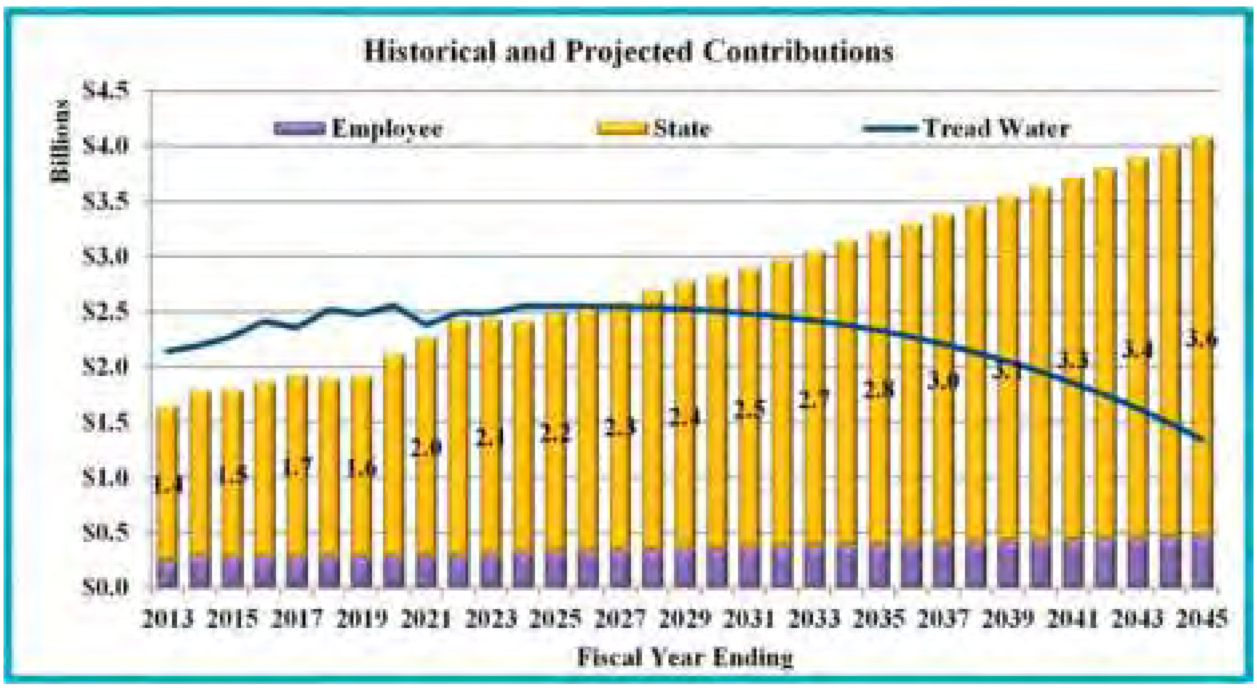
We expect that this chart will help stakeholders understand the sources of growth in the UAL over the past decade and inform discussions about the current funding requirements and adequacy.

SECTION V– ANALYSIS OF FUNDING ADEQUACY

Actual Contributions Compared to Tread Water Contribution

One of the persistent sources of the increase in UAL is due to actual contributions to the System being less than the tread water contribution (the amount needed to prevent the UAL from increasing if all assumptions are met). These contribution deficiencies have added between $70 to $520 million to the UAL each year over the historical period shown.

As the chart below shows, actual contributions have been significantly less than the tread water cost. Each year that total contributions remain below the tread water cost (blue line), the UAL is expected to grow. As shown in the graph below the total contributions are expected to reach the tread water contribution in FY 2026 and begin to pay down the UAL based on the Market Value of Assets.

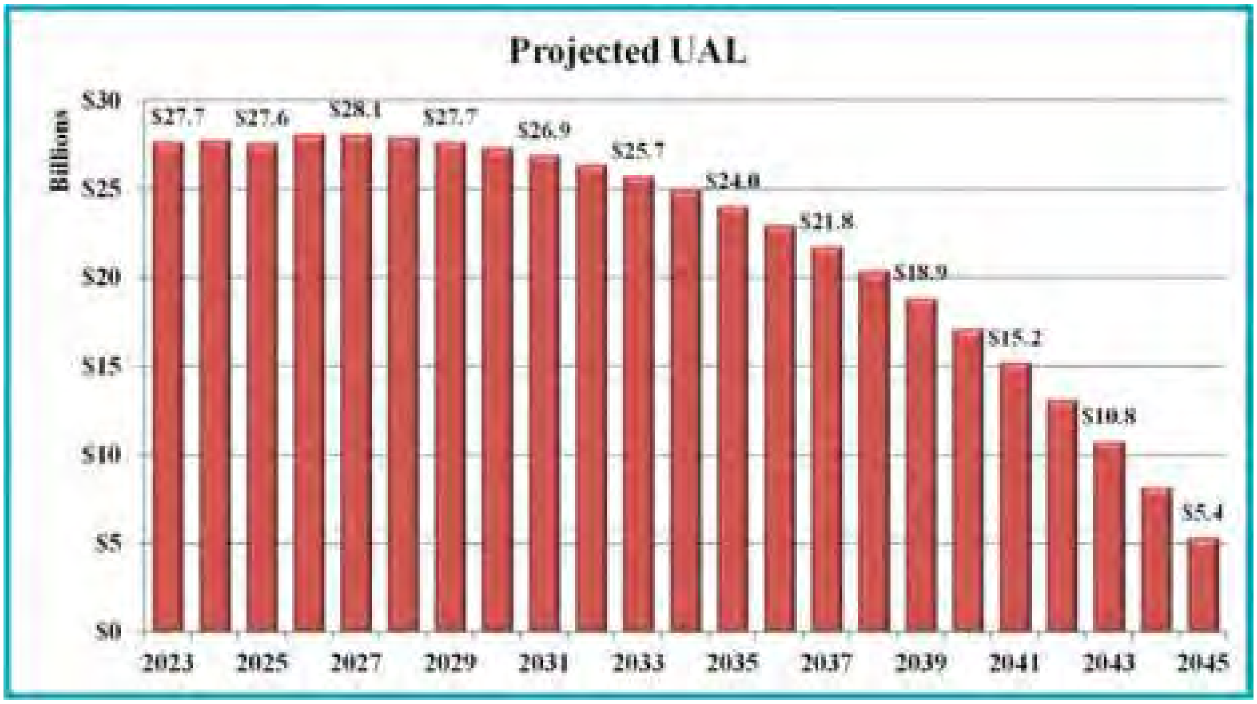


Source: Cheiron analysis of funding adequacy.

The System's actuary commented that "the statutory funding method generates a contribution requirement that is less than a reasonable actuarially determined contribution." It isn't clear what standard the System's actuary is using to make this determination. With the recent revision to ASOP 4, the actuary needs to consider if the contribution generated by the statutory funding method is less than employer normal cost and expenses plus an amortization payment on the UAL that meets the requirements of Section 3.14 of ASOP 4.

SECTION V– ANALYSIS OF FUNDING ADEQUACY

The next chart shows that if the Minimum Required Contributions continue to be made each year and all other assumptions are met, the UAL based on the Actuarial Value of Assets is projected to decline from $27 billion in 2023 to $5 billion in 2045. The slight growth over the next few years is due to a combination of contributions and recognition of offsetting investment gains and losses in the asset smoothing method.

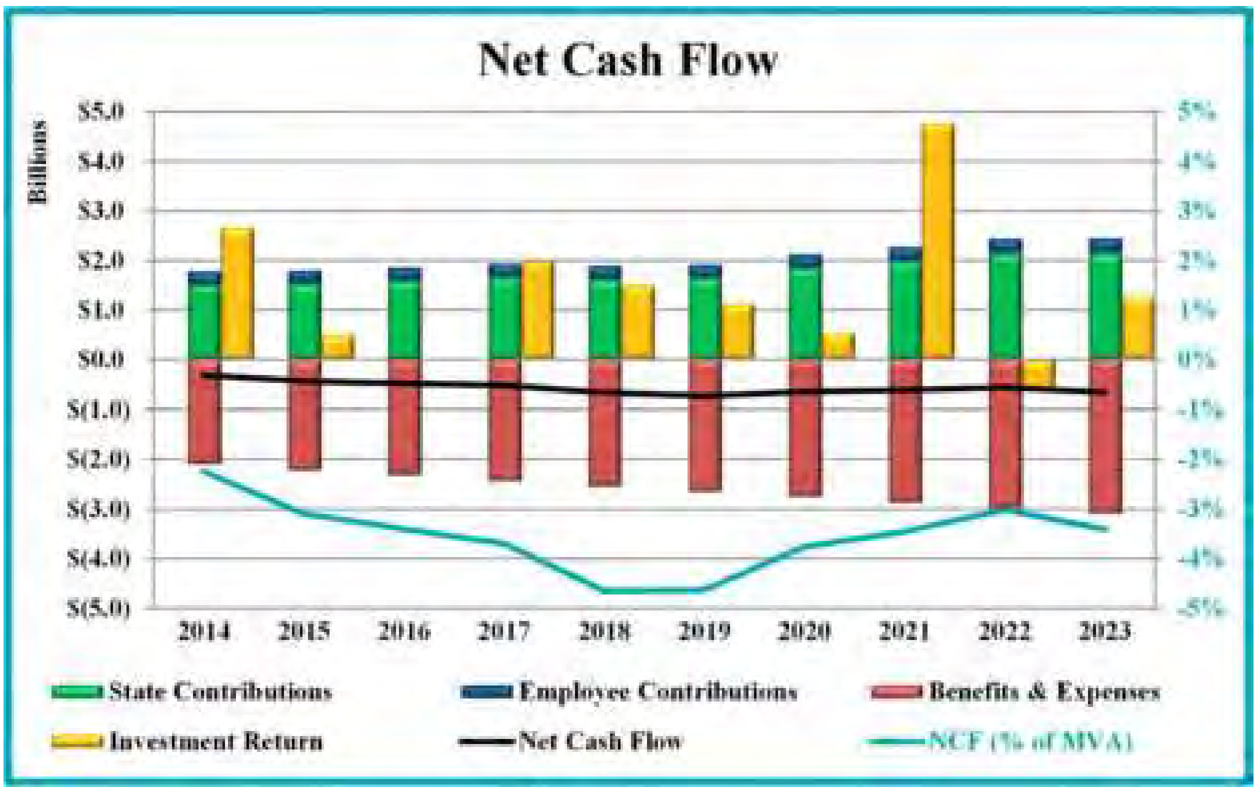


Source: Cheiron analysis of funding adequacy

Net Cash Flow Analysis

The plan's net cash flow is defined as State and member contributions less benefit payments and administrative expenses. The more negative net cash flow is as a percentage of the plan's assets, the more vulnerable the Plan is to market downturns. When a pension plan has more payouts than contributions and suffers an investment loss, it is left with fewer assets to invest and recapture during a recovery.

Looking at the chart below, SURS has slightly negative net cash flow (black line). If contributions increase as quickly as benefit payments, the net cash flow will remain stable. But if contributions do not continue to grow either because the Plan has become better funded or because the expected contributions are not made, negative net cash flow may become a more significant issue, therefore it should continue to be monitored. The teal line shows net cash flow as a percent of Market Value of Assets on the right-side axis. The greater the negative cash flows are relative to plan assets the more vulnerable a plan is to market downturns. This is because once there is a market downturn, the plan assets lose both on the return and the negative cash flow, leaving it with a lower asset base from which to recover from the loss.



Source: Cheiron analysis of funding adequacy.

APPENDIX A – RESPONSE TO 2022 STATE ACTUARY'S REPORT

Response to Recommendations in 2022

In the State Actuary's Preliminary Report on the State Universities Retirement System of Illinois presented December 15, 2022, Cheiron made several recommendations. Below we summarize how these recommendations were reflected in either the System's comments last year or in this year's June 30, 2023 Actuarial Valuation.

Recommendations to Retirement System from 2022 State Actuary Report	Status	Comments
1. We recommend that the funding method be changed to employ a methodology that produces a Reasonable Actuarially Determined Contribution and fully funds plan benefits within a reasonable period. The State Mandated Method is entering a period in which the contribution amount it produces may be reasonable even though the overall methodology is not. This period offers an opportunity to change the methodology to one that is consistent with actuarial standards for a Reasonable Actuarially Determined Contribution (ADC) without significantly affecting the immediate contribution amount. Such a method would set contributions at a level that is expected to prevent the unfunded actuarial liability from growing and remain high enough to reduce the unfunded actuarial liability each year until the plan is ultimately 100% funded within a reasonable period. While the State Mandated Method is inadequate, it will also produce more volatile contribution levels as the remaining period to achieve 90% funding shortens. Consequently,	**Not Implemented**	The System has adopted a funding policy that would meet the recommendation; however, the actual funding of the System is based on State statute and a change in the funding method and funding policy would require a statutory change. **Recommendation repeated.**

THE STATE ACTUARY'S PRELIMINARY REPORT ON THE STATE UNIVERSITIES RETIREMENT SYSTEM OF ILLINOIS PURSUANT TO 30 ILCS 5/2-8.1

APPENDIX A – RESPONSE TO 2022 STATE ACTUARY'S REPORT

Recommendations to Retirement System from 2022 State Actuary Report	Status	Comments
we recommend that the funding method be changed to one that produces more stable contribution requirements while targeting 100% funding within a reasonable period and meets the actuarial standards for a Reasonable ADC. However, we understand that changing the funding method is under the jurisdiction of State law and not the Retirement System.		
2. Because experience studies are performed every three years, we recommend the phase-in period of the impact of assumption changes be reduced to three years. However, we understand that changing the funding method is under the jurisdiction of State law and not the Retirement System.	**Not Implemented**	This period is determined by Public Act 100-0023 and would require a statutory change. **Recommendation repeated.**
3. We recommend that future stress testing include the impact to the required State contribution of potential reductions in the discount rate.	**Implemented**	GRS included an assessment of the immediate impact of a reduction to the discount rate in the Risk Section on Page 17 of the 2023 Actuarial Valuation and added scenarios 4 and 5 to their Stress Testing assessing the impact of a 50 basis point reduction in the discount rate over the projection period. **Recommendation removed.**
4. We recommend that the actuary explain how each risk identified would reasonably be anticipated to significantly affect the specific plan's future financial condition.	**Not Implemented**	The risks currently identified appear to largely duplicate the list of examples in ASOP 51 and could apply to almost any pension plan. **Recommendation repeated.**

APPENDIX A – RESPONSE TO 2022 STATE ACTUARY'S REPORT

Recommendations to Retirement System from 2022 State Actuary Report	Status	Comments
5. We recommend that for each identified risk the actuary provide an assessment, preferably quantitative, that considers the specific circumstances of this plan.	**Not Implemented**	ASOP 51 requires the actuary to provide an assessment that takes into account "circumstances specific to the plan." For asset/liability mismatch, longevity, and other demographic risks, the actuary has only provided a generic statement that could apply to any plan and has not provided the assessment required by ASOP 51. **Recommendation repeated.**
6. We recommend that the SURS Board continue to annually review the economic assumptions (interest rate and inflation) prior to commencing the valuation work and adjust assumptions accordingly, as they did for this valuation.	**Implemented**	The economic assumptions were reviewed at the September 2023 Board meeting. GRS recommended no changes. We will continue to include this recommendation each year. **Recommendation continued.**

APPENDIX B – PROVISIONS OF GOVERNING LAW

(30 ILCS 5/2-8.1 new)
Sec. 2-8.1. Actuarial Responsibilities:

(a) The Auditor General shall contract with or hire an actuary to serve as the State Actuary. The State Actuary shall be retained by, serve at the pleasure of, and be under the supervision of the Auditor General and shall be paid from appropriations to the office of the Auditor General. The State Actuary may be selected by the Auditor General without engaging in a competitive procurement process.

