MINUTES

Quarterly Meeting of the Administration Committee
(Benefits, Finance & Personnel)
of the Board of Trustees of the
State Universities Retirement System
Thursday, December 9, 2022, 10:03 a.m.
State Universities Retirement System
Via remote access only due to ongoing COVID-19 concerns

The meeting on December 9, 2022, was conducted via video conference pursuant to the Governor's COVID-19 Executive Order dated November 10, 2022, and subsection (e) of Section 7 of the Illinois Open Meetings Act. Chair John Atkinson of the SURS Board of Trustees determined that a full, in-person meeting was not practical nor prudent due to the ongoing COVID-19 disaster concerns.

The following trustees were present: Mr. John Atkinson, Ms. Jamie-Clare Flaherty, Dr. Fred Giertz, Mr. Richard Figueroa, Mr. Scott Hendrie, Mr. John Lyons, Dr. Steven Rock, Mr. Collin Van Meter, Mr. Antonio Vasquez and Mr. Mitch Vogel.

Others present: Ms. Suzanne Mayer, Executive Director; Mr. Douglas Wesley, Chief Investment Officer (CIO); Ms. Ellen Hung, Deputy CIO; Ms. Tara Myers, Chief Financial Officer; Ms. Bianca Green, General Counsel; Mr. Albert Lee, Associate General Counsel; Ms. Heather Kimmons, Associate Legal Counsel; Ms. Tracy Bennett, Compliance Analyst; Ms. Stephany Brinkman, Investment Analyst; Ms. Kristen Houch, Director of Legislative and Stakeholder Relations; Ms. Alicia Route, Legislative Analyst; Mr. Jefferey Saiger, Chief Technology Officer; Ms. Kelly Carson, Ms. Chelsea McCarty and Ms. Annette Ackerman, Executive Assistants; Ms. Amy Williams, Mr. Brian Murphy, Ms. Kristen Brundirks and Mr. Kevin Noelke of GRS; Mr. Michael Calabrese of Foley; and Ms. Erica Oropeza of Linea

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

APPROVAL OF MINUTES

Trustee Van Meter presented the minutes from the Administration Committee meeting of October 20, 2022.

Trustee Rock made the following motion:

- That the minutes from the October 20, 2022 Administration Committee meeting be approved as presented.

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

Trustee Atkinson	-	aye
Trustee Flaherty	-	aye
Trustee Rock	-	aye
Trustee Van Meter	-	aye

CHAIRPERSON'S REPORT

Trustee Van Meter did not have a formal chairperson's report.

RECEIPT OF THE FISCAL YEAR 2022 ACTUARIAL VALUATION REPORT AND FISCAL YEAR 2022 GASB 67 AND 68 REPORT

Ms. Tara Myers introduced members from Gabriel Roeder Smith & Company (GRS) who presented the Fiscal Year 2022 Actuarial Valuation Report and responded to the State Actuary Report. An overview of the actuarial valuation results and findings was provided. GRS concluded the presentation with the comparative results of the statutory funding results and the accounting results (GASB 67/68).

Trustee Rock made the following motion:

- That based on the joint recommendation of SURS staff and Gabriel Roeder Smith & Company, the Fiscal Year 2022 Actuarial Valuation Report and GASB 67/68 Report as of June 30, 2022, be received as presented.

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

Trustee Atkinson	-	aye
Trustee Flaherty	-	aye
Trustee Rock	-	aye
Trustee Van Meter	-	aye

A copy of the GRS presentation titled "June 30, 2022, Actuarial Valuation Results" and a copy of the GRS report titled "Actuarial Valuation Report as of June 30, 2022" are incorporated as part of these minutes as **Exhibit 1** and **Exhibit 2**. A copy of the GRS presentation titled "GASB Nos 67 and 68 Accounting and Financial Reporting of Pensions measured as of June 30, 2022" and a copy of the staff memorandum titled "Actuarial Valuation Report and GASB 67/68 Report as of June 30, 2022" are also incorporated as **Exhibit 3** and **Exhibit 4**.

CERTIFICATION OF FISCAL YEAR 2024 STATE CONTRIBUTIONS

Following the actuarial discussion, Ms. Myers asked the board to certify $2,133,335,000 as the proposed certified state contribution for fiscal year 2024 and GRS presented their response to the State Actuary's Preliminary Report from Cheiron.

Trustee Rock made the following motion:

- That based on the recommendation of Gabriel Roeder Smith & Company, the amount of $2,133,335,000 be certified for fiscal year 2024 as the state contribution.

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

Trustee Atkinson	-	aye
Trustee Flaherty	-	aye
Trustee Rock	-	aye
Trustee Van Meter	-	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, 2022 Actuarial Valuation be received as presented.

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

Trustee Atkinson	-	aye
Trustee Flaherty	-	aye
Trustee Rock	-	aye
Trustee Van Meter	-	aye

A copy of the staff memorandum titled "State Contribution Fiscal Year 2024" is incorporated as part of these minutes as **Exhibit 5**.The GRS memorandum in response to the State Actuary's Preliminary Report on SURS June 30, 2022 Actuarial Valuation is incorporated as part of these minutes as **Exhibit 6.** The staff memorandum titled "FY 2022 SURS State Actuary Preliminary Report Memo" is also incorporated as part of these minutes as **Exhibit 7.**

APPROVAL OF FISCAL YEAR 2024 EFFECTIVE RATE OF INTEREST

Ms. Tara Myers and Ms. Ellen Hung presented the proposed effective rate of interest for fiscal year 2024. Ms. Myers reminded the trustees that the comptroller sets the effective rate for the money purchase retirement calculations, but the SURS board sets the effective rate of interest for refunds, purchases of service credit and survivor and excess contributions.