(b) The State Actuary shall:

(1) review assumptions and valuations prepared by actuaries retained by the boards of trustees of the State-funded retirement systems;

(2) issue preliminary reports to the boards of trustees of the State-funded retirement systems concerning proposed certifications of required State contributions submitted to the State Actuary by those boards;

(3) cooperate with the boards of trustees of the State-funded retirement systems to identify recommended changes in actuarial assumptions that the boards must consider before finalizing their certifications of the required State contributions;

(4) conduct reviews of the actuarial practices of the boards of trustees of the State-funded retirement systems;

(5) make additional reports as directed by joint resolution of the General Assembly; and

(6) perform any other duties assigned by the Auditor General, including, but not limited to, reviews of the actuarial practices of other entities.

(c) On or before January 1, 2013 and each January 1 thereafter, the Auditor General shall submit a written report to the General Assembly and Governor documenting the initial assumptions and valuations prepared by actuaries retained by the boards of trustees of the State-funded retirement systems, any changes recommended by the State Actuary in the actuarial assumptions, and the responses of each board to the State Actuary's recommendations.

(d) For the purposes of this Section, "State-funded retirement system" means a retirement system established pursuant to Article 2, 14, 15, 16, or 18 of the Illinois Pension Code.

(Source: P.A. 97-694, eff. 6-18-12.)

APPENDIX B – PROVISIONS OF GOVERNING LAW

(40 ILCS 5/15-155) (from Ch. 108 1/2, par. 15-155) (Text of Section WITHOUT the changes made by P.A. 98-599, which has been held unconstitutional)

Sec. 15-155. Employer contributions.

(a) The State of Illinois shall make contributions by appropriations of amounts which, together with the other employer contributions from trust, federal, and other funds, employee contributions, income from investments, and other income of this System, will be sufficient to meet the cost of maintaining and administering the System on a 90% funded basis in accordance with actuarial recommendations.

The Board shall determine the amount of State contributions required for each fiscal year on the basis of the actuarial tables and other assumptions adopted by the Board and the recommendations of the actuary, using the formula in subsection (a-1).

(a-1) For State fiscal years 2012 through 2045, the minimum contribution to the System to be made by the State for each fiscal year shall be an amount determined by the System to be sufficient to bring the total assets of the System up to 90% of the total actuarial liabilities of the System by the end of State fiscal year 2045. In making these determinations, the required State contribution shall be calculated each year as a level percentage of payroll over the years remaining to and including fiscal year 2045 and shall be determined under the projected unit credit actuarial cost method.

For each of State fiscal years 2018, 2019, and 2020, the State shall make an additional contribution to the System equal to 2% of the total payroll of each employee who is deemed to have elected the benefits under Section 1-161 or who has made the election under subsection (c) of Section 1-161.

A change in an actuarial or investment assumption that increases or decreases the required State contribution and first applies in State fiscal year 2018 or thereafter shall be implemented in equal annual amounts over a 5-year period beginning in the State fiscal year in which the actuarial change first applies to the required State contribution.

A change in an actuarial or investment assumption that increases or decreases the required State contribution and first applied to the State contribution in fiscal year 2014, 2015, 2016, or 2017 shall be implemented:

(i) As already applied in State fiscal years before 2018; and

(ii) in the portion of the 5-year period beginning in the State fiscal year in which the actuarial change first applied that occurs in the State fiscal year 2018 or thereafter, by calculating the change in equal annual amounts over that 5-year period and then implementing it at the resulting annual rate in each of the remaining fiscal years in that 5-year period.

APPENDIX B – PROVISIONS OF GOVERNING LAW

For State fiscal years 1996 through 2005, the State contribution to the System, as a percentage of the applicable employee payroll, shall be increased in equal annual increments so that by State fiscal year 2011, the State is contributing at the rate required under this Section.

Notwithstanding any other provision of this Article, the total required State contribution for State fiscal year 2006 is $166,641,900.

Notwithstanding any other provision of this Article, the total required State contribution for State fiscal year 2007 is $252,064,100.

For each of State fiscal years 2008 through 2009, the State contribution to the System, as a percentage of the applicable employee payroll, shall be increased in equal annual increments from the required State contribution for State fiscal year 2007, so that by State fiscal year 2011, the State is contributing at the rate otherwise required under this Section.

Notwithstanding any other provision of this Article, the total required State contribution for State fiscal year 2010 is $702,514,000 and shall be made from the State Pensions Fund and proceeds of bonds sold in fiscal year 2010 pursuant to Section 7.2 of the General Obligation Bond Act, less (i) the pro rata share of bond sale expenses determined by the System's share of total bond proceeds, (ii) any amounts received from the General Revenue Fund in fiscal year 2010, (iii) any reduction in bond proceeds due to the issuance of discounted bonds, if applicable.

Notwithstanding any other provision of this Article, the total required State contribution for State fiscal year 2011 is the amount recertified by the System on or before April 1, 2011 pursuant to Section 15-165 and shall be made from the State Pensions Fund and proceeds of bonds sold in fiscal year 2011 pursuant to Section 7.2 of the General Obligation Bond Act, less (i) the pro rata share of bond sale expenses determined by the System's share of total bond proceeds, (ii) any amounts received from the General Revenue Fund in fiscal year 2011, and (iii) any reduction in bond proceeds due to the issuance of discounted bonds, if applicable.

Beginning in State fiscal year 2046, the minimum State contribution for each fiscal year shall be the amount needed to maintain the total assets of the System at 90% of the total actuarial liabilities of the System.

Amounts received by the System pursuant to Section 25 of the Budget Stabilization Act or Section 8.12 of the State Finance Act in any fiscal year do not reduce and do not constitute payment of any portion of the minimum State contribution required under this Article in that fiscal year. Such amounts shall not reduce, and shall not be included in the calculation of, the required State contributions under this Article in any future year until the System has reached a funding ratio of at least 90%. A reference in this

APPENDIX B – PROVISIONS OF GOVERNING LAW

Article to the "required State contribution" or any substantially similar term does not include or apply to any amounts payable to the System under Section 25 of the Budget Stabilization Act.

Notwithstanding any other provision of this Section, the required State contribution for State fiscal year 2005 and for fiscal year 2008 and each fiscal year thereafter, as calculated under this Section and certified under Section 15-165, shall not exceed an amount equal to (i) the amount of the required State contribution that would have been calculated under this Section for that fiscal year if the System had not received any payments under subsection (d) of Section 7.2 of the General Obligation Bond Act, minus (ii) the portion of the State's total debt service payments for that fiscal year on the bonds issued in fiscal year 2003 for the purposes of that Section 7.2, as determined and certified by the Comptroller, that is the same as the System's portion of the total moneys distributed under subsection (d) of Section 7.2 of the General Obligation Bond Act. In determining this maximum for State fiscal years 2008 through 2010, however, the amount referred to in item (i) shall be increased, as a percentage of the applicable employee payroll, in equal increments calculated from the sum of the required State contribution for State fiscal year 2007 plus the applicable portion of the State's total debt service payments for fiscal year 2007 on the bonds issued in fiscal year 2003 for the purposes of Section 7.2 of the General Obligation Bond Act, so that, by State fiscal year 2011, the State is contributing at the rate otherwise required under this Section.

(a-2) Beginning in fiscal year 2018, each employer under this Article shall pay to the System a required contribution determined as a percentage of projected payroll and sufficient to produce an annual amount equal to:

(i) For each of fiscal years 2018, 2019, and 2020, the defined benefit normal cost of the defined benefit plan, less the employee contribution for each employee of that employer who has elected or who is deemed to have elected the benefits under Section 1-161 or who has made the election under subsection (c) of Section 1-161; for fiscal year 2021 and each fiscal year thereafter, the defined benefit normal cost of the defined benefit plan, less the employee contribution, plus 2%, for each employee of that employer who has elected or who is deemed to have elected the benefits under Section 1-161 or who has made the election under subsection (c) of Section 1-161; plus

(ii) The amount required for that fiscal year to amortize any unfunded actuarial accrued liability associated with the present value of liabilities attributable to the employer's account under Section 15-155.2, determined as a level percentage of payroll over a 30-year rolling amortization period.

In determining contributions required under item (i) of this subsection, the System shall determine an aggregate rate for all employers, expressed as a percentage of projected payroll.

APPENDIX B – PROVISIONS OF GOVERNING LAW

In determining the contributions required under item (ii) of this subsection, the amount shall be computed by the System on the basis of the actuarial assumptions and tables used in the most recent actuarial valuation of the System that is available at the time of the computation.

The contributions required under this subsection (a-2) shall be paid by an employer concurrently with that employer's payroll payment period. The State, as the actual employer of an employee, shall make the required contributions under this subsection.

As used in this subsection, "academic year" means the 12-month period beginning September 1.

(b) If an employee is paid from trust or federal funds, the employer shall pay to the Board contributions from those funds which are sufficient to cover the accruing normal costs on behalf of the employee. However, universities having employees who are compensated out of local auxiliary funds, income funds, or service enterprise funds are not required to pay such contributions on behalf of those employees. The local auxiliary funds, income funds, and service enterprise funds of universities shall not be considered trust funds for the purpose of this Article, but funds of alumni associations, foundations, and athletic associations which are affiliated with the universities included as employers under this Article and other employers which do not receive State appropriations are considered to be trust funds for the purpose of this Article.

(b-1) The City of Urbana and the City of Champaign shall each make employer contributions to this System for their respective firefighter employees who participate in this System pursuant to subsection (h) of Section 15-107. The rate of contributions to be made by those municipalities shall be determined annually by the Board on the basis of the actuarial assumptions adopted by the Board and the recommendations of the actuary, and shall be expressed as a percentage of salary for each such employee. The Board shall certify the rate to the affected municipalities as soon as may be practical. The employer contributions required under this subsection shall be remitted by the municipality to the System at the same time and in the same manner as employee contributions.

(c) Through State fiscal year 1995: The total employer contribution shall be apportioned among the various funds of the State and other employers, whether trust, federal, or other funds, in accordance with actuarial procedures approved by the Board. State of Illinois contributions for employers receiving State appropriations for personal services shall be payable from appropriations made to the employers or to the System. The contributions for Class I community colleges covering earnings other than those paid from trust and federal funds, shall be payable solely from appropriations to the Illinois Community College Board or the System for employer contributions.

(d) Beginning in State fiscal year 1996, the required State contributions to the System shall be appropriated directly to the System and shall be payable through vouchers issued in accordance with subsection (c) of Section 15-165, except as provided in subsection (g).

(e) The State Comptroller shall draw warrants payable to the System upon proper certification by the System or by the employer in accordance with the appropriation laws and this Code.

(f) Normal costs under this Section means liability for pensions and other benefits which accrues to the System because of the credits earned for service rendered by the participants during the fiscal year and expenses of administering the System, but shall not include the principal of or any redemption premium or interest on any bonds issued by the Board or any expenses incurred or deposits required in connection therewith.

(g) If the amount of a participant's earnings for any academic year used to determine the final rate of earnings, determined on a full-time equivalent basis, exceeds the amount of his or her earnings with the same employer for the previous academic year, determined on a full-time equivalent basis, by more than 6%, the participant's employer shall pay to the System, in addition to all other payments required under this Section and in accordance with guidelines established by the System, the present value of the increase in benefits resulting from the portion of the increase in earnings that is in excess of 6%. This present value shall be computed by the System on the basis of the actuarial assumptions and tables used in the most recent actuarial valuation of the System that is available at the time of the computation. The System may require the employer to provide any pertinent information or documentation.

Whenever it determines that a payment is or may be required under this subsection (g), the System shall calculate the amount of the payment and bill the employer for that amount. The bill shall specify the calculations used to determine the amount due. If the employer disputes the amount of the bill, it may, within 30 days after receipt of the bill, apply to the System in writing for a recalculation. The application must specify in detail the grounds of the dispute and, if the employer asserts that the calculation is subject to subsection (h) or (i) of this Section, must include an affidavit setting forth and attesting to all facts within the employer's knowledge that are pertinent to the applicability of subsection (h) or (i). Upon receiving a timely application for recalculation, the System shall review the application and, if appropriate, recalculate the amount due. The employer contributions required under this subsection (g) may be paid in the form of a lump-sum within 90 days after receipt of the bill. If the employer contributions are not paid within 90 days after receipt of the bill, then interest will be charged at a rate equal to the System's annual actuarially assumed rate of return on investment compounded annually from the 91st day after receipt of the bill. Payments must be concluded within 3 years after the employer's receipt of the bill.

APPENDIX B – PROVISIONS OF GOVERNING LAW

(h) This subsection (h) applies only to payments made or salary increases given on or after June 1, 2005 but before July 1, 2011. The changes made by Public Act 94-1057 shall not require the System to refund any payments received before July 31, 2006 (the effective date of Public Act 94-1057). When assessing payment for any amount due under subsection (g), the System shall exclude earnings increases paid to participants under contracts or collective bargaining agreements entered into, amended, or renewed before June 1, 2005.

When assessing payment for any amount due under subsection (g), the System shall exclude earnings increases paid to a participant at a time when the participant is 10 or more years from retirement eligibility under Section 15-135. When assessing payment for any amount due under subsection (g), the System shall exclude earnings increases resulting from overload work, including a contract for summer teaching, or overtime when the employer has certified to the System, and the System has approved the certification, that: (i) in the case of overloads (A) the overload work is for the sole purpose of academic instruction in excess of the standard number of instruction hours for a full-time employee occurring during the academic year that the overload is paid and (B) the earnings increases are equal to or less than the rate of pay for academic instruction computed using the participant's current salary rate and work schedule; and (ii) in the case of overtime, the overtime was necessary for the educational mission. When assessing payment for any amount due under subsection (g), the System shall exclude any earnings increase resulting from (i) a promotion for which the employee moves from one classification to a higher classification under the State Universities Civil Service System, (ii) a promotion in academic rank for a tenured or tenure-track faculty position, or (iii) a promotion that the Illinois Community College Board has recommended in accordance with subsection (k) of this Section. These earnings increases shall be excluded only if the promotion is to a position that has existed and been filled by a member for no less than one complete academic year and the earnings increase as a result of the promotion is an increase that results in an amount no greater than the average salary paid for other similar positions.

(i) When assessing payment for any amount due under subsection (g), the System shall exclude any salary increase described in subsection (h) of this Section given on or after July 1, 2011 but before July 1, 2014 under a contract or collective bargaining agreement entered into, amended, or renewed on or after June 1, 2005 but before July 1, 2011. Notwithstanding any other provision of this Section, any payments made or salary increases given after June 30, 2014 shall be used in assessing payment for any amount due under subsection (g) of this Section.

(j) The System shall prepare a report and file copies of the report with the Governor and the General Assembly by January 1, 2007 that contains all of the following information:

(1) The number of recalculations required by the changes made to this Section by Public Act 94-1057 for each employer.

(2) The dollar amount by which each employer's contribution to the System was changed due to recalculations required by Public Act 94-1057.

(3) The total amount the System received from each employer as a result of the changes made to this Section by Public Act 94-4.

(4) The increase in the required State contribution resulting from the changes made to this Section by Public Act 94-1057.

(5) For academic years beginning on or after July 1, 2017, if the amount of a participant's earnings for any school year, determined on a full-time equivalent basis, exceeds the amount of salary set for the Governor, the participant's employer shall pay to the System, in addition to all other payments required under this Section and in accordance with guidelines established by the System, an amount determined by the System to be equal to the employer normal cost, as established by the System and expressed as a total percentage of payroll, multiplied by the amount of earnings in excess of the amount of salary set for the Governor, This amount shall be computed by the system on the basis of the actuarial assumptions and tables used in the most recent actuarial valuation of the System that is available at the time of the computation the System may require the employer to provide any pertinent information or documentation.

Whenever it determines that a payment is or may be required under this subsection, the System shall calculate the amount of the payment and bill the employer for that amount. The bill shall specify the calculations used to determine the amount due. If the employer disputes the amount of the bill, it may, within 30 days after the receipt of the bill, apply to the System in writing for a recalculation. The application must specify in detail the grounds of the dispute. Upon receiving a timely application for recalculation, the System shall review the application, and, if appropriate, recalculate the amount due.

The employer contributions required under this subsection may be paid in the form of a lump-sum within 90 days after receipt of the bill. If the employer contributions are not paid within 90 days after receipt of the bill, then interest will be charged at a rate equal to the System's annual actuarially assumed rate of return on investment compounded annually from the 91st day after receipt of the bill. Payments must be concluded within 3 years after the employer's receipt of the bill.

(k) The Illinois Community College Board shall adopt rules for recommending lists of promotional positions submitted to the Board by community colleges and for reviewing the promotional lists on an annual basis. When recommending promotional lists, the Board shall consider the similarity of the positions submitted to those positions recognized for State universities by the State Universities Civil Service System. The Illinois Community College Board shall file a copy of its findings with the System. The

System shall consider the findings of the Illinois Community College Board when making determinations under this Section. The System shall not exclude any earnings increases resulting from a promotion when the promotion was not submitted by a community college. Nothing in this subsection (k) shall require any community college to submit any information to the Community College Board.

(l) For purposes of determining the required State contribution to the System, the value of the System's assets shall be equal to the actuarial value of the System's assets, which shall be calculated as follows:

As of June 30, 2008, the actuarial value of the System's assets shall be equal to the market value of the assets as of that date. In determining the actuarial value of the System's assets for fiscal years after June 30, 2008, any actuarial gains or losses from investment return incurred in a fiscal year shall be recognized in equal annual amounts over the 5-year period following that fiscal year.

(m) For purposes of determining the required State contribution to the system for a particular year, the actuarial value of assets shall be assumed to earn a rate of return equal to the system's actuarially assumed rate of return.

(Source: P.A. 97-813, eff. 7-13-12; 98-92, eff. 7-16-13; 98-463, eff. 8-16-13; 100-23, eff. 7-6-17.)

APPENDIX C – INFORMATION RELIED UPON IN PREPARING THIS REPORT

- Illinois Law:
  - Illinois Pension Code (40 ILCS 5/) Article 15: State Universities Retirement System of Illinois
  - Public Act (P.A.) 088-0593, P.A. 093-0002, P.A. 093-0839, P.A. 094-0004, P.A. 096-0043, P.A. 096-0889, P.A. 097-0694, P.A. 099-0232, P.A. 100-0023, P.A. 100-0587

- Files received from the State Universities Retirement System:
  - Board Meeting Minutes and Agendas from 2013-2023
  - GRS IL SURS 2008-2023 Valuation Reports
  - GRS IL SURS 2012-2023 Certifications of Required State Contribution
  - GRS IL SURS DRAFT 2014-2023 GASB 67/68 Reports
  - GRS SURS 2015 Economic Assumptions Review Presentation & Report
  - GRS SURS 2018 Experience Review Report
  - GRS SURS 2021 Experience Review Report
  - SURS Asset Liability Study, Economic Assumption Review, and Recommendation Memos
  - Segal IL SURS Full Scope Audit of the June 30, 2015 Actuarial Valuation
  - NEPC IL SURS Asset Class Assumptions and Actions annual presentations
  - SURS Investment Plan Update FY 2012 - FY 2023
  - GRS IL SURS GASB 67 Plan Reporting and Accounting Schedules

- Other:
  - May 2014 *GFOA Best Practice – Actuarial Audits* published by the Government Finance Officers Association
  - *2023 National Conference on Public Employees Retirement Systems* (NCPERS) Public Retirement Systems Study
  - March 2023 *Old-Age, Survivors and Disability Insurance Trustees Report* (OASDI)
  - Public Plans Database as of October 2023
  - Survey of Professional Forecasters, Third Quarter 2023, Federal Reserve Bank of Philadelphia
  - Publication H.15 Selected Interest Rates, Board of Governors of the Federal Reserve System
  - CPI-All Urban Consumers, Bureau of Labor Statistics
  - Quarterly Census of Employment and Wages, Bureau of Labor Statistics
  - Survey of Capital Market Assumptions, 2022 and 2023 Editions, Horizon Actuarial Services, LLC

APPENDIX D – GLOSSARY OF TERMS

1. **Actuarial Assumptions**

   Estimates of future experience with respect to rates of mortality, disability, turnover, retirement, investment income, and salary increases. Demographic assumptions (rates of mortality, disability, turnover, and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

2. **Actuarial Gain (Loss)**

   A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial funding method.

3. **Actuarial Liability**

   The Actuarial Liability is the difference between the present value of all benefits accrued as of the valuation date using the methods and assumptions of the valuation. It is also referred to by some actuaries as the "accrued liability" or "Actuarial Accrued Liability."

4. **Actuarial Present Value**

   The amount of funds currently required to provide a payment or series of payments in the future. It is determined by discounting future payments at predetermined rates of interest, and by probabilities of payment.

5. **Actuarial Value of Assets**

   The Actuarial Value of Assets equals the Market Value of Assets adjusted according to the smoothing method in accordance with Illinois Law. The smoothing method is intended to smooth out the short-term volatility of investment returns in order to stabilize contribution rates and the funded ratio.

6. **Actuarial Cost Method**

   A mathematical budgeting procedure for allocating the dollar amount of the Present Value of Future Benefits between the Present Value of Future Normal Cost and the Actuarial Liability. This is sometimes referred to as the "actuarial funding method."

APPENDIX D – GLOSSARY OF TERMS

7. Asset Smoothing Method

A method of asset valuation where the annual fluctuation in the Market Value of Assets is averaged over a period of years. See Actuarial Value of Assets above.

8. Entry Age Normal (EAN)

A method under which the Present Value of Future Benefits of each individual included in an actuarial valuation is allocated on a level basis over the earnings or service of the individual between entry age and assumed exit age(s). The portion of this Present Value of Future Benefits allocated to a valuation year is called the normal cost. The portion of this Present Value of Future Benefits not provided for at a valuation date by the Present Value of Future Normal Costs is called the Actuarial Liability.

9. Funded Ratio

The Actuarial Value of Assets divided by the Actuarial Liability. The Funded Ratio represents the percentage of assets in the Plan compared to the budgeted amount under the Projected Unit Credit Actuarial Funding Method. The Funded Ratio can also be calculated using the Market Value of Assets.

10. Governmental Accounting Standards Board

The Governmental Accounting Standards Board (GASB) defines the accounting and financial reporting requirements for governmental entities. GASB Statement No. 67 defines the Plan accounting and financial reporting for governmental pension plans, and GASB Statement No. 68 defines the employer accounting and financial reporting for participating in a governmental pension plan.

11. Market Value of Assets

The fair value of the plan's assets assuming that all holdings are liquidated on the measurement date.

12. Normal Cost

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.

APPENDIX D – GLOSSARY OF TERMS

13. Present Value of Future Benefits

The estimated amount of assets needed today to pay for all benefits promised in the future to current members of the Plan assuming all Actuarial Assumptions are met.

14. Present Value of Future Normal Costs

The Actuarial Present Value of retirement system benefits allocated to future years of service by the Projected Unit Credit Actuarial Funding Method.

15. Projected Unit Credit (PUC)

A method under which the benefits of each individual included in an actuarial valuation are allocated by a consistent formula to the years in which they are earned. The Actuarial Present Value of benefits allocated to a valuation year is called the normal cost. The Actuarial Present Value of benefits allocated to all periods prior to a valuation year is called the Actuarial Liability.

16. Unfunded Actuarial Liability (UAL)

The UAL represents the difference between the Actuarial Liability and Actuarial Value of Assets. The UAL is sometimes referred to as "Unfunded Accrued Liability."

Exhibit 6

CHEIRON

Classic Values, Innovative Advice

P: 312.456.9800 www.grsconsulting.com

December 5, 2023

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

Re: Response to State Actuary's Preliminary Report on the SURS June 30, 2023 Actuarial Valuation

Dear Members of the Board:

At your request, we have reviewed the report issued by Cheiron dated December 1, 2023 – The State Actuary's Preliminary Report on the State Universities Retirement System of Illinois ("SURS") Pursuant to 30 ILCS 5/2-8.1. This report consists of a review of the June 30, 2023 actuarial valuation of SURS prepared by Gabriel, Roeder, Smith & Company ("GRS").

<u>Assessment of Actuarial Assumptions and Methods Used in the 2023 Valuation</u>

This report issued by the State Actuary, Cheiron, indicates that "**In summary, we believe that the assumptions and methods used in the June 30, 2023 Actuarial Valuation, which are used to determine the required Fiscal Year 2025 State contribution, are reasonable. We also find that the certified contributions, notwithstanding the inadequate State funding requirements that do not conform to generally accepted actuarial principles and practices, were properly calculated in accordance with State law.**"

<u>Proposed Certification of the Required State Contribution</u>

In this section, the State Actuary notes that they have verified the arithmetic accuracy of the required State contribution calculated by GRS and the assumptions on which it was based, and accepted the GRS projections of future payroll, total normal costs, employee contributions, combined benefit payments and expenses, and total contributions.

<u>State Mandated Funding Method</u>

In this section, the State Actuary opines on their concern regarding the Statutory funding method and recommends that the Statutory funding method be changed to employ a methodology that produces a Reasonable Actuarially Determined Contribution (ADC) and fully funds plan benefits within a reasonable period. In addition, they state "The State Mandated Method is entering a period in which the contribution amount it produces may be reasonable even though the overall methodology is not. This period offers an opportunity to change the methodology to one that is consistent with actuarial standards for a Reasonable Actuarially Determined Contribution (ADC) without significantly affecting the immediate contribution amount." (**Recommendation #1)**

The funding method used in the June 30, 2023 actuarial valuation of SURS is prescribed in accordance with Article 15 of the Illinois Pension Code (as noted by Cheiron) and is not under the actuary or the Board's control; therefore, no action is required in the actuarial valuation report.

However, with the Board and Staff's concurrence, GRS can prepare projections under multiple alternate funding policies in order to illustrate potential policies that better manage volatility and may not produce contribution requirements that differ significantly from the current Statutory policy. We plan on looking at the calculation of the alternate funding policy illustrated in the actuarial valuation report as part of the upcoming experience study. In addition, we encourage Cheiron, in their role as the State Actuary, to also address this issue directly with the State of Illinois.

The State Actuary recommends that the phase-in of the contribution impact of assumption changes be reduced from five years to no longer than three years (since experience studies are performed every three years). (**Recommendation #2)**

The funding method used in the June 30, 2023 actuarial valuation of SURS is prescribed in accordance with Article 15 of the Illinois Pension Code (as noted by Cheiron) and is not under the actuary or the Board's control; therefore, no action is required. In our annual actuarial valuation reports, we have recommended eliminating the phase-in of the contribution impact of assumption changes.

Cheiron describes the additional provisions from Public Act 100-0023 (optional hybrid plan and contributions in excess of the Governor's pay). With regard to contributions in excess of the Governor's pay, Cheiron states, "We have verified that GRS has reflected these additional employer contributions in the development of the net State Contribution."

Recommended Changes for the 2023 Valuation

Recommendations #3 and #4 relate to Actuarial Standard of Practice (ASOP) 51, Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions.

Recommendation #3 is "Section 3.2 of ASOP 51 requires the actuary to identify risks that "may reasonably be anticipated to **significantly affect** the plan's future financial condition." [emphasis added]. The risks currently identified appear to largely duplicate the list of examples in ASOP 51 and could apply to almost any pension plan. In future valuations, we recommend that the actuary explain how each risk identified would reasonably be anticipated to significantly affect the specific plan's future financial condition."

GRS has performed annual stress testing for a number of years which provides illustrations of how certain risks could impact the future financial condition of SURS. In addition, page 16 of the actuarial valuation report provides commentary on two of the significant risks (investment risk and contribution risk) and how these risks could impact the future financial condition of SURS.

We have revised the actuarial valuation report to indicate which risks may be anticipated to **significantly affect** the plan's future financial condition. (The other risks are still applicable, but are anticipated to affect the future financial condition of SURS to a lesser degree.)

We are happy to prepare an additional risk assessment report if there is interest from the Board and Staff to do so.

Board of Trustees
State Universities Retirement System of Illinois
December 5, 2023
Page 3

Recommendation #4 Cheiron notes "For each risk identified above, Section 3.3 of ASOP 51 requires the actuary to provide an assessment that takes into account "circumstances specific to the plan." For some of the identified risks, the actuary has provided a quantitative assessment specific to the plan while for other identified risks, the actuary has only provided a generic statement that could apply to any plan. We recommend that for each identified risk the actuary provide an assessment, preferably quantitative, that considers the specific circumstances of this plan."

We have revised the actuarial valuation report to indicate which risks may be anticipated to **significantly affect** the plan's future financial condition.

Recommended Changes for Future Valuations

Recommendation #5 is that the Board continue to annually review the economic assumptions (interest rate and inflation) prior to commencing the valuation work and adjust assumptions accordingly.

We performed a review of the inflation and investment return assumptions prior to the June 30, 2023 actuarial valuation. We will be performing a full experience study prior to the June 30, 2024 valuation.

GASB Statement Nos. 67 and 68

Cheiron indicates, "We find that the assumptions and methods used to prepare the 2023 SURS GASB 67 and 68 schedules are reasonable based on the evidence provided to us."

We look forward to continuing to work with the Board to improve the funding of SURS and communicating and helping manage risks that SURS may face.

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

AW/MB/KN:ah

cc: Suzanne Mayer, SURS
Tara Myers, SURS
Kristen Brundirks, GRS
Brian Murphy

S·U·R·S
STATE UNIVERSITIES RETIREMENT SYSTEM
1901 Fox Drive, Champaign, IL 61820-7333
800-275-7877 • 217-378-8800 • (Fax) 217-378-9800
www.surs.org

To: Administration Committee
From: Tara R. Myers
Date: December 7, 2023
Re: Fiscal Year 2023 State Actuary Preliminary Report

At the December 7, 2023 Administration Committee meeting, Gabriel Roeder Smith & Company (GRS) and SURS will be discussing the State Actuary's preliminary report from Cheiron. The preliminary report will provide an opinion on the actuarial assumptions used and the proposed fiscal year 2025 certification of the Statutory contribution. The confidential draft report from Cheiron is provided in the Board materials. The GRS response to the preliminary report is also included in the Board materials.

Recommendation

- **SURS staff and Gabriel Roeder Smith & Company jointly recommend that the State Actuary's Preliminary Report regarding review of assumptions and methods used in the June 30, 2023 Actuarial Valuation be received as presented.**

S·U·R·S
STATE UNIVERSITIES RETIREMENT SYSTEM
1901 Fox Drive, Champaign, IL 61820-7333
800-275-7877 • 217-378-8800 • (Fax) 217-378-9800
www.surs.org
Investment Department

To: Administration Committee
From: Doug Wesley, CFA and Tara Myers, CPA
Date: November 22, 2023
Re: Fiscal Year 2025 Effective Rate of Interest Recommendation

Recommendation

SURS staff recommends that the Effective Rate of Interest to be used for all purposes other than the Rule 2 (money purchase) calculation be increased to 7.0% for Fiscal Year 2025.

Background Information

Prior to 2005, the SURS Board of Trustees determined the Effective Rate of Interest (ERI) each December for the upcoming fiscal year. The ERI is the interest rate that is applied to member contribution balances. The member contribution balance is an integral part of the Rule 2 (money purchase) formula, used in calculating retirement benefits for persons who joined the system prior to July 1, 2005. However, ERI also has other purposes, including:

- Calculation of purchases of service credit
- Refunds of survivor and excess contributions
- Traditional and portable refunds
- Lump sum portable retirements

Statutory changes in 2005 stated that the effective rate of interest for purposes of the Rule 2 calculation shall be determined for fiscal year 2006 and subsequent fiscal years by the State Comptroller rather than the SURS Board of Trustees. Public Act 94-982, effective June 30, 2006, extended the deadline for the Comptroller to certify the effective rate of interest to the Board and to the Commission on Government Forecasting and Accountability. The Comptroller must present the certification for each fiscal year no later than January 31, immediately preceding the beginning of the upcoming fiscal year.

Unfortunately, the legislative changes are silent regarding the other factors in which the ERI is utilized. As a result, the ERI must also continue to be determined by the SURS Board of Trustees for all other purposes listed above. The analysis of the ERI is conducted annually, with a recommendation presented to the Board at the December meeting.