Trustee Rock made the following motion:

- That based on the recommendation of SURS staff, the effective rate of interest used for all purposes other than the Rule 2 (money purchase) calculation be set at 6.50% for fiscal year 2024.

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

Trustee Atkinson	-	aye
Trustee Flaherty	-	aye
Trustee Rock	-	aye
Trustee Van Meter	-	aye

A copy of the staff memorandum titled "Fiscal Year 2024 Effective Rate of Interest Recommendation" is incorporated as part of these minutes as **Exhibit 8**.

QUARTERLY PENSION ADMINISTRATION SYSTEM (PAS) UPDATE

Mr. Jefferey Saiger presented an update on Project Velocity, SURS pension administration system project. Mr. Saiger introduced Ms. Erica Oropeza of Linea Solutions who reviewed the highlights of the presentation and provided an overall update on the PAS project that included an overview of covered milestones, a timeline update, recent accomplishments and a summary of upcoming work.

A copy of the staff memorandum titled "Project Velocity Update" and the Linea "SURS Project Velocity Update" are incorporated as part of these minutes as **Exhibit 9** and **Exhibit 10**.

CLOSED SESSION

Trustee Atkinson moved that the Administrative Committee go into closed session at 11:28 a.m. pursuant to 2(c)(1) of the Illinois Open Meetings Act. Trustee Rock seconded and the motion passed via the following roll call vote:

Trustee Atkinson	-	aye
Trustee Flaherty	-	aye
Trustee Rock	-	aye
Trustee Van Meter	-	aye

RETURN TO OPEN SESSION

The Administration Committee returned to open session at 12:55 p.m.

PUBLIC COMMENT

There was no public comment presented to the Administration Committee.

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

Trustee Atkinson	-	aye
Trustee Flaherty	-	aye
Trustee Rock	-	aye
Trustee Van Meter	-	aye

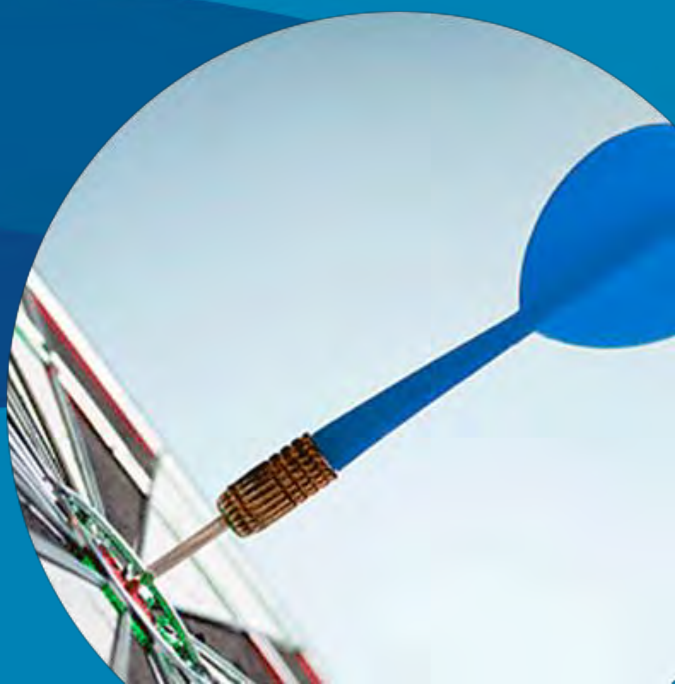
Respectfully submitted,

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

SMM:aa

State Universities Retirement System of Illinois

June 30, 2022 Actuarial Valuation Results



December 2022

Brian B. Murphy, FSA, EA, FCA, MAAA, PhD
Amy Williams, ASA, FCA, MAAA

Agenda

- Role of State Actuary
- Overview of the June 30, 2022 Actuarial Valuation
- Actuarial Valuation Results as of June 30, 2022
- Summary of Actuarial Valuation Results
- Appendix
  - Key Actuarial Valuation Assumptions
  - Alternate Funding Policy

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 2024 Statutory Contribution at the October 2022 meeting
  - SURS provides proposed certified Statutory Contribution for fiscal year 2024 by November 1, 2022 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 2024 by January 1, 2023 to State Actuary, Governor and the General Assembly

Overview of the June 30, 2022 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, 2022 actuarial valuation
  - Results are based on final assets.

Actuarial Valuation Assumption Changes

- 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 assumptions remain unchanged from the prior June 30, 2021 actuarial valuation
- Due to high current inflation, we have reflected the near-term Tier 2 COLA and pay cap for the June 30, 2022 valuation as follows (as approved by the Board at the June meeting):
  - Calendar year 2023 COLA: 3%
  - The fiscal year 2024 pay cap: $123,489.18