The effective rate of interest and its method for determination are set forth in 40 ILCS 5/15-125(2), which defines the effective rate of interest as:

> The rate of interest for all or any part of a fiscal year that is determined by the Board based on factors including the system's *past and expected investment experience*; *historical and expected fluctuations* in the market value of investments; the *desirability of minimizing the*

volatility in the effective rate of interest from year to year; *the provision of reserves for anticipated losses upon sales, redemptions or other disposition of investments and for variations in interest experience* (emphasis added).

Statutory Factors to be considered in the Calculation of the ERI

Past Investment Experience

This factor focuses on the System's long-term rates of return while also considering the shorter-term deficit or surplus returns to understand the trend. Two measures of long-term investment return experience have been consistently utilized by the SURS Board.

1. The Board has historically considered the rate of return on assets since the System began investing a meaningful portion of the assets in equities (Post 1971). In 2021, we started to supplement that return information with 30- and 40-year returns.
2. The second measure used is based upon the average participant's length of service at the time of retirement, generally around 20 years. In addition, it's important to review the more recent history to determine if shorter term performance is consistent with the credited ERI. The table below shows SURS rates of investment performance compared to the ERI credited over the same time through June 30, 2023.

	SURS Historical Return	Credited SURS ERI
5 Year	7.0%	6.4%
10 Year	7.5%	6.6%
20 Year	7.6%	7.3%
30 Year	7.9%	7.9%
40 Year	8.8%	7.9%
Post 1971	8.3%	7.7%

Expected Investment Experience

In addition, the statute requires that the Board consider expected future investment performance. The variable used for this portion of the statutory analysis is the actuarially assumed rate for future investment performance. The Board approved actuarial economic assumption changes effective June 30, 2021, including a reduction to the assumed rate of return and the ERI actuarial assumption, both to 6.50%.

Meketa presented updated capital market assumptions in March 2023. In addition, updated long-term strategic policy targets were approved in April 2023. The updated assumptions were used to calculate 20-year portfolio expected return projections for the portfolio allocations as of December 2022 and the Long-Term Policy Targets. These portfolios were projected to return 7.8% and 8.0%, respectively.

Historical and Expected Fluctuations in the Market Value of Investments

The statute indicates that historical and expected fluctuations in the market value of assets are to be considered in setting the ERI. The actuarial assumed rate for future investment return utilizes a geometric rate of return. Geometric returns measure fluctuations in the rates of return as values are continuously changing due to investment cash flows and market impact.

Minimizing the Volatility of the Effective Rate

The statute expresses a public policy preference for minimal volatility in the ERI credited over time. The Trustees have recognized this key concept and historically approved only minor adjustments in the credited rate, typically not more than 0.50%. Over the past 35 years, the ERI Credited Rate has been reasonably stable, remaining unchanged 20 times.

Net Asset Accounts (Provision of Reserves for Anticipated Losses Upon Sales, Redemptions or Other Disposition of Investments and for Variations in Interest Experience)

The undistributed investment income reserve account reflects the cumulative increases or decreases after distribution of interest to the Employee Contribution Account, annuities, death and disability benefits and administrative expenses. Gains during a fiscal year increase, while losses lower the reserve balance.

Historically, guideline measures have been developed to assist in the analysis of this factor. In the past, the undistributed investment income reserve account was compared to the net assets of the system, and a percentage analysis was used with a 20-30% range being considered "normal".[1] Further analysis and review has demonstrated that better comparison results from measuring the undistributed investment income reserve account to the liabilities of the system. Liabilities must ultimately be paid by the system to its beneficiaries. Monitoring the reserve account as a percentage of the liabilities provides a more accurate measure of the adequacy of the level of the reserve. For purposes of determining the ERI, staff believes it is most appropriate to evaluate whether the reserve is at a level such that the fund could absorb a multi-year cycle of investment losses while minimizing volatility in the effective rate of interest.

Table 1 reflects the recent variation in the undistributed investment income reserve account in comparison to the liabilities of the system. The undistributed investment income reserve increased in FY 2023.

Table 1
Undistributed Investment Income Reserve

As of June 30,	Account Balance ($'s in billions)	As a % of liabilities
2023	19.294	37.8%
2022	18.185	36.5%
2021	19.094	39.0%
2020	14.614	30.7%
2019	14.373	30.9%
2018	13.574	30.0%
2017	12.403	29.6%
2016	10.851	26.5%

[1] The guidelines considered are:

- If the undistributed investment earnings account is large (i.e., greater than 30% of net liabilities) and has increased over the prior year, then a modest increase in the ERI is warranted.
- If the undistributed investment earnings account is normal (i.e., between 20% and 30% of net liabilities) and is in line with the prior year, then ERI should be held constant.
- If the undistributed investment earnings account is small (i.e., less than 20% of net liabilities) and has decreased when compared to the prior year, then a modest decrease in the ERI is warranted.

Current Period Analysis – Fiscal Year Ending June 30, 2023
Based upon the factors and guidelines set forth above, the analysis for the current rate-setting period indicates the following:

Past Investment Performance – SURS portfolio performance is above the credited ERI for both the short-term and the longer-term time periods (30+ years). Past performance would support an **ERI above** the current actuarial assumption of 6.50%.

Expected Investment Performance – Based on recent asset-liability discussions, the portfolio's expected returns over the next 20-years are projected to be between 7.8 and 8.0%, higher than the current actuarial assumption (6.50%). Expected Investment Performance would support an **ERI above** the current actuarial assumption of 6.50%.

The **undistributed investment earnings account** balance is large, (i.e., greater than 30% of net liabilities) and increased over the prior year, therefore a modest increase in the ERI would be warranted.

Conclusion and Recommendation
Based on the statutory factors considered, Staff is recommending the Effective Rate of Interest be increased to 7.0% for Fiscal Year 2025. Table 2, shown on the following page, provides a recent history of the ERI rates previously approved along with the recommendation for Fiscal Year 2025.

SURS staff recommends that the Effective Rate of Interest to be used for all purposes, other than the Rule 2 (money purchase) calculation, be increased to 7.0% for Fiscal Year 2025.

Table 1
Undistributed Investment Income Reserve

As of June 30,	Account Balance ($'s in billions)	As a % of liabilities
2023	19.294	37.8%
2022	18.185	36.5%
2021	19.094	39.0%
2020	14.614	30.7%
2019	14.373	30.9%
2018	13.574	30.0%
2017	12.403	29.6%
2016	10.851	26.5%
2015	11.288	28.6%
2014	11.201	29.9%
2013	8.930	26.0%
2012	7.627	23.0%
2011	8.035	25.5%
2010	5.672	20.5%
2009	4.502	17.1%
2005	6.192	30.4%
2000	6.935	50.7%

Table 2
History of Effective Rates of Interest

Fiscal Year	SURS Effective Rate of Interest	Comptroller Effective Rate of Interest
2025 (Proposed)	7.0%	
2024	6.5%	7.00%
2023	6.5%	6.25%
2022	6.0%	5.50%
2021	6.5%	6.00%
2020	6.5%	6.50%
2019	6.5%	6.75%
2018	6.5%	6.50%
2017	7.0%	6.75%
2016	7.0%	7.00%
2015	7.0%	6.75%
2014	7.0%	6.75%
2013	7.5%	6.50%
2012	7.5%	6.75%
2011	7.5%	7.00%
2010	8.0%	7.50%
2009	8.5%	8.50%
2008	8.5%	8.00%
2007	8.5%	8.00%
2006	8.5%	8.50%

S·U·R·S
STATE UNIVERSITIES RETIREMENT SYSTEM

1901 Fox Drive, Champaign, IL 61820-7333
800-275-7877 • 217-378-8800 • (Fax) 217-378-9800
www.surs.org

To: Administration Committee
From: Jefferey S. Saiger, Chief Technology Officer
Date: 12/07/2023
Re: Information Technology Strategy Update

The SURS Information Technology Department is here before the Administration Committee today to present our updated IT Strategic Roadmap, which encompasses fiscal years 2024 through 2026.

When last shared with the SURS Board, the IT Strategic Roadmap was mainly focused on undertaking steps to modernize the organization via technological and service advancements. Technical and process debts were high, and the IT team was primarily a 'keep the lights on' department.

With the modernization of SURS well underway and the IT Department focusing on being a value-added partner to the rest of the organization, the IT Strategic Roadmap has been updated to reflect the new paradigm, to establish new baselines for performance expectations, and to provide IT staff with a tangible path forward with their careers at SURS.

Staff welcomes the opportunity to receive input from the Board and to address any questions posed.

Thank you for your ongoing support of our efforts.

Exhibit 11

IT Strategic Roadmap
FY2024-2026

S·U·R·S
STATE UNIVERSITIES RETIREMENT SYSTEM

Executive Summary

Situation

SURS is well underway in its digital transformation. Firmly situated in the transition zone between old and new states, the IT division is increasingly focused on ensuring a tenable and sustainable future for the organization. Combining best-of-breed technologies, recommended industry best practices and a commitment to our dedicated staff, SURS IT is striving to be a top-tier performer in the public pension space.

Complication

As we transition to the future state of the organization, we have undergone a significant exodus of tenured staff. This has resulted in a monumental loss of institutional knowledge and task redundancy. Further, SURS IT is still beholden to the will of the legislature; massive workload is only a pen stroke away from becoming reality. As such, task triage and prioritization have become exceptionally difficult, and some staff members are being stretched thin.

Resolution

With the ongoing support of the SURS Board of Trustees and Executive Director, SURS IT endeavors to meet the challenges faced and position the organization for long-term success via the thoughtful reallocation of available resources, implementation of tools & processes that support effort efficiencies, strategic succession planning and the upskilling as necessary of employees who will continue their careers into the future state of SURS.

S·U·R·S

STATE UNIVERSITIES RETIREMENT SYSTEM

Understanding SURS

SURS MISSION

To secure and deliver the retirement benefits promised to our members

SURS Strategic Goals

- **Assure the financial soundness of the system**
  - Secure the annual required contribution, produce risk-adjusted investment returns that exceed our investment benchmarks and manage expenses
- **Achieve high levels of customer satisfaction**
  - Deliver fast, accurate, timely, cost-effective and empathetic service by meeting or exceeding our service standards
- **Be a great place to work with an emphasis on learning, growth and diversity**
  - Develop leaders, share our knowledge, fill skill gaps and commit to being a diverse organization
- **Develop and sustain efficient, responsive, high-quality internal processes, tools and technology**
  - Improve our member communication, workflow processing capabilities and systems sustainability, reliability and record keeping
- **Protect member assets and information through sound risk management and ethical practices**
  - Strengthen our internal controls and risk-management programs, and continue current ethics training and compliance efforts

Exhibit 11

PESTLE Analysis of Factors Impacting SURS

Political

- Changes by legislature can have a significant impact on funding or in shifting responsibilities
- Trustee elections & appointments can impact direction of organization initiatives
- Federal or state rulings can result in uncertainty
- Leadership changes impacts political standing
- Volatility in expectations and preferences from government or board can create sudden change for the organization

Economic

- Legislative mandates may impact ability to address organizational needs by monopolizing resources
- Lack of multiple qualified firms troubles best deal due to lack of competition
- Despite the size of the fund, SURS doesn’t have a large enough footprint to drive pricing; not enough IT spend to have sway
- Supply chain challenges impacting budget year-over-year
- Operational expenses increasing due to inability to attract talent in specified areas

Social

- As demographics of membership changes over time, so will expectations of social interactions and delivery of services
- Outside of higher education community, SURS is not well known which complicates recruiting, requires offering more attractive packages to attract specialized talent, and complicates finding firms for competitive bid requirements
- Long-term considerations for return to office for health and morale
- Many retirements resulting in institutional knowledge loss

Technological

- Negative unemployment in specific technology areas due to market conditions
- Operations are becoming more data-intensive, increasing complexity and the technology footprint, simultaneously increasing risk
- Stakeholders have high expectations, including uninterrupted connectivity and fast resolutions on technology related issues
- Common consumer technology advances sets higher expectations for SURS
- Change of technology outpaces organizational capacity to adapt
- Staff skills have not been kept up to date with industry trends

Legal

- Constant stream of RFPs, FOIAs, contract renewals and purchasing creates significant workload
- Ongoing need to monitor compliance posture
- Ongoing legislative activities stretch resources
- Constant law changes may leave us with a compliance blind spot

Environmental

- Ongoing climate change has new requirements for facilities space
- Exploring our obligation to consider an offset to our carbon footprint
- Now that we have proven we can function well in remote setting, “new” office space needs should be developed and redesigned
- Aging buildings present maintenance challenges
- As crime increases in Champaign, additional steps are needed to ensure safe “new” office environment

S·U·R·S
STATE UNIVERSITIES RETIREMENT SYSTEM

IT Implications from Organizational Goals

- **Assure the financial soundness of the system**
  - IT needs to provide reliable and actionable data to organization
  - IT needs to be good stewards of finances…Run IT as a business
- **Achieve high levels of customer satisfaction**
  - IT should strive to deliver best-in-class service to all stakeholders
  - New technologies should enhance user productivity and experience
- **Be a great place to work with an emphasis on learning, growth and diversity**
  - IT needs to invest as heavily in people as it does technologies and processes
- **Develop and sustain efficient, responsive, high-quality internal processes, tools and technology**
  - IT needs to be able to move at the speed of business
  - IT needs to deliver highly available, highly secure and highly trustworthy services, applications and data
- **Protect member assets and information through sound risk management and ethical practices**
  - Information Security needs to be a core competency of the IT organization
  - IT needs to draft, adhere to, and enforce stringent compliance policies when applicable

IT Strategic Goals

The following four goals have been developed to guide IT's journey to its target end state while also supporting and enabling the broader organization.

1	**Be the trusted technology partner to the organization**
2	**Run IT like a business**
3	**Treat the organization's data and resources as if they were our own (because they are)**
4	**Invest in talent like we do technology; smartly and with the goal of creating the best workplace possible**

S·U·R·S
STATE UNIVERSITIES RETIREMENT SYSTEM

IT's strategic goals support SURS in delivering on its core objectives

SURS Strategic Goals

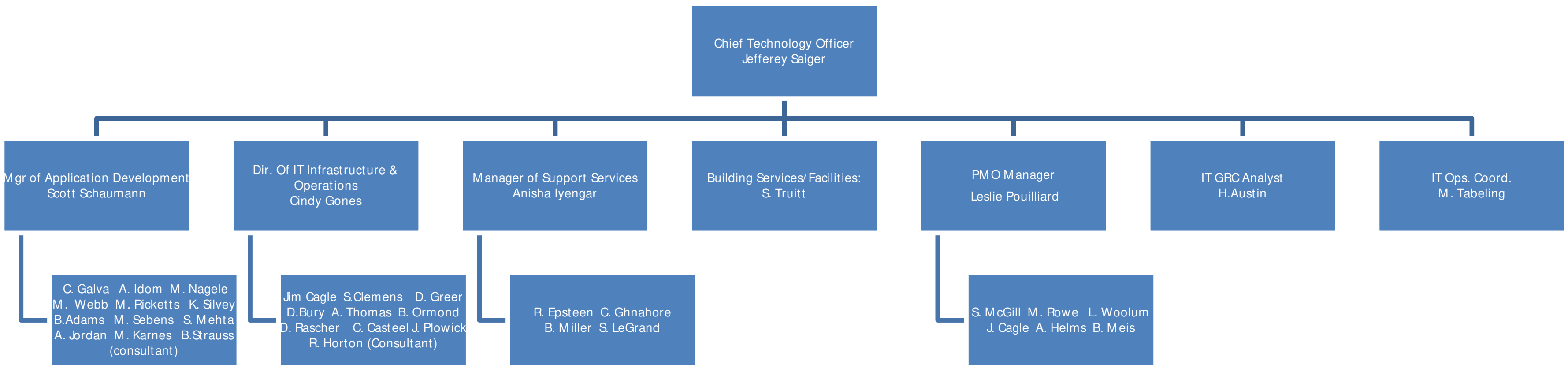
IT Strategic Goals	1. Assure the financial soundness of the system	2. Achieve high levels of customer satisfaction	3. Be a great place to work with an emphasis on learning, growth and diversity	4. Develop and sustain efficient, responsive, high-quality internal processes, tools and technology	5. Protect member assets and information through sound risk management and ethical practices
Be the trusted technology partner to the organization		✓		✓	✓
Run IT like a business	✓	✓		✓	
Treat the organization's data and resources as if they were our own	✓	✓		✓	✓
Invest in people like we do technology; smartly and with the goal of creating the best workplace possible		✓	✓		

Exhibit 11

STATE UNIVERSITIES RETIREMENT SYSTEM

Current State of IT

Current IT & Services ORG Chart



S·U·R·S
STATE UNIVERSITIES RETIREMENT SYSTEM

Exhibit 11

SURS SWOT for IT

(Strengths, Weaknesses, Opportunities, & Threats)

Strengths

- Experienced Staff
- Embrace of Cloud Technologies
- Stability of Infrastructure
- Strong Compliance and Security Posture
- Contemporary Technology Portfolio for Infrastructure and Security
- Vetted Disaster Recovery/Business Continuity Planning
- Strong Relationships with the Business
- Ample Learning and Support Opportunities for Staff
- Have Established Strategic Vendor Partnerships
- Project Management/Project Management Office (PMO) Governance/Standards and Practices
- Planning Competency
- Strong Support from Executive Director and the Board

Weaknesses

- Demands on Staff Often Exceed Capacity to Execute, Resulting in Task Triage
- Lack of Governance Around Service Level Agreements (SLAs) and Operational Level Agreements (OLAs)
- Inconsistent Customer Service/Service Delivery Across IT
- Bureaucracy
- Skills Gaps in Best Practices, Modern Technologies, and Codebases
- Many Retirements Resulting in Institutional Knowledge Loss
- Fast Changing and Complex Technical Environment
- Lack of Memorialization for Existing Processes
- Resistance to Change in Some Areas of IT and Organization

Opportunities

- Implementation of New PAS
- Additional Innovation Enabled by the Implementation of the New PAS
- Big Data to Customize the Educational Outcome for our Members
- Legislative Outreach Using Big Data
- Technology Portfolio Rationalization: Consolidation of Systems onto a Unified Architecture
- Implementation of a Formal Training Program
- Enabling Business to Perform Some Historically IT Functions (Reporting, Low-code)
- Process Improvements and Tighter Governance
- Omni-Channel Engagement of Membership
- Introduction of Business Process Automation
- Real-Time Business Analytics and Reporting
- Engaging Unconventional Means to Increase Talent Pool; Enabling Statewide Remote Work
- Automated Testing and Quality Assurance

Threats

- Reliance on Outside Sources to Support Core Platforms
- Hostile Security Environment (Internal/External)
- Potential Budget Constraints Based on State Outlook
- Delivering Core Services While Adapting to New Demands
- Finding Resources to Maintain Current Application Stack
- External Decisions Requiring Immediate Shifts of Focus and Resources
- Retirement Eligibility of Staff
- Facility Loss Due to Catastrophic Event
- Increased Scrutiny Placed on Public Pensions may Disrupt Initiatives
- Vendor Choice Limitations Due to Legacy PAS Platform
- Potential Data Loss Due to Shadow IT

IT Process Maturity Analysis

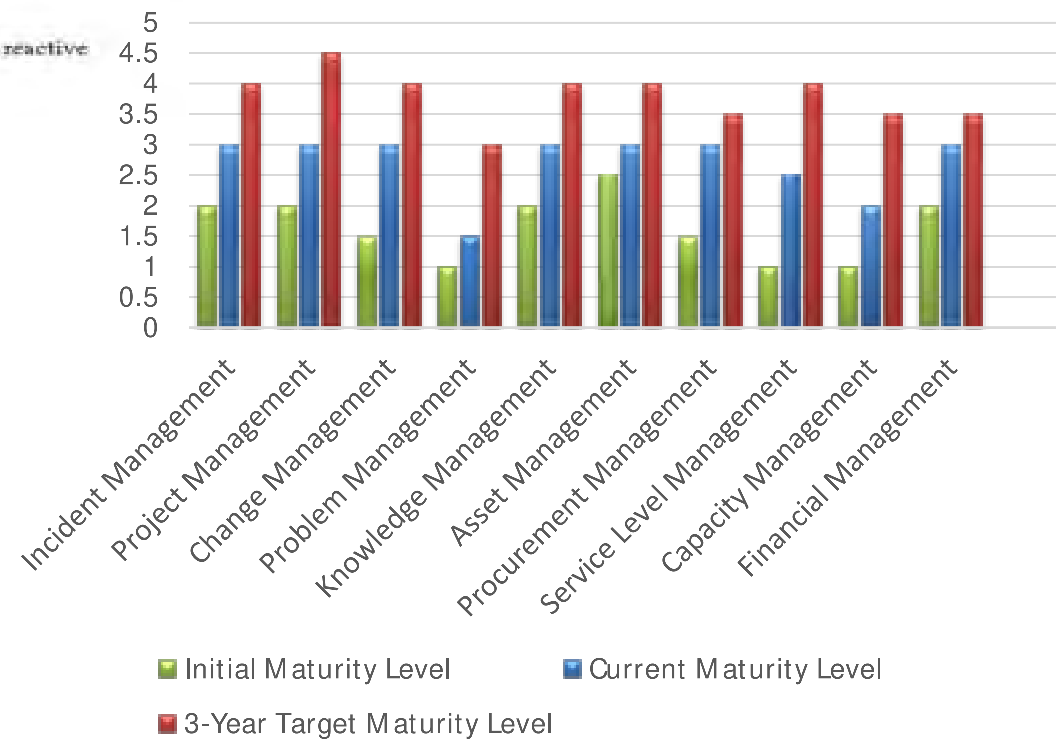


Exhibit 11

Current IT State Assessment

Currently, the IT organization is assessed to be a Business Partner in its role due to effective execution on business projects and strategic use of customer technology.

Innovator - Transforms the Business
Reliable Technology **Innovation**

Business Partner - Expands the Business
Effective Execution on Business **Projects**, Strategic Use of **Analytics** and **Customer Technology**

Trusted Operator - Optimizes the Business
Effective Fulfillment of **Work Orders**, Functional **Business Applications**, and Reliable **Data Quality**

Firefighter - Supports the Business
Reliable **Infrastructure** and IT **Service Desk**

Unstable - Struggles to Support
Inability to Provide Reliable Business Services

S·U·R·S

STATE UNIVERSITIES RETIREMENT SYSTEM

Target State of IT

SURS IT's Biggest Opportunities

Organization Review & Reskilling

With the introduction of the new PAS, as well as a near total revamp of the application portfolio during the past years, SURS IT would greatly benefit from assessing the future state of the organization, and ensuring that team members have the skills necessary to meet new challenges anticipated.

By leveraging our current investment in LinkedIn Learning, working with software vendors to include IT training as part of their proposals, and seeking other avenues for staff development, the IT organization can be well positioned to provide strong value to SURS and its members for years to come.

Data Analytics & AI

Data is one of our organization's most valuable assets. Establishing a data analytics foundation and leveraging data enables new insights that will create improved member experiences that are tailored to the specific member's needs and in a manner that makes it easier to work with SURS. Establishing a strong data analytics foundation will also enable SURS to streamline operational processes and gain new insights in mitigating and managing risk.

By establishing a strong and secure data analytics foundation, SURS will position us for future use of AI as a tool for speeding up data-driven decision making

Omni-Channel Engagement of Membership

As our membership becomes more diverse, their expectations are changing thanks to their day-to-day consumer experiences.

Members expect to interact with organizations through the channels of their choice. Now more than ever, we must enable our organization to provide tailored and frictionless member experiences.

Today's members expect speed, convenience, and tailored low-effort experiences at every stage of the member lifecycle. Successful organizations strive to support these expectations.

S·U·R·S
STATE UNIVERSITIES RETIREMENT SYSTEM

3-Year IT Target State

By the end of Fiscal Year 2026, the target state for the IT organization would be that of a high performing Business Partner, on the cusp of being an Innovator. This will be accomplished through consolidating platforms, improving processes and collaborating fully with key stakeholders throughout SURS.

Innovator - Transforms the Business
Reliable Technology **Innovation**

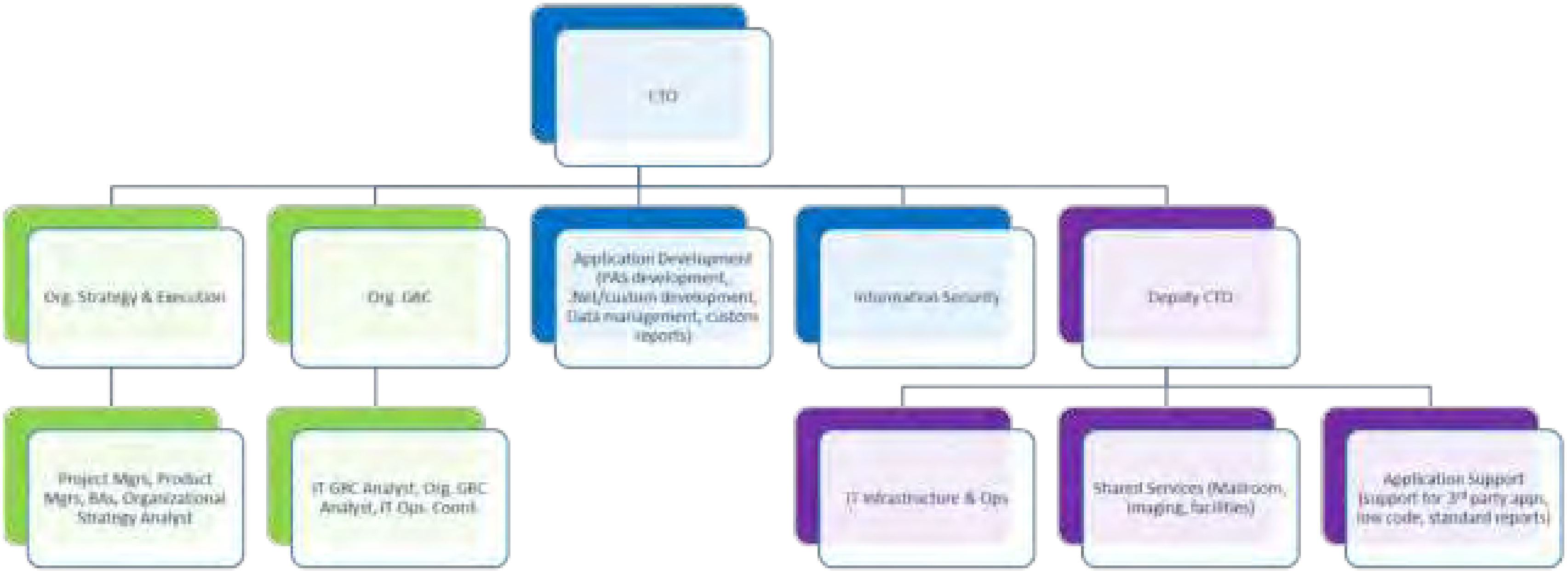
Business Partner - Expands the Business
Effective Execution on Business **Projects**, Strategic Use of **Analytics** and **Customer Technology**

Trusted Operator - Optimizes the Business
Effective Fulfillment of **Work Orders**, Functional **Business Applications**, and Reliable **Data Quality**

Firefighter - Supports the Business
Reliable **Infrastructure** and IT **Service Desk**

Unstable - Struggles to Support
Inability to Provide Reliable Business Services

Future IT & Services ORG Chart



This model would be achieved through role changes due to attrition and reassignments of current staff.

Areas in green have org-wide scopes, not solely IT & Services.

Mapping IT Goals to Capabilities

Be the trusted technology partner to the organization	Run IT like a business	Treat the organization's data and resources as if they were our own (because they are)	Invest in people like we do technology; smartly and with the goal of creating the best workplace possible
Service Level** Management	Procurement** Management	Information Security** Management	Career Planning & Progression
Quality Assurance**	Analytics Based Decision Making	Vendor Management**	Training & Development**
Project Portfolio Management **	Service Delivery Standardization**	Real-time Financial Management	Performance Management
Change Management**	Accountability	Governance, Risk and Compliance Mgmt.**	Coaching & Mentoring

** = progress made in FY23

S·U·R·S

STATE UNIVERSITIES RETIREMENT SYSTEM

Execution

Exhibit 11

Member Services Program 2024-26

Business Goal	Initiatives	2023	2024				2025				2026				Ongoing
	Be the trusted technology partner to the organization Treat the organization's data and resources as if they were our own (because they are)	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	
2. Achieve high levels of customer satisfaction	Data Hygiene & Conditioning: Preparation for Pension Administration System Solution. New Data Warehouse														
	Pension Administration System Implementation to assure the long-term viability of benefits administration														

Security Projects 2024-26

Business Goal	Initiatives	2023	2024				2025				2026				Ongoing
	• **Be the trusted technology partner to the organization** • **Treat the organization's data and resources as if they were our own**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	
4. Develop and sustain efficient, responsive, high-quality internal processes, tools and technology 5. Protect member assets and information through sound risk management and ethical practices	Security Enhancements														
	Backup/Disaster Recovery														

Administration Program 2024-26

Business Goal	Initiatives	2023	2024				2025				2026				Ongoing
	• **Be the trusted technology partner to the organization** • **Treat the organization's data and resources as if they were our own**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	
4. Develop and sustain efficient, responsive, high-quality internal processes, tools and technology **5. Protect member assets and information through sound risk management and ethical practices**	Migration of Special Filing from FileNet to SharePoint														

IT Operations/Infrastructure Projects 2024-26

Business Goal	Initiatives	2023	2024				2025				2026				Ongoing
	• **Be the trusted technology partner to the organization** • **Treat the organization's data and resources as if they were our own**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	
4. Develop and sustain efficient, responsive, high-quality internal processes, tools and technology 5. Protect member assets and information through sound risk management and ethical practices	Network Upgrade Roadmap: Multi-year program to completely refresh network switches supporting the entire SURS organization														
	Replacement of Daily Operational Equipment at End-of-Life														

S·U·R·S STATE UNIVERSITIES RETIREMENT SYSTEM

Exhibit 11

Facilities Program 2024-26

Business Goal	Initiatives	2023	2024				2025				2026				Ongoing
	Run IT like a business	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	
4. Develop and sustain efficient, responsive, high-quality internal processes, tools and technology	Environmental and Safety														
	Building Maintenance Capital & Planning 1901 Fox Dr Renovations Roadmap														

S·U·R·S STATE UNIVERSITIES RETIREMENT SYSTEM

S·U·R·S
STATE UNIVERSITIES RETIREMENT SYSTEM

Timeline of Major Initiatives

IT Strategy	FY 2024				FY 2025				FY 2026			
PROGRAM	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Review Organizational Design												
Information Security Enhancements												
Organizational Change Management Activities												
Data Hygiene & Management												
Introduction of Enterprise Risk & Governance Competencies												
New PAS Implementation												
SURS Member Mobile Engagement												

Risk Analysis

When executing on the IT strategies, it is critical to consider what risks to the business may arise from the choices made.

Risks to the Business

Funding Constraints
If the ability to fund initiatives, including PAS-related work, is impaired for some reason, the ability to execute on the IT strategies will be greatly diminished.

Loss of Tribal Knowledge
As we continue to experience high attrition due to retirements, SURS continues to experience risk due to the loss of institutional knowledge. Succession planning is paramount.

Hostile InfoSec Landscape
Public entities are increasingly being targeted by malicious actors. As a public entity that also manages billions, we are a high-value target.

S·U·R·S
STATE UNIVERSITIES RETIREMENT SYSTEM
1901 Fox Drive, Champaign, IL 61820-7333
800-275-7877 • 217-378-8800 • (Fax) 217-378-9800
www.surs.org

To: Administration Committee
From: Jefferey S. Saiger, Chief Technology Officer
Date: 12/07/2023
Re: Project Velocity Update

The SURS Information Technology Department is here before the Administration Committee today to present an update regarding Project Velocity; our ongoing project to replace our legacy pension administration system (PAS) with one that is tenable from support and technology perspectives for the long-term betterment of SURS.