GRS

Final vs. Preliminary Valuation Results

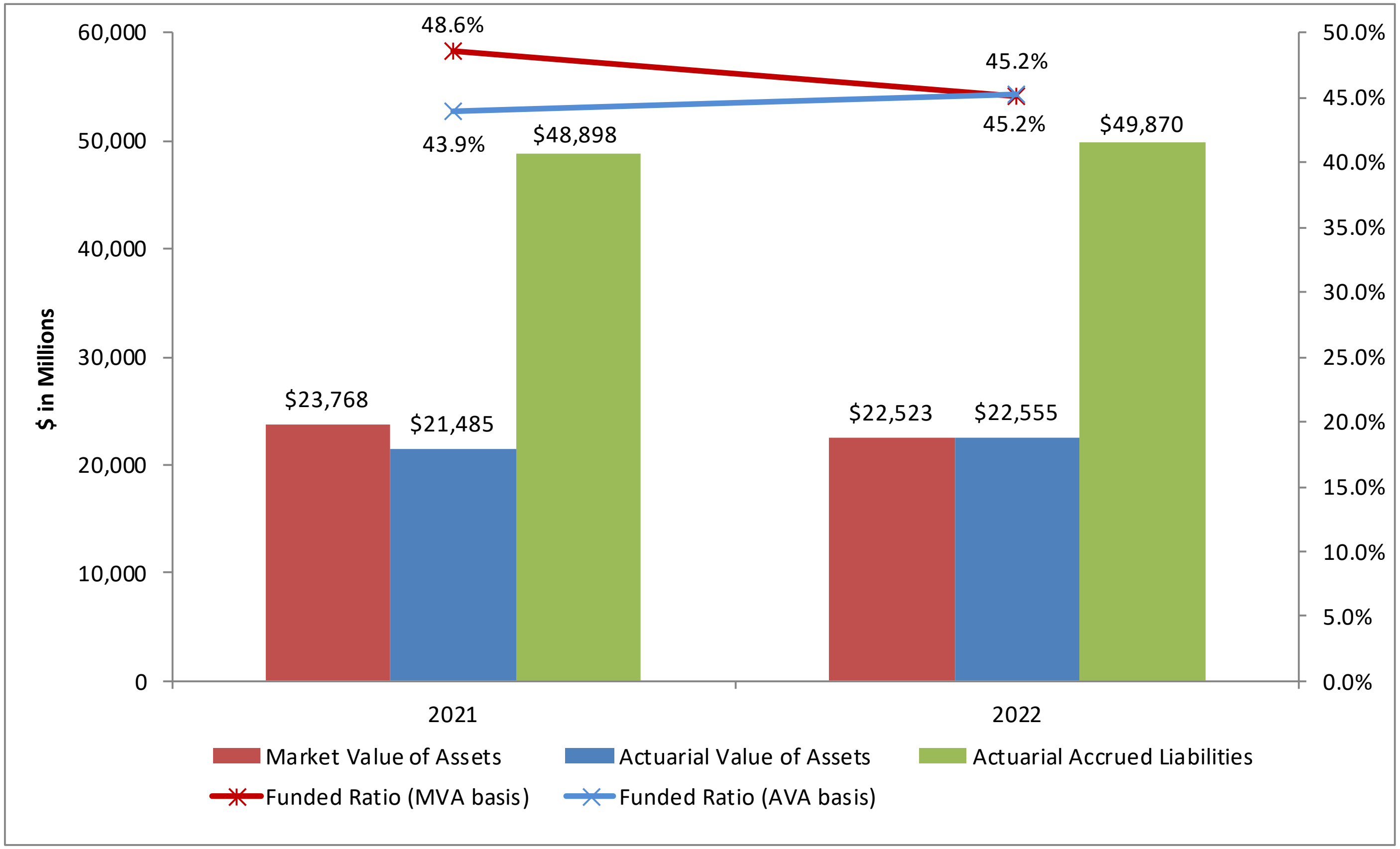
	$ in Millions		
Actuarial Valuation Date	June 30, 2021	June 30, 2022	
	Final Results	Preliminary Results	Final Results
Actuarial Accrued Liability (AAL)	$ 48,898	$ 49,870	$ 49,870
Actuarial Value of Assets (AVA)	21,485	22,570	22,555
AVA Funded Ratio	43.9%	45.3%	45.2%
Market Value of Assets (MVA)	23,768	22,601	22,523
MVA Funded Ratio	48.6%	45.3%	45.2%
State Qualified Plan Contribution	$ 2,093.826	$ 2,111.309	$ 2,115.535
Net State Qualified Plan & Non-Qualified Plan Contribution	$ 2,118.567	$ 2,129.109	$ 2,133.335

Non-Qualified contributions include Excess Benefit Arrangement (EBA) contributions of $24.2 million and $17.3 million for fiscal years 2023 and 2024, respectively, and Deferred Compensation Plan (DCP) administrative expense contributions of $0.541 million and $0.500 million for fiscal years 2023 and 2024, respectively.

Key Actuarial Valuation Findings

- Based on the 2022 **market value of assets** of $22.52 billion
  - The funded ratio decreased from 48.6% to 45.2% from 2021 to 2022
  - Rate of return was approximately -1.36% during fiscal year 2022
- Based on the 2022 **actuarial value of assets** of $22.55 billion
  - The funded ratio increased from 43.9% to 45.2% from 2021 to 2022
  - Rate of return (which recognizes a portion of prior years' gains and losses) was approximately 7.68% during fiscal year 2022
  - Net deferred losses of about $0.32 billion still exist in the actuarial value of assets
- There was a loss from higher salary increases than assumed
- There were gains from favorable investment return on the actuarial value of assets and losses on the market value of assets
- There were losses from other demographic experience
- There was a small decrease in the number of active members from 2021 to 2022 which affects projected actuarial valuation results
- There was a contribution made during fiscal year 2022 of $58.1 million from the Pension Stabilization Fund in addition to the fiscal year 2022 statutory contribution

Actuarial Valuation Results
($ in Millions)



Market value rate of return was approximately -1.36% and Actuarial (smoothed) value rate of return was approximately 7.68% in FY 2022.

Asset Smoothing

Valuation Date (6/30)	2021	2022	2023	2024	2025	2026
Beginning of Year:						
(1) Market Value of Assets	$ 19,617,015,606	$ 23,768,313,260				
(2) Actuarial Value of Assets	20,091,674,784	21,484,798,600				
End of Year:						
(3) Market Value of Assets	23,768,313,260	22,523,123,405				
(4) Net of Contributions and Disbursements	(611,671,931)	(559,556,891)				
(5) Total Investment Return						
=(3)-(1)-(4)	4,762,969,585	(685,632,964)				
(6) Projected Rate of Return	6.75%	6.50%				
(7) Projected Investment Return						
=(1)x(6)+([1+(6)]^.5-1)x(4)	1,303,841,708	1,527,041,048				
(8) Investment Return in						
Excess of Projected Return	3,459,127,877	(2,212,674,012)				
(9) Excess Investment Return Recognized						
This Year (5-year recognition)						
(9a) From This Year	691,825,575	(442,534,802)				
(9b) From One Year Ago	(153,482,516)	691,825,575	$ (442,534,802)			
(9c) From Two Years Ago	(30,001,418)	(153,482,516)	691,825,575	$ (442,534,802)		
(9d) From Three Years Ago	36,662,742	(30,001,418)	(153,482,516)	691,825,575	$ (442,534,802)	
(9e) From Four Years Ago	155,949,656	36,662,744	(30,001,419)	(153,482,517)	691,825,577	$ (442,534,804)
(9f) Total Phased-In Return	700,954,039	102,469,583	65,806,838	95,808,256	249,290,775	(442,534,804)
(10) Change in Actuarial Value of Assets						
=(4)+(7)+(9f)	1,393,123,816	1,069,953,740				
End of Year:						
(3) Market Value of Assets	**23,768,313,260**	**22,523,123,405**				
(11) Final Actuarial Value of Assets	**21,484,798,600**	**22,554,752,340**				

Market value rate of return was approximately -1.36% and Actuarial (smoothed) value rate of return was approximately 7.68% in FY 2022.

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

UAAL at 6/30/2021		$ 27,413.7
Expected UAAL at 6/30/2022		27,482.7
Increase Due to Assumption Changes	$ -	
Increase Due to Plan Provision Changes	-	
(Gain)/Loss from Assets*	(250.9)	
(Gain)/Loss from Salary Increases	22.9	
(Gain)/Loss from Plan Experience**	60.5	
Total Variation from Expected UAAL		(167.5)
Actual UAAL at 6/30/2022		$ 27,315.2

** Based on actuarial (smoothed) assets.*

***Estimated reduction in AAL of $15.1 million from buyouts during plan year ending June 30, 2022.*

May not add due to rounding.

UAAL = Unfunded Actuarial Accrued Liability

Current funding policy expected an increase of $69.0 million in the unfunded liability. (The Statutory contribution is less than normal cost plus interest on the unfunded liability.)

Reconciliation of FY 2024 Statutory Contribution *($ in Millions)*

	Qualified Plan Contributions (Excludes EBA)			
		Statutory Contribution by Source*		
	Total	**State**	**Federal Trust****	**Employers**
FY 2023 Statutory Contribution (2021 Actuarial Valuation)	$ 2,160.9	$ 2,093.9	$ 62.0	$ 5.0
Projected FY 2024 Statutory Contribution	2,182.6	2,111.4	62.0	9.2
Projected Increase Due to Statutory Funding Policy	21.7	17.5	-	4.2
Increase from (2022 Actuarial Valuation):				
Assumption Changes	$ -	$ -	$ -	$ -
Investment Experience	35.3	35.3	-	-
Non-Investment Plan Experience***	(31.9)	(31.2)	3.5	(4.2)
Total Increase from Projected FY 2024 Statutory Contribution	3.4	4.1	3.5	(4.2)
Actual FY 2024 Statutory Contribution	$ 2,186.0	$ 2,115.5	$ 65.5	$ 5.0

* *Employer contribution is for pay in excess of the Governor's pay and pay increases in excess of 6% in FY 2023 and projected for FY 2024.*

** *Contributions expected to be received from employer federal trust funds. Estimate for FY 2024 was not provided in the 2021 actuarial valuation and was assumed to remain the same as FY 2023.*