During the September meeting, a request was made by staff for the allocation of additional funds for the project due to multiple change orders that have arisen as the project has progressed. The Board made several asks of both staff as well as the Project Velocity vendors (Vitech, Linea and MBS) before any allocation of additional funds was considered.

In the interim between the September meeting and today, staff has engaged the vendors extensively to discuss all facets of the project and the associated costs. Staff also engaged external legal counsel when warranted for guidance and negotiations.

As a result of these exchanges as well as continuing work on the project during the last quarter, staff has worked with the Project Velocity vendors to identify the total amount necessary to successfully complete the project. Staff will present this to the board and is accompanied by the Project Velocity vendors to address any specific questions.

Thank you for your time and attention.

***Staff recommends that the board approve the Project Velocity timeline extension and related additional costs in the amount of $6,740,480 which includes a supplemental FY24 budget increase of $370,000 to cover new costs incurred before the end of the fiscal year.**

***Staff recommends that the board approve an additional contingency of $2,600,000 for the Project Velocity budget to account for unforeseen issues, complexities, or legislative mandates, with the understanding that any changes that would exceed this amount will need to be vetted and approved by the board.**

Exhibit 13

S·U·R·S

LINEASOLUTIONS

SURS Project Velocity Update

Pension Administration System (PAS) Replacement

December 2023

Agenda

- Project Status
- Project Extension Proposal
  - Overview of Change Orders

Project Status

51%
Complete

Project Status: Extension & Budget Approval Needed

Scope	Schedule
Red	Red
Budget	**Quality***
Red	Green

*If project is not extended, quality is at risk.

LEGEND
GREEN – ON TRACK
YELLOW – AT RISK
RED – RISK IS REALIZED & ACTION PLAN IS IN PLACE TO ADDRESS

Reasons for Extension

1. Avoid overlap of VAL2 Testing with sprints
2. Avoid project work over holiday periods for SURS
3. Additional sprint topics

- Pension Calculations
- Reciprocal Retirement Estimates
- Retirement Savings Plan (RSP)
- PA-103-0548 Changes (Formerly -SB1235)

Why are we where we are?

Linea, MBS, and Vitech are here to be transparent and accountable.

Root Cause Issues

- Process complexity
- Resource constraints
- Scope clarifications
- Complex data structure

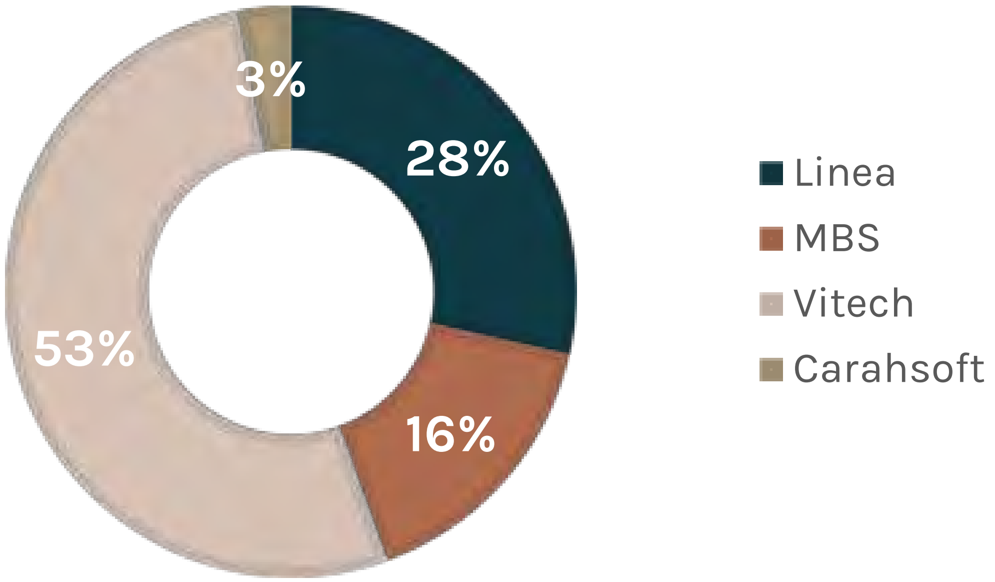
Contingency Budget – Approved & Pending Change Orders

Original Contingency : $2,000,000

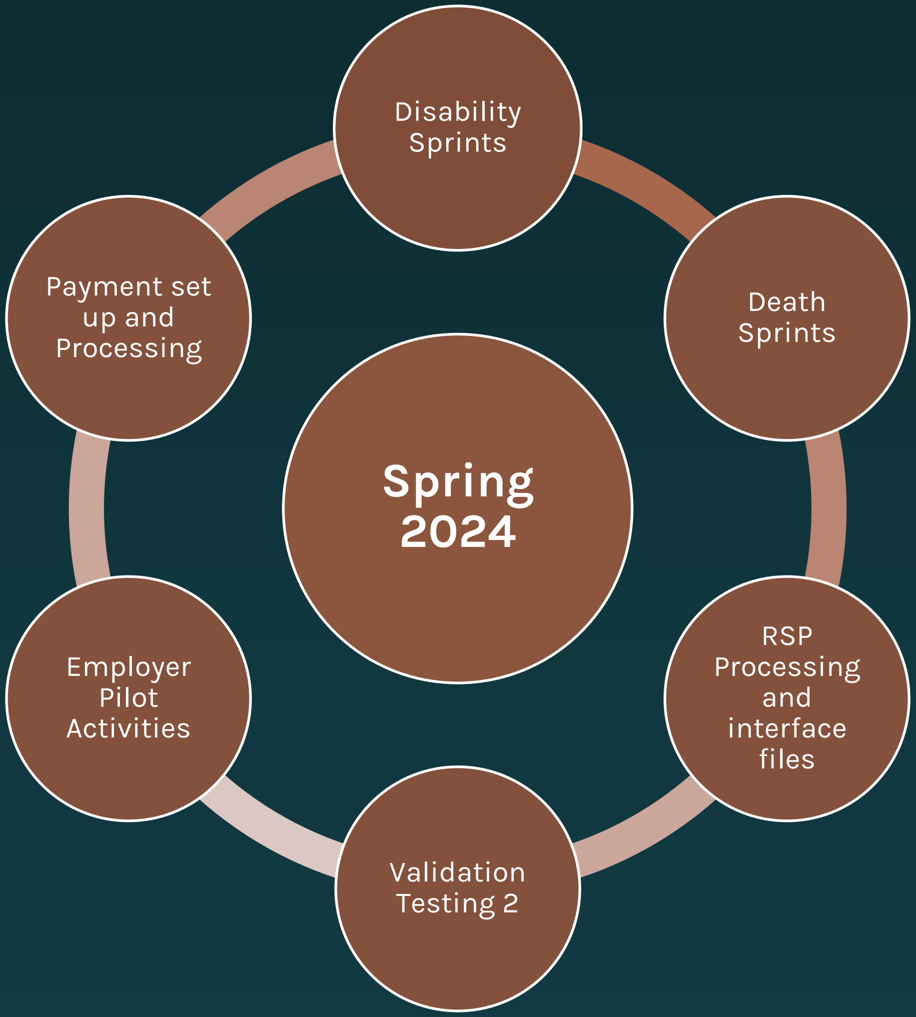
Contingency amount from FY25 and unused travel funds from FY23 were pulled to increase the contingency available for FY24.

The pending and expected change orders for FY24 will leave ~$40K in contingency.

ORIGINAL CONTINGENCY USE BY VENDOR INCLUDES EXPECTED FY24 USE



Next Steps & Looking Ahead



Disability, Death, and Disability Retirement (3D) - Resource Impacts

- 3D team is the smallest business process team.
- 3D team has the longest training periods which results in a limited number of SMEs and resources.
  - Reality: single points of failure.
- Subject matter experts (SMEs) and Managers have a bigger gap to envisioning a future process due to the current manual nature of their processes.
  - Project team is collaborating with SMEs to help identify opportunities to decrease manual processing and increase efficiencies.
- Large volume of testing required for complex topic and limited number of knowledgeable testers.

Disability, Death, and Disability Retirement (3D) - Complex Rules

- SURS has different rules for each plan, including different beneficiary types and benefit types.
- Finding ways to streamline the current death process (12 queues) to a leaner one for better workflow management
  - Current processes are very manual including calculations, and letters
  - Collecting overpayment creates additional steps
- Recalculations may be required when survivors become deceased

Multiple specialized scenarios for 3D are completed manually.

Future Costs Estimated by Vendor

- Vitech
  - Additional resources support
  - PA103-0548 legislative change
  - Future Data conversion hours
- MBS
  - Data conversion of Death
  - Participant Account map changes
  - Additional SCP tables
  - Additional Participant account tables
- Linea
  - Additional resource support

Revisited known unknowns

- Added Interface hours estimate
- Added additional contingency budget
- Increased custom data conversion tables estimate
- Increased data conversion table rewrites

Budget request changes from September request to address future costs

MBS Total Project Costs

Extension Costs $320K:

- Extension of project schedule.
- Additional custom tables.
- Rewrite tables.

New Project Total: $1.85M

FY21 to FY28	Amount
Original + change orders (total budget before extension)	$1,532,035
Project Extension costs	$320,190
New Project Total	$1,852,225

Linea Total Project Costs

Extension Costs $2M:
- Extension of current resources and increased allocation during Parallel testing.
- Addition of new resources.

New Project Total: $9.5M

FY22 to FY28	Amount
Original + change orders (total budget before extension)	$7,499,576
Proposed project extension	$2,030,290
New Project Total	$9,529,866

Vitech Total Project Costs

Future change orders $1.2M:
- Additional data transformation hours FY25-FY27.
- Additional interface hours.

Extension Costs $3.1M:
- Extension of current resources.
- Additional resources.
- Additional data transformation hours FY25-FY27.
- Additional interface hours.

New Project Total: $22M

FY22 - FY28	Amount
Original + change orders (total budget before extension)	$17,579,200
Future Change Orders	$1,240,000
Proposed project extension	$3,150,000
New Project Total	$21,969,200

Total Project Costs

Future change orders: 1.2M
Extension Costs $5.5M:
- Additional 35 weeks added to project.
- New project Go-Live date March 2027

Proposed Additional Project Contingency: $2.6M
Proposed Project Increase: 9.3M

New Project Total: $35.9M

Project implementation to warranty	Itemized	Amount
Original		**$24,242,700**
Change Orders (before extension)		**$2,368,111**
Future Change Orders		**$1,240,000**
Vitech project extension	$3,150,000	
Linea project extension	$2,030,290	
MBS project extension	$320,190	
Proposed project extension		**$5,500,480**
Proposed project contingency		**$2,600,000**
Total cost to warranty		**$35,951,291**

Context from PAS Vendor Procurement

Vitech remains at a lower cost than the other finalist.

New net differences exceed extension costs from MBS and Linea.

	Implementation through Warranty	Total 10-Year Projection
Sagitec	$ 29,872,983	$ 40,441,910
Vitech - Original	$ 20,152,350	$ 25,164,170
Difference	$ 9,720,633	$ 15,277,740
Vitech – New	$ 26,481,410	$ 31,493,230
New Net Difference	**$ 3,391,573**	**$ 8,948,680**

Context: 2019 Accenture Recommendations

Estimated level of effort to complete implementation of:

- Case Management System
- Business Rules Management System
- Remaining Back-End processing

Estimated Level of Effort (Hours)	Average Cost per Hour	Total
268,000*	$125	$33,500,000
	$175	$46,900,000
	$200	$53,600,000
	$250	$67,000,000
	$275	$73,700,000

*Source: Accenture Operational Review and Outcomes and Recommendations May 2019

What percent of the original project budget total* is each vendor's change order?

Original Project Budget Total	$ 26,427,315

Vendor	Change Orders	Percent of Total Budget
Vitech	$4.4M	16.6%
Linea	$ 2M	7.7%
MBS	$ 320K	1.2%
Additional Contingency	$2.6M	9.8%
Totals w/o Additional Contingency	$6.7M	25.5%
Total Request	$ 9.3M	35.3%

*Project Budget Total is only FY22 to FY28, excluding FY21. This includes services only. Extension Change order includes all change orders that are not yet funded.

Mitigation Strategies to Prevent Further Changes

"An ounce of prevention is worth a pound of cure."
- Benjamin Franklin

- Go-live planning early and throughout the project
- Manage scope more aggressively
- Improve expectations setting
- Focus more on preparation of sprints
- Actively review test scenarios at start of sprint
- Avoid overlaps between Validation Testing and holidays with sprints
- Increase change management efforts
- Increase in person interactions
- Communicate with SURS early and often to find alternatives to complexity

Total Budget Ask: $9.3M

- $6.7M Total MBS, Linea, & Vitech
- $2.6M Additional Contingency

LINEASOLUTIONS

Appendices

Exhibit 14

Project Velocity
Vitech 33-Week Extension

December Board Meeting

December 7, 2023

Extension Overview

- The Project Extension adds 33 Weeks (8.5 months) to the project timeline
  - 26 weeks for 6 additional Sprints:
    - 3 Pension "Catch-Up" Sprints due to effort required for SURS to convey complex benefit calculations
    - 2 New Sprints for additional RSP Requirements due to requirement corrections and SURS process alignment
    - 1 New Sprint to accommodate impact of Public Act 103-0548
  - 7 weeks to accommodate SURS Resource Constraints
    - 2 additional "SURS Break" weeks for SURS team prior to holidays in 2023 to accommodate State of Illinois vacation accrual policy changes
    - 1 additional "SURS Break" week for SURS team prior to Validation Testing Cycle 3 and 4 weeks to prevent Sprint Execution overlap with Validation Testing Cycle 2 testing to ease project demands on SURS staff

Pricing Overview – Vitech Services Fees

- Original Implementation Services Fees: $16,113,500
- Revised Implementation Services Fees: $21,969,200
  - Approved and/or Covered by Original Contingency Budget: $1,465,700
    - *Public Act 103-0548: $400,000*
    - *Inclusion of SSN Indicator field for tracking of invalid SSNs: $3,000*
    - *Reciprocal Systems Pension Estimates: $350,000*
    - *Data Transformation Services: $712,700*
  - Pending Board Approval: **$4,390,000**
    - *33-Week Project Extension: $3,150,000*
    - *Interfaces: $340,000*
    - *Additional Data Transformation: $900,000*

Timeline Comparison

Original Plan	Begin	End
Launch	7/26/2021	1/14/2022
Sprint Execution	10/18/2021	8/23/2022
Cont	9/26/2022	10/21/2022
Val-1	10/24/2022	12/16/2022
Sprint Execution	10/31/2022	11/17/2023
Cont	11/20/2023	12/15/2023
Val-2	12/18/2023	2/9/2024
Sprint Execution	12/25/2023	8/9/2024
Cont	8/9/2024	10/4/2024
Val-3	10/7/2024	11/29/2024
Process Walk Thru	12/2/2024	12/20/2024
VAT/VST	12/23/2024	2/28/2025
UAT	3/13/2025	7/18/2025
Parallel	7/21/2025	7/10/2026
Go-Live	7/13/2026	7/17/2026

Revised Plan	Begin	End
Launch	7/26/2021	1/14/2022
Sprint Execution	10/18/2021	8/23/2022
Cont	9/26/2022	10/21/2022
Val-1	10/24/2022	12/16/2022
Sprint Execution	10/31/2022	12/1/2023
Cont	12/4/2023	1/12/2024
Val-2	1/15/2024	3/8/2024
Sprint Execution	3/11/2024	4/18/2025
Cont	4/21/2025	5/23/2025
Val-3	5/26/2025	7/18/2025
Process Walk Thru	7/21/2025	8/8/2025
VAT/VST	8/11/2025	11/14/2025
UAT	11/17/2025	3/6/2026
Parallel	4/6/2026	2/26/2027
Go-Live	3/1/2027	3/5/2027