*** *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

Total State Portion of FY 2024 Statutory Contribution *($ in Millions)*

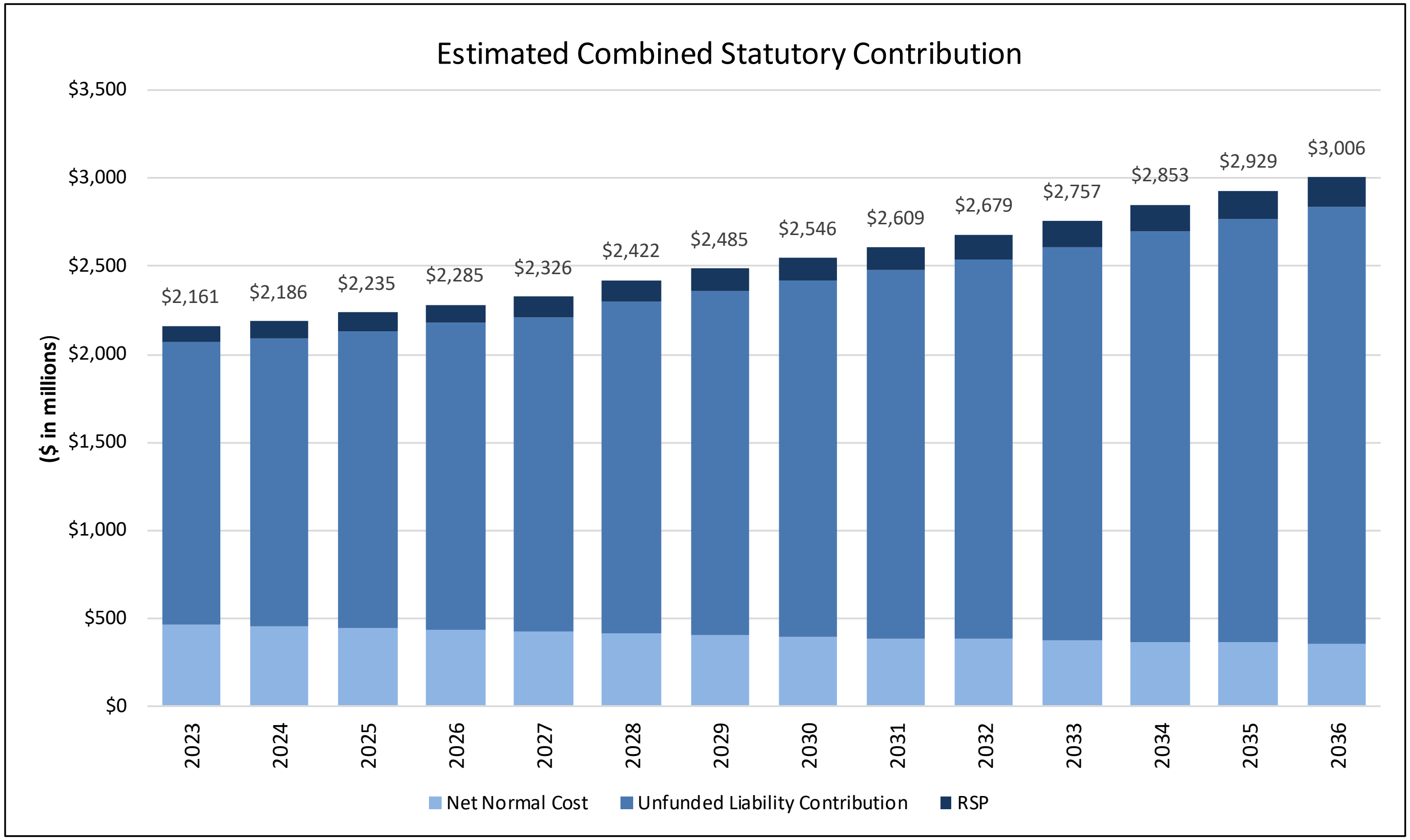
	SURS State Contributions			
	Qualified Plan	**Excess Benefit Arrangement ***	**Deferred Compensation Plan (DCP) Admin Expense**	**Total Qualified and Non-Qualified**
FY 2023 Statutory Contribution (2021 Actuarial Valuation)	$ 2,093.9	$ 24.2	$ 0.5	$ 2,118.6
Projected Increase Due to Statutory Funding Policy	17.5	-	-	17.5
Increase from (2022 Actuarial Valuation):				
Assumption Changes	$ -	$ -	$ -	$ -
Investment Experience	35.3	-	-	35.3
Non-Investment Plan Experience**	(31.2)	(6.9)	0.0	(38.1)
Actual FY 2024 Statutory Contribution	$ 2,115.5	$ 17.3	$ 0.5	$ 2,133.3
Change in Statutory Contribution	$ 21.7	$ (6.9)	$ 0.0	$ 14.8

* *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 Statutory Contribution ($ in Millions)

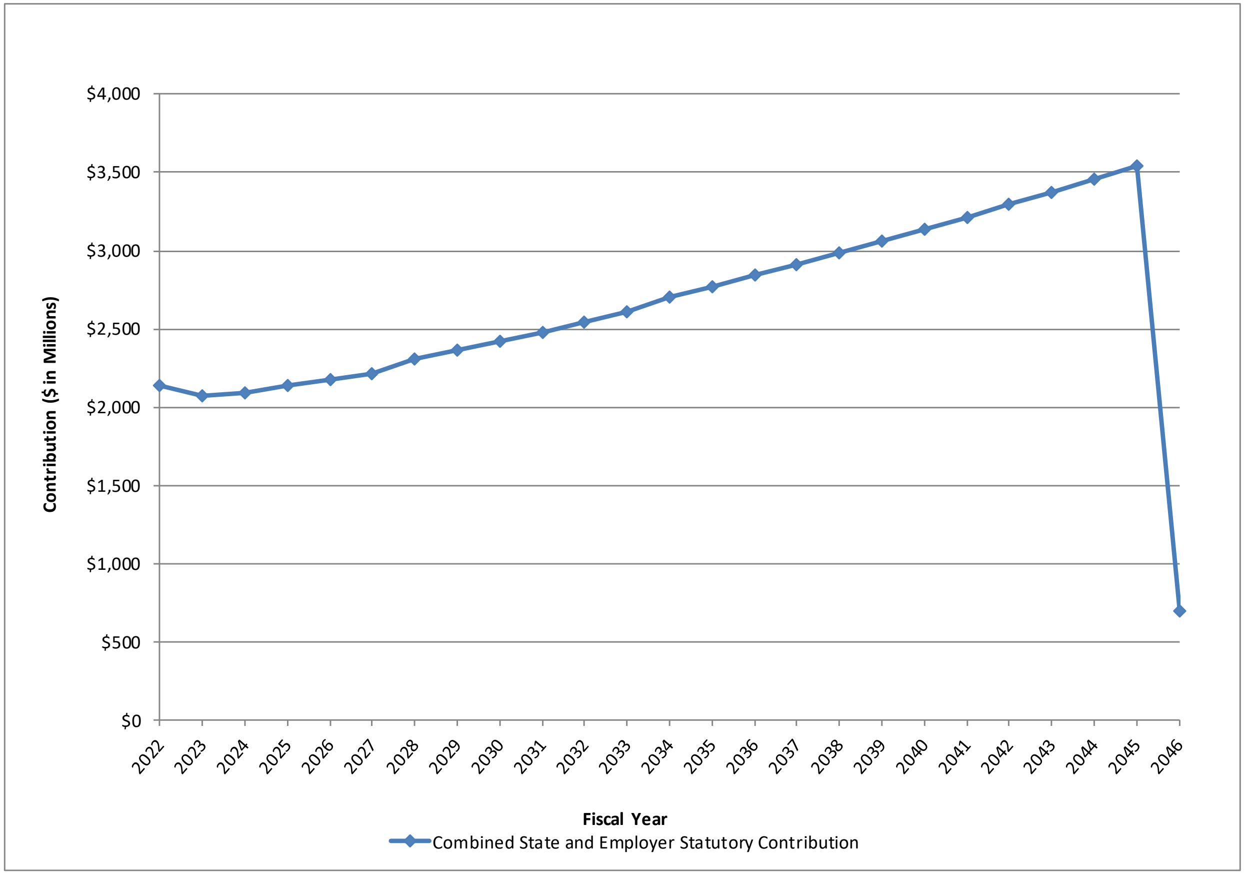


The total contribution is comprised of contributions for (1) normal cost (net of employee contributions), (2) RSP contributions, and (3) unfunded liability contributions for the SURS defined benefit plan.

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

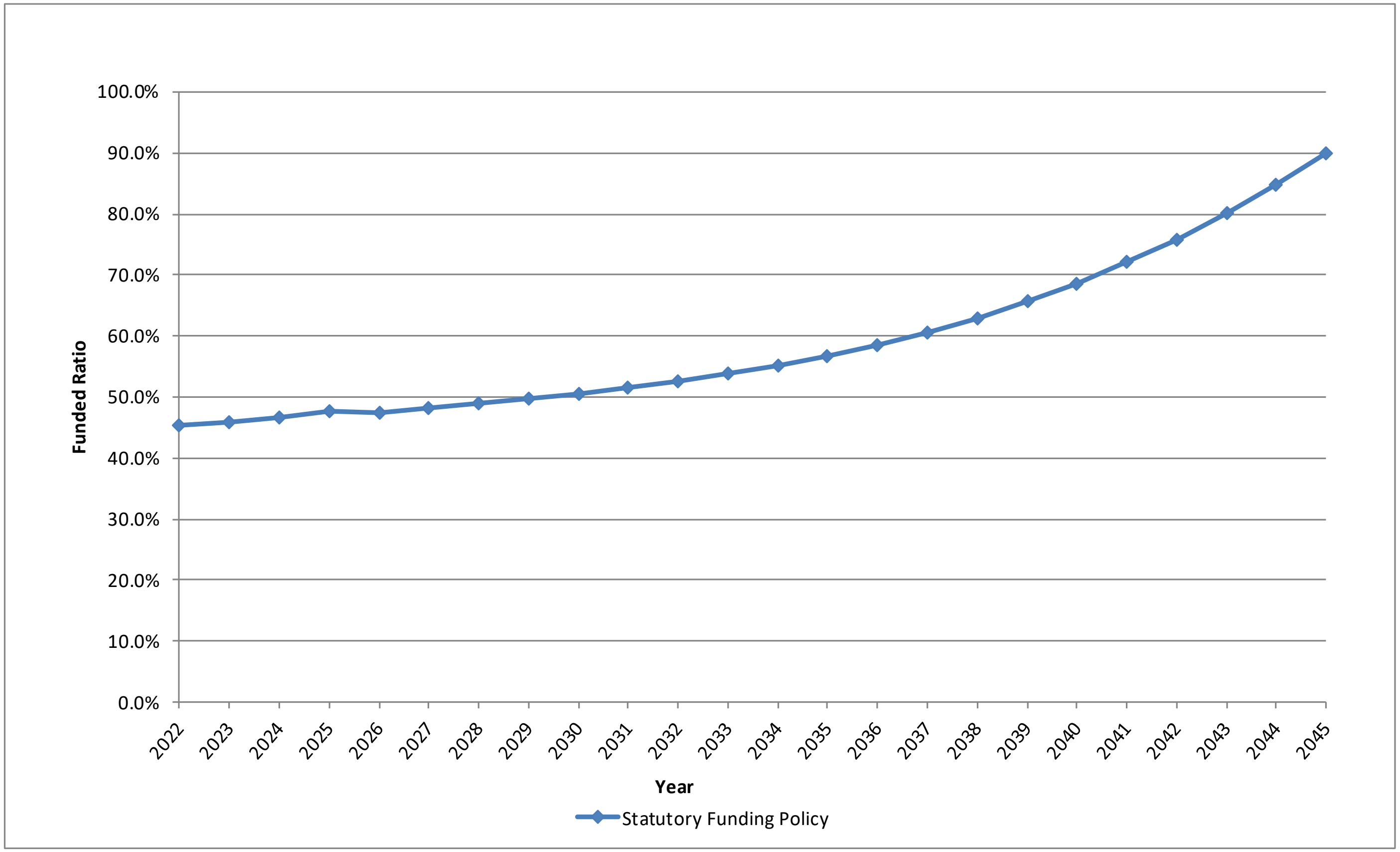
GRS

Statutory Contribution (DB Only)