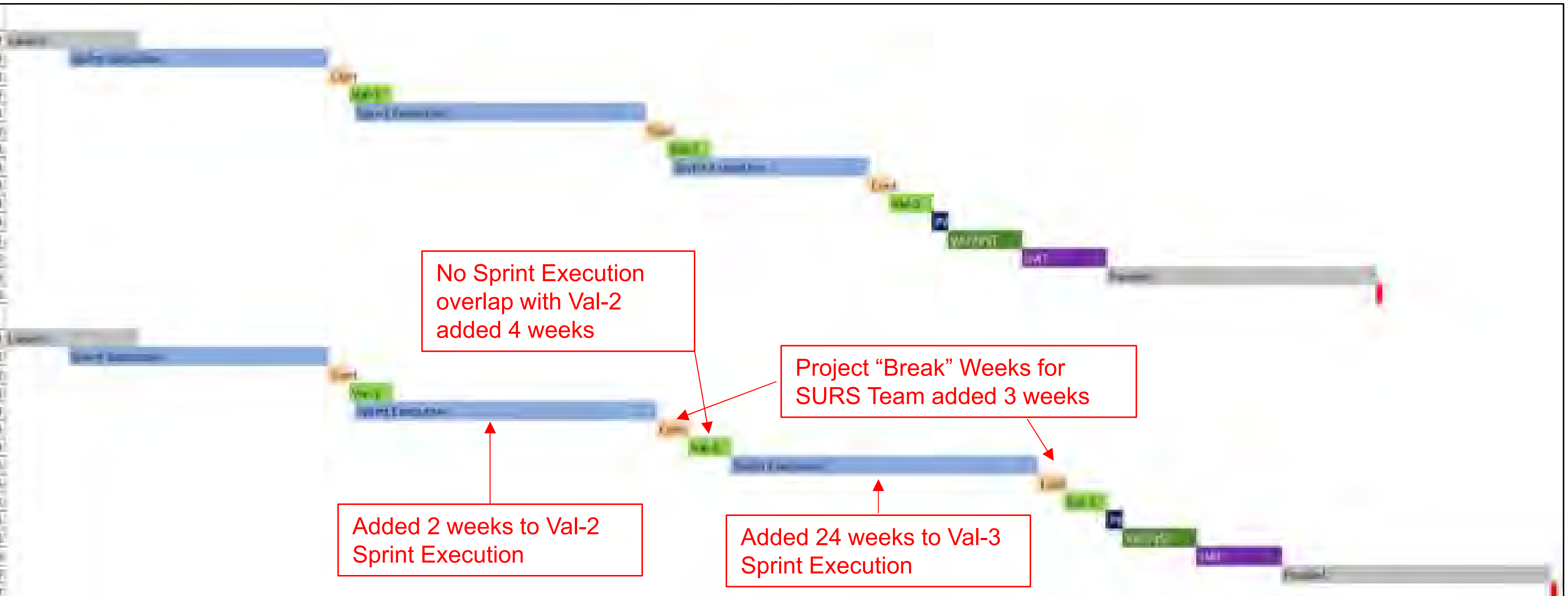
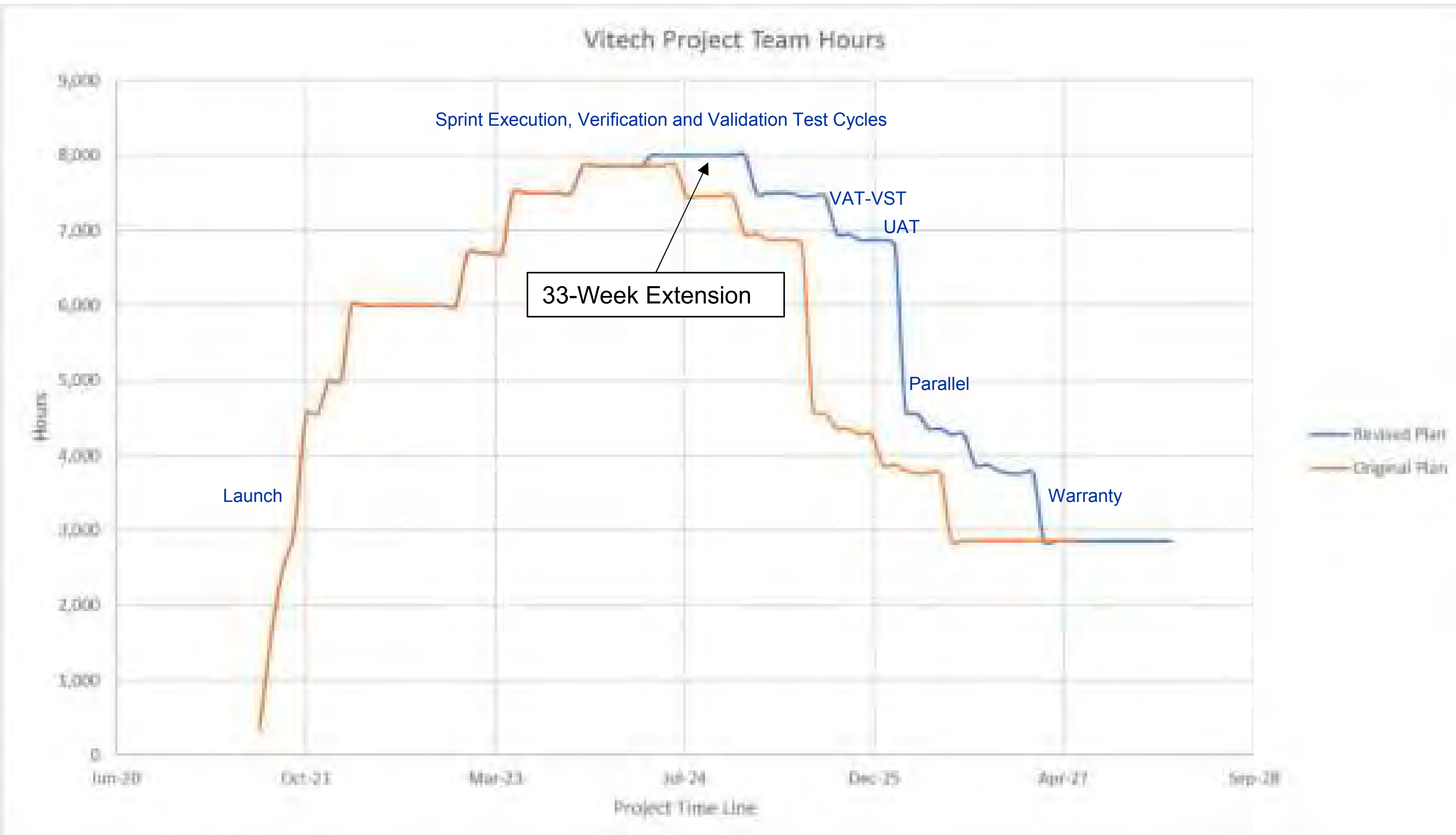


Exhibit 14

Hours Comparison



Service Fees

V3locity Service Fees (Project Implementation) - Fiscal Year

	FY-2022	FY-2023	FY-2024	FY-2025	FY-2026	FY-2027	FY-2028	Total
Original Serivce Fees	$3,105,000	$3,384,000	$3,330,000	$3,029,850	$2,367,325	$897,325	$0	**$16,113,500**
Change Order - Project Implementation Extension	$0	$0	$1,100,000	$1,600,000	$150,000	$300,000	$0	**$3,150,000**
Total	**$3,105,000**	**$3,384,000**	**$4,430,000**	**$4,629,850**	**$2,517,325**	**$1,197,325**	**$0**	**$19,263,500**

Change Order for Legislative Change

	FY-2022	FY-2023	FY-2024	FY-2025	FY-2026	FY-2027	FY-2028	Total
Change Order - Public Act 103-0548	$0	$0	$0	$288,000	$72,000	$0	$40,000	**$400,000**

Change Orders Covered by Original Contingency Budget

	FY-2022	FY-2023	FY-2024	FY-2025	FY-2026	FY-2027	FY-2028	Total
Change Order - Inclusion of SSN Indicator field for tracking of invalid SSNs	$0	$3,000	$0	$0	$0	$0	$0	**$3,000**
Change Order - Reciprocal Systems Pension Estimates	$0	$0	$350,000	$0	$0	$0	$0	**$350,000**
Change Orders - Data Transformation	$0	$0	$462,700	$250,000	$0	$0	$0	**$712,700**
Total	**$0**	**$3,000**	**$812,700**	**$250,000**	**$0**	**$0**	**$0**	**$1,065,700**

Change Orders Not Covered by Contingency Budget

	FY-2022	FY-2023	FY-2024	FY-2025	FY-2026	FY-2027	FY-2028	Total
Change Orders - Data Transformation	$0	$0	$0	$310,000	$400,000	$190,000	$0	**$900,000**
Change Order - Interfaces	$0	$0	$0	$200,000	$140,000	$0	$0	**$340,000**
Total	**$0**	**$0**	**$0**	**$510,000**	**$540,000**	**$190,000**	**$0**	**$1,240,000**

Total: $21,969,200

Subscription Fees

While the V3locity Subscription Fees remain the same through 2031, additional payments will be made prior to the end of the Warranty period due to project timeline extension.

SURS Subscription and V3locity Service Fees - Fiscal Year

	FY-2021	FY-2022	FY-2023	FY-2024	FY-2025	FY-2026	FY-2027	FY-2028	FY-2029	FY-2030	FY-2031	Total
Subscription Fees	$0	$430,000	$430,000	$430,000	$490,000	$1,110,000	$1,148,850	$1,189,060	$1,230,677	$1,273,751	$1,318,332	$9,050,670

Original July 2026 Go-Live	FY-2021	FY-2022	FY-2023	FY-2024	FY-2025	FY-2026	FY-2027	FY-2028	FY-2029	FY-2030	FY-2031	Total
Subscription Fees Paid Prior to end of Warranty Period	$0	$430,000	$430,000	$430,000	$490,000	$1,110,000	$1,148,850					$4,038,850
Subscription Fees Paid After Warranty Period								$1,189,060	$1,230,677	$1,273,751	$1,318,332	$5,011,820
Total	$0	$430,000	$430,000	$430,000	$490,000	$1,110,000	$1,148,850	$1,189,060	$1,230,677	$1,273,751	$1,318,332	$9,050,670

Revised March 2027 Go-Live	FY-2021	FY-2022	FY-2023	FY-2024	FY-2025	FY-2026	FY-2027	FY-2028	FY-2029	FY-2030	FY-2031	Total
Subscription Fees Paid Prior to end of Warranty Period	$0	$430,000	$430,000	$430,000	$490,000	$1,110,000	$1,148,850	$1,189,060				$5,227,910
Subscription Fees Paid After Warranty Period									$1,230,677	$1,273,751	$1,318,332	$3,822,760
Total	$0	$430,000	$430,000	$430,000	$490,000	$1,110,000	$1,148,850	$1,189,060	$1,230,677	$1,273,751	$1,318,332	$9,050,670

Change to Subscription Fees Paid Prior to End of Warranty Period: $1,189,060

SURS Board of Trustees
Executive Level Summary

"How we got here":

Summary of Additional Amendments:
The original SOW included the migration of images and image metadata. In early Discovery Sessions, MBS learned SURS wanted to include the migration of their annotations from FileNet Application Program Interfaces (APIs), which was unknown when MBS submitted a response to SURS' RFP. This required MBS to subcontract with DAS who had the technical experience and tools to migrate physical images and "editable" annotations from FileNet APIs into V3locity. MBS retained the migration work for metadata. This migration included the following work from MBS and DAS that resulted in Amendment #3, Amendment #4, and Amendment #7:

- Proof of Concept (POC)
- Metadata
- Annotations
- Full Pull of Physical Images
- Image Testing, Review Testing Results and Remediation
- Configuration to interact with FileNet APIs
- Project Coordination
- Delta Pull of Physical Images, Annotations and Metadata

SURS is testing the Full Pull of physical images, editable annotations, and metadata. This testing is scheduled through November 2023. Based on testing results, there is potential for another amendment as there are still unknown issues that may require remediation and project coordination beyond November.

MBS added Amendment #5 for rework of data maps, scripts, transformation rules, and QA script validations required for design changes of V3locity. MBS facilitated Data Mapping Sessions and Issue Review meetings with SURS and Vitech ensuring data changes would meet V3locity design change.

MBS added two amendments for Custom Target Tables data maps, scripts, and QA scripts rewrites. These custom target tables increased in complexity to add over 14 data sources. Amendment #6 and Amendment #9 derived from V3locity design changes to meet SURS operational needs.

In Amendment #6, a Time & Material component was added for the increase of Issue Review meetings, Touch Point Calls and other meetings required by SURS and Vitech that exceeds two one-hour meetings per week from the original SOW.

Amendments #3, #4, #5, #6, #7 and #9 have been previously approved by SURS and are in progress.

Impact if Amendments are not approved:

Amendments to be submitted to SURS for approval are as follows:

- Rewrite of Service Credit Purchase Tables
- New Custom Tables for Service Credit Purchase
- Data mapping and scripting updates to Part Account Detail data sources for Repay Refund
- Pension Applications: Statuses and Sub-statuses
- New Custom Tables for Contribution Transaction and Transaction Details
- New Custom Tables for Disability Disbursements
- Project Coordination for additional resolution of the Full Pull of images, and the first and second Imaging Deltas, Metadata and Annotations
- Schedule Extension

If the amendments are not approved, MBS would defer this question to SURS and Vitech to evaluate the impact.

MBS has submitted an amendment for the project schedule extension. If this amendment were to be declined, MBS would still meet the original Go Live date. This schedule extension is at the request of Vitech.

MBS may need to identify additional amendments in response to future design changes from SURS and Vitech should they arise.

Ideas on how to bend the curve:

For the Time & Material component, MBS is working with SURS to strategically schedule meetings to keep costs down due. In the original SOW, MBS allows for two one-hour Issue Review Meetings per week. When MBS vacation is scheduled or at the request of MBS to hold meetings for the week to prepare for a data cycle, MBS allows for meeting credits so that SURS can utilize these credits in later weeks when exceeding the two one-hour threshold. This allows SURS to control direct costs to the project.

MBS communicates early and often working with SURS when data changes are identified so that SURS may evaluate their operational needs with V3locity functionality to determine if these changes are required or if an alternative viable solution can be identified.

MBS
A Sealaska Company

MBS Amendments listed below:

Amendment #	Description	Status	Price
Original Data Migration Services - November 1, 2020			$1,207,308.00
Amendment #3	Imaging: POC1, Image Full Pull, Remediation	Active	$91,750.00
Amendment #4	Imaging: POC2, Image Deletions, Changes, Additions	Active	$42,068.00
Amendment #5	Design Changes: Rework Data Maps, Scripts and QA	Complete	$58,172.00
Amendment #6	Design Changes: Additional Custom Tables & Additional Meetings through Go Live 2026	Active	$104,781.17
Amendment #7	Imaging: Full Pull - Project Coordination	Active	$12,500.00
Amendment #9	Design Changes: Rework of Part Acct Detail - % Time Worked & Service	Active	$15,456.00
SubTotal			**$324,727.17**
MBS Contingency			$320,190.41
Total			**$1,852,225.58**

Goodwill:	
Amendment #8	$51,895.00
RSP Spark File - changes to 14 datasources	$15,456.00
Total Goodwill	**$67,351.00**

The MBS Contingency includes the Schedule Extension Amendment that was previously submitted to SURS and presented in the September 2023 Board of Trustees' meeting.

Managed Business Solutions
www.mbshome.com

Corporate Office:
(719) 314-3400 Fax: (719) 314-3499
6547 North Academy Blvd, #2490, Colorado Springs, CO 80918

Linea Change Order Justification

Executive Summary

Linea Solutions will provide continued support for the proposed project extension and additional services to help address SURS' resource constraints.

The project extension is needed to avoid overlap between validation testing and additional sprints and project work over holiday periods. In addition, Linea will provide training and Quality Assurance testing resources to support SURS staff.

The revised project plan forecasts a March 1, 2027, Go-Live Date.

Change Order – Linea Extension 202311 can be found attached.