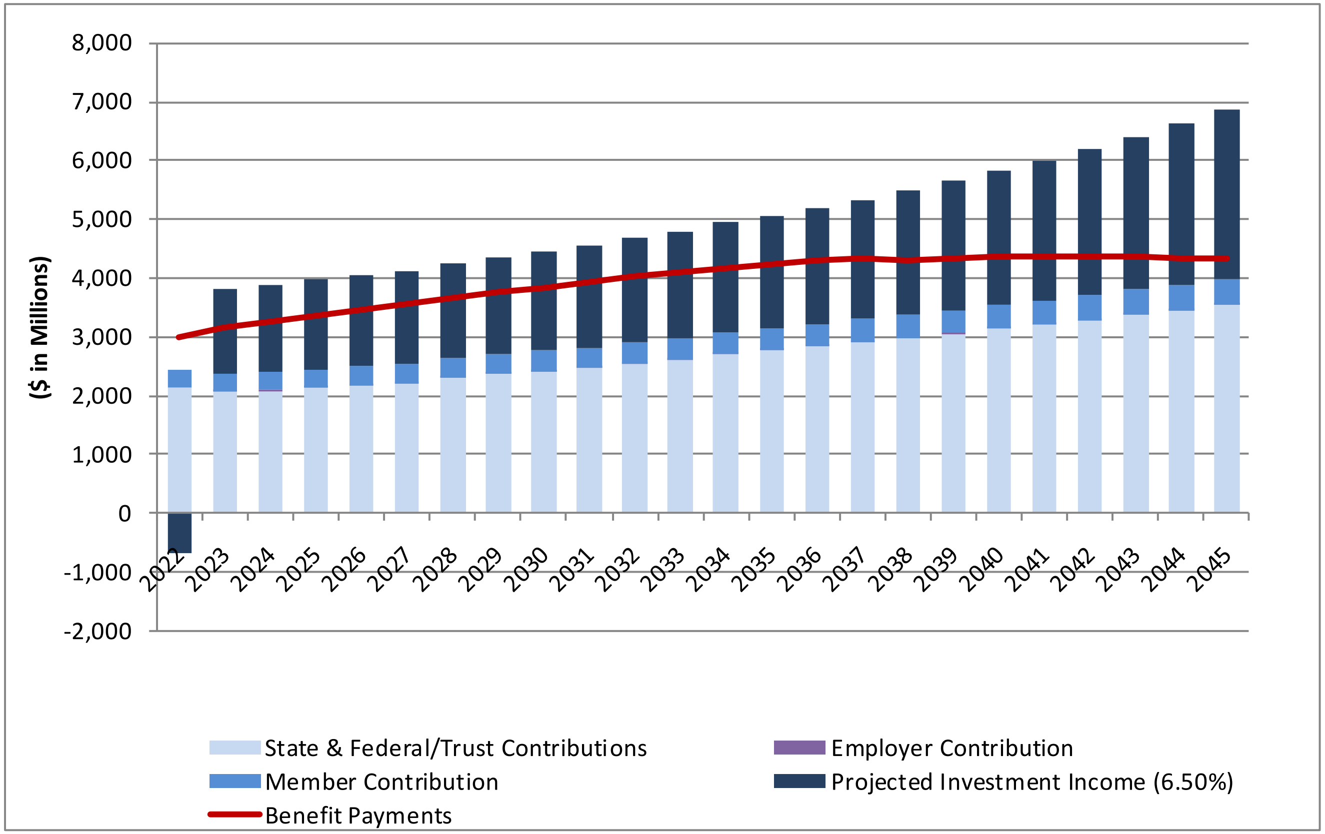
The statutory contribution after 2045 is the contribution needed to maintain a funded ratio of 90%.

Funded Ratio Projection Statutory Funding Policy



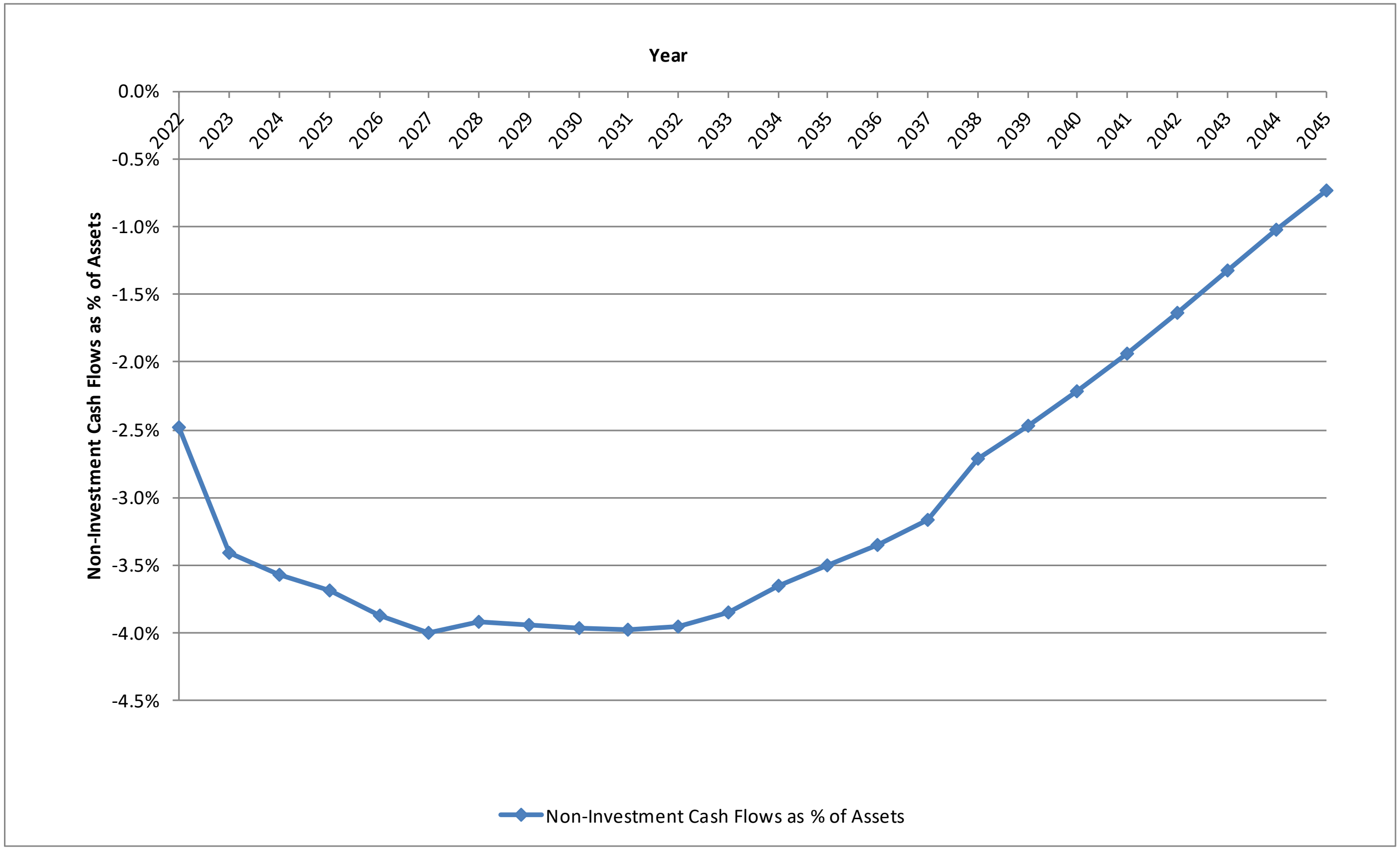
The funded ratio is not expected to exceed 60% until 2037, 70% until 2041 and is projected to increase to 90% during the four-year period from 2041 to 2045.