Root causes

Below are the root causes for needing a Change Order for the project extension:

- Process Intricacy – Designing the process is taking more time in decision making. This period focused work on the "How" in addition to merely the "What".
- Resource Constraints – SURS Staff are stretched between daily work and project work and often must prioritize immediate operational needs.
- Scope Clarifications – Reciprocal estimates are missing specific retirement calculations, RSP functionality is not fully built, and outstanding questions must still be addressed. RSP Programs were not fully established during the requirements gathering and procurement time periods, leaving room for outstanding questions.

Impact of No Change

If no changes are made to the level of resource allocation on the project team, then:

- SURS staff will continue to experience frustration with the Vitech team and the new system, which will impact the effective completion of the project. This would lead to either a premature go-live of the software or additional delays beyond what is planned here.
- Project Team continues to barely keep afloat on tasks. Level of direct support provided to SURS staff during testing may decrease over time.
- The SURS staff will not be provided necessary training in a timely manner, which could impact the adoption of the new Pension Administration System (PAS).
- The future budget will be impacted.

Cost mitigation

Below are the mitigation strategies which have been planned to prevent further changes and in turn bend the cost curve:

- Plan to initiate the Go-Live planning early and throughout the project.
- Manage scope more aggressively.
- Improve expectations settings.
- Focus more on the "what" is required for the system to work rather than "how" the system works today.
- More focus on Preparation of Sprints.
- Actively review test scenarios at the start of Sprint.
- Avoid overlaps between Validation Testing and the holiday with sprints.
- Increase change management efforts.
- Increase in-person interactions.
- Communicate with SURS early and frequently to find alternatives to complexity.

Linea and SURS began these strategies in fiscal year 2023 and continue to adapt to the project needs.

vitech

November 15, 2023

Ms. Mayer
Executive Director
State Universities Retirement System
1901 Fox Drive
Champaign, IL 61820-7333

Dear Ms. Mayer:

This letter provides responses to the questions posed in your letter sent to Vitech Systems Group on Wednesday, September 27, 2023. While the project to date has presented some challenges, Vitech remains committed to partnering with SURS to successfully implement V3locity.

Vitech would like to reaffirm its position that it did not underbid the project, nor did Vitech fail to properly understand the project requirements set forth in the RFP. Vitech's proposed Change Order only seeks to capture the broader scope that emerged as the team delved deeper into specifics, particularly requirements that were not fully explained or foreseen in the initial Request for Proposal (RFP). For any requirements that Vitech may have misunderstood we fully embraced the additional workload, incorporating additional sprints, at no additional cost to SURS.

1. Explanation of what would occur if the project schedule changes that we have discussed are not made.

Vitech Response:

If the proposed changes to the schedule are not adopted, it will necessitate continued adherence to the original project plan, which may lead to scope reductions. These scope reductions would offset additional scope work that has already been completed to date, which includes three additional Pension "Catch-Up" Sprints and two additional Retirement Savings Plan (RSP) Sprints. Adhering to the original schedule would also result in more concurrent work to be done in the allotted time which would put more of a burden on SURS' staff.

2. List of SURS's requirements that resulted in additional project complexity when compared to other clients. This should include items that Vitech identifies as new scope and existing scope that Vitech underbid. Make sure to differentiate these items.

Vitech Response: Vitech would like to clarify that it did not underbid the project. The Best and Final Offer (BAFO) included in our response to the RFP was based upon our understanding of the requirements provided. Collaboration sessions conducted to clarify and confirm RTMs revealed that requirements were written to describe plans and rules ("the what") but often did not explain SURS business processes and practices followed to support the plans and rules ("the how"). The resulting configuration to support SURS requirements introduced unanticipated additional complexity compared to Vitech's other clients for the following areas:

- Waiver of Excess Views
- Preliminary Estimated Payment (PEP) Calculations
- Retirement Savings Plan (RSP) Payment Processing Rules

We have provided the list of specific SURS requirements we identify as new and existing scope in Exhibit 1.

Please note that when RTMs were misunderstood by Vitech, for example SCP Processing Rules, Vitech did accommodate the additional Sprints within the project at no additional cost to SURS and without expanding the original scope of work.

3. List of requirements / topics that took longer than expected to address and the reasons for the extended completion time.

Vitech Response: Vitech is dependent on SURS to provide necessary clarifications on calculations and processes that drive system configuration decisions by the end of Sprint Preparation to ensure it can configure and develop the full scope of the Sprint within the allotted four (4) weeks. SURS' efforts to provide needed clarifications for the following areas extended beyond expected timeframes, impacting the development cy cle:

- Differences between Estimates Team and the Benefits/Claims Team
- Sprint Preparation Sessions for Pension Sprints Scheduled During Validation 1
- Waiver of Excess Requirements
- Annual Adjusted Increase (AAI) Requirements Clarification Delays
- Excess Benefits Arrangement (EBA)
- Retirement Savings Plan (RSP) Team Engagement
- Pace of Spec-Based Deliverables

Vitech does accept some responsibility for delays associated with the Retirement Savings Plan requirement clarifications. Vitech did not properly manage SURS expectations regarding needed requirements which partially contributed to the extended timeline.

4. Details about the schedule extensions proposed to help take pressure off SURS staff.

Vitech Response:

To mitigate the SURS team's constraints, compounded by the State of Illinois vacation accrual policy changes, we have proposed a seven-week extension to accommodate requests for "off-time" from project work. SURS resources did not have the capacity to conduct both Sprint work and Validation 1 activities simultaneously. A result of the joint team's Validation 1 retrospective meeting was the recommendation to delay Sprints scheduled during Validation 2 to avoid overloading SURS' resources. The proposed extension aims to ease the project's demands on SURS' staff and ensure success.

5. A detailed estimate of costs related to the following identified risks and/or variables:

- ***a. Additional sprints / time needed to address and complete the Disability and Death processes.***
  - ***i. The SURS Project Team's availability to review discovery session materials.***
- ***b. Additional interface development hours you expect SURS to incur.***
- ***c. Any other project related risks identified by Vitech.***

Vitech Response:

a. As part of its RFP response, Vitech defined the time required in the project plan to deliver Disability and Death processes based on its experience with similarly sized clients who have comparable requirements. One of the primary causes of the project delays, in general, is the amount of time it takes SURS to clarify RTMs and communicate business processes and practices (which are not detailed in the RTMs) such that Vitech can configure V3locity accordingly. Additionally, SURS is optimizing and standardizing these processes in parallel, which is resulting in increased turnaround.

In order to mitigate the aforementioned risk for Death and Disability, requirements clarification sessions are beginning earlier than planned. SURS is actively working to review discovery session materials and document the current state Disability and Death processes across all plans, including required improvements to the processes, prior to our scheduled Sprint Preparation for Disability and Death. Having already prepared the future state processes will streamline requirements clarification efforts.

b. As of September 30, 2023, SURS has 3,844.25 hours remaining in its 7,500 Interface Hours Bank. A total of four (4) interfaces, including the two (2) most complex interfaces, have already been delivered with twenty-six (26) interfaces remaining. Vitech reviewed the remaining interfaces and estimates that SURS may need as many as 4,000 additional interface hours, unless some of the twenty-six (26) interfaces can either be removed from scope, or completed through SURS co-development. Based on interface hours worked to date, Vitech estimates the associated cost to SURS, on a time and materials basis, is approximately $350,000.

c. An eight-month project extension typically requires additional Conversion cycles. While SURS, MBS and Vitech have implemented mitigation strategies which have reduced the burn rate of Conversion hours, it is still possible additional hours may be needed above and beyond the current forecast.

6. ***In addition, please provide the following:***

   a. ***An explanation for why the Vitech proposal was more than 25% below the currently projected cost of this project, especially in light of the additional discount provided by Vitech in the second BAFO.***

   b. ***A detailed estimate of a not-to-exceed cost to complete the entire PAS project assuming no additional legislative mandates or scope changes initiated by SURS.***

Vitech Response:

As outlined above, the additional project costs presented are due, but not limited to, increased scope not included or indicated in the RFP, and SURS' resource constraints. Vitech's BAFO provided the lowest price for which it felt it could implement V3locity based upon and in accordance with information provided to it during the RFP process. In the case where Vitech misinterpreted or misunderstood requirements originally provided, Service Credit Purchase (SCP) as an example, Vitech has incurred the associated costs.

Legislative mandates and scope changes are not the only factors which add to cost to the project. As already indicated, Vitech's client's ability to provide clear and comprehensive requirements / clarifications in a timely and efficient manner is key to ensuring a project remains on time and, consequently, within budget. While it is difficult for Vitech to foresee all possible future challenges, including exact additional interface and data conversion hours needed, considering the point in time of the project plan, Vitech believes $25M is a reasonable estimate to assume for which project implementation services through the end of warranty would not exceed. The $25M estimate is comprised of the following:

Original Services Fee	$ 16,113,500
Project Extension	$ 3,150,000
Change Orders Covered by Original Contingency Budget	$ 1,065,700
Public Act 103-0458	$ 400,000
Additional Data Conversion Hours	$ 900,000
Additional Interface Work	$ 340,000
12% Contingency on Services for Unanticipated Scope and/or Delays	$ 2,600,000

To be clear, this estimate is based upon Vitech's current interpretation of the needs presented and those assumptions and dependencies set forth in the SOW, and does not account for any changes to the current scope (legislative or otherwise), or additional project delays (it being understood, for instance, that delays caused solely by Vitech shall not result in additional fees to SURS). SURS acknowledges that the project duration and cost to SURS under the SOW and proposed Change Order may be adversely affected if any such project assumptions and/or dependencies are changed or not realized, or if there are any additional elements or assumptions and dependencies not reasonably foreseen at this time.

We look forward to continuing to partner with SURS long into the future and hope for a timely agreement. If you have any questions, require any further clarifications, or would like to discuss please do not hesitate to contact us.

Sincerely,

Darren Spindel
Vice President

vitech

Exhibit 1

Waiver of Excess Views

ID	Category	Sub-Category	Description
3.108	Retirement Claim	Eligibility; Benefit Calculation	The system will determine whether a member is eligible for a waiver of excess contributions and interest by using the following calculations: Maximum percentage applicable (usually 75% or 80%) x Monthly FAE = Maximum retirement benefit Maximum retirement benefit x Age factor / 2.4 = Normal contributions needed to provide maximum benefit (Normal contributions needed to provide maximum benefit x 6.5) / 8 = Total contributions and interest needed Member's total contributions and interest – Normal contributions needed to provide maximum benefit = Excess normal contributions
3.109	Retirement Claim	Eligibility	The system will determine whether a member is eligible for a waiver of excess service credit by comparing the member's total service credit at the estimated date of retirement and the total service credit allowed (80% maximum benefit is reached by 36.3636 years of service). If the member's total service credit is greater than the total service credit allowed, then the member is eligible for a waiver of excess service credit.
3.11	Retirement Claim	Benefit Data	The system will provide a notification if a member is eligible for a waiver of excess service or contributions and interest.
3.112	Retirement Claim	Benefit Calculation	The system will determine a partial purchase waiver when the total service credit purchase exceeds the waiver amount by using the following calculations: • Dollar amount of service credit purchased/ Number of years of service credit purchased = Annual cost of purchase • Interest on the annual cost of purchase is calculated up to the retirement date using the Board rate = Current annual cost of purchase • Current annual cost of purchase/ Number of years being waived = Total waiver amount
3.115	Retirement Claim	Benefit Calculation	The system will adjust the member's total service in proportion to the waiver amount's impact on earnings. The member's Survivor Refund and AAI calculations will reflect the adjustment due to the waiver.
3.134	Retirement Claim	Benefit Calculation	The system will apply reciprocal adjustments in the following order: 1) Concurrent adjustment 2) Part-time adjustment 3) Waiver adjustment
4.161	Claims Processing - Pay Benefits	Benefit Calculation	The system will calculate the refund amount of excess service when a member has worked past their maximum annuity amount. The calculation will result in both a lump sum and an additional annuity amount.

PEP Calculations

ID	Category	Sub-Category	Description
3.136-1	Retirement Claim	Benefit Calculation	The system will provide the ability to calculate preliminary estimated payment (PEP) while the retirement benefit claim is finalized
3.137	Retirement Claim	Benefit Calculation	The system will apply the maximum benefit rules (percentages) before calculating the PEP.
3.138	Retirement Claim	Usability	The system will allow an authorized user to override the PEP amount calculated by the system.
3.139	Retirement Claim	Benefit Calculation	The system will calculate the PEP amount using the following retirement calculation criteria: • Non-reciprocal: 90% of the Money Purchase Formula or the General Formula, whichever is highest • Reciprocal: Use whichever formula is the highest: ○ General Formula: 90% of the Money Purchase Formula, or if not eligible then 80% of General Formula ○ Money Purchase Formula: 80% of the Money Purchase Formula ○ P.A. 91-395: 80% of Money Purchase Formula ○ HB2616: 80% of Money Purchase Formula or $75.00, whichever is highest • P.A. 91-395: 90% of Money Purchase Formula ○ HB2616: use $75.00 ○ Reciprocal: 80% of Money Purchase Formula ○ Reversionary: 90% of Money Purchase Reduced amount • Supplemental Minimum Annuity Guarantee (HB2616): 90% of Money Purchase Formula or $75.00, whichever is highest ○ Reciprocal: 80% of Money Purchase Formula or $75.00, whichever is highest • Police/ Fire (verified): 90% of Police/Fire Formula or 90% of Money Purchase, whichever is highest ○ Reciprocal: 80% of Money Purchase Formula ○ If not verified: 90% of Money Purchase Formula, or if not eligible then 90% of General Formula • Reversionary and Portable Joint & Survivor Annuity: use the reduced benefit amount, not the gross benefit, in the calculations • Minimum Annuity: 90% of Money Purchase Formula
3.142	Retirement Claim	Benefit Calculation	The system will calculate the difference between the PEP payments and the actual monthly retirement benefit amount that is due to the member, retroactive to the effective date of the member's annuity without interest.

Retirement Savings Plan (RSP) Payment Processing Rules

ID	Category	Sub-Category	Description
14.031	Retirement Savings Plan	401(k)	The system will not allow the member to choose more than one form of payment. • Single Life Annuity • 50% Joint & Survivor (ends with death of member or spouse/ civil union partner) • Lump Sum Distribution • Direct Rollover of Lump Sum Distribution • Single Life Annuity (for married members) • Single Life Annuity with a Guaranteed Period • Joint & Survivor (ends with death of member or beneficiary)

SCP Processing Rules

ID	Category	Sub-Category	Description
11.034	Retirement Estimates	Benefit Calculation	The system will calculate the service credit based upon the following length of service or projected service up to the retirement date in the estimate and hours worked as reported by the employer: • 15 or more worked days in a calendar month equals 1 month of service • 1 – 2 months – ¼ year • 3 – 5 months – ½ year • 6 – 7 months – ¾ years • 8 – 12 months – 1 year
14.044	Retirement Savings Plan	Service data	The system will not calculate more than one year of service during a plan year (September 1 and August 31).

Example PAS Implementation Costs

The following table represents a sampling of Pension Administration System (PAS) implementations within the last 15 years along with original costs, cost of change orders, and change order variance. Fund names have been redacted for confidentiality reasons.

Organization	Year Procured	Original Project Cost	Change Order Costs	Change Order Variance	Project Stage
Southeast Coast City Retirement Fund	2016	$5,994,775	$1,000,990	17%	Project Complete
Large West Coast City Pension Fund	2011	$9,216,783	$643,130	7%	Project Complete
West Coast County Pension Fund	2010	$9,279,718	$1,900,412	17%	Project Complete
Large Pacific Northwest City Pension Fund	2016	$15,314,000	($168,000)	-1%	Complete. Came in under budget, but 5 month extra variance
Medium-Sized Midwest State Retirement Fund	2013	$21,648,344	$5,326,807	25%	Project Complete
Medium-Sized West Coast State Retirement & Benefits Fund	2019	$37,280,672	$3,744,570	9%	Mid project (roughly two-thirds)
Large East Coast State Benefits Fund	2017	$40,000,000	$2,500,000	6%	Mid project (roughly halfway)
Large University Retirement Plan	2013	$50,000,000	$17,000,000	25%	Project Complete
West Coast Very Large State Teachers' Fund	2015	$187,200,000	$234,936,000	126%	Late stage, long project, heading into final 2 years