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



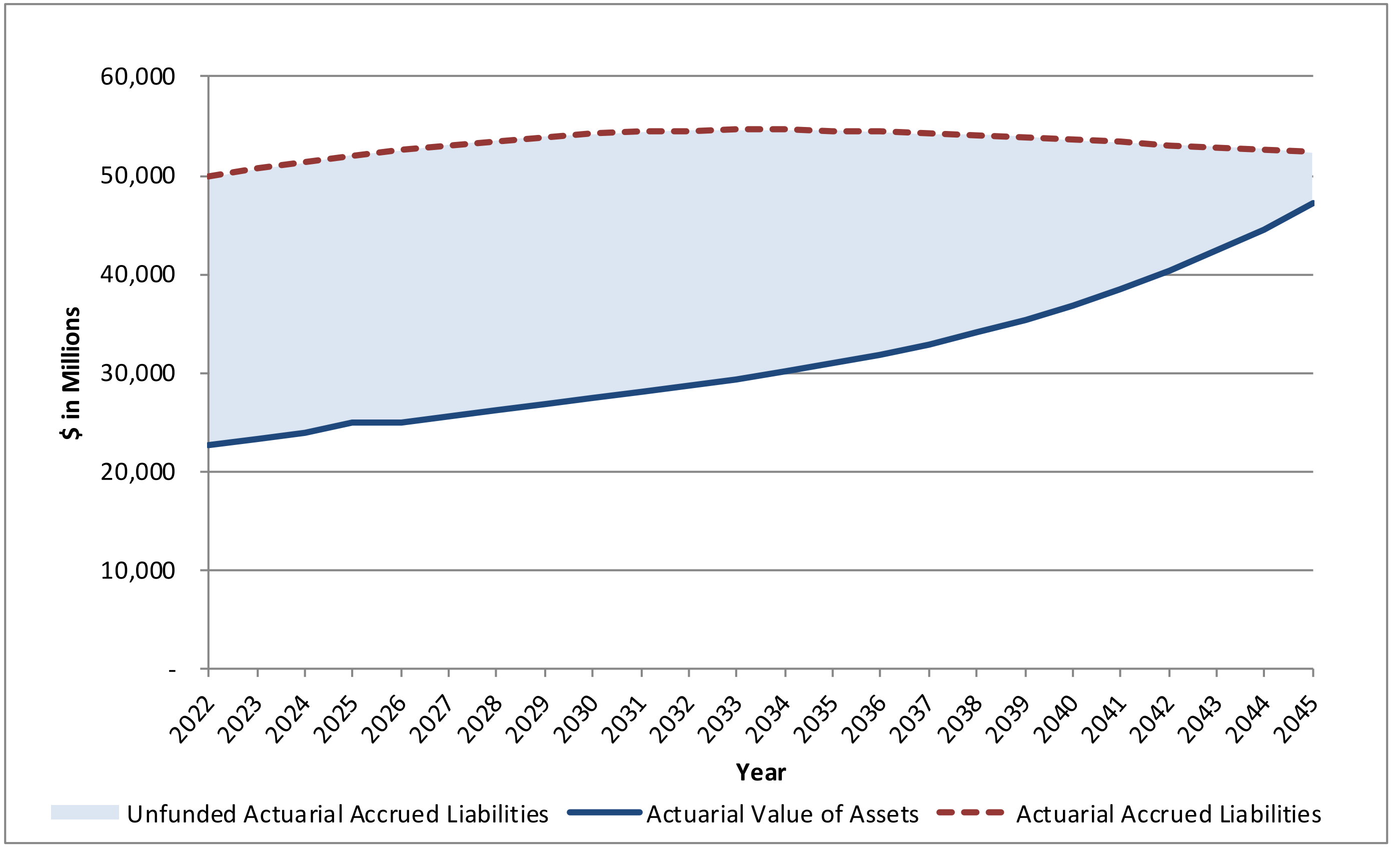
There is significant net cash outflow required from the System. Cash outflow requirements are projected to be very high through FY 2036 (annual total contributions are projected to be 70% or less of the annual amount needed to pay benefit payments, refunds and administrative expenses). This implies that a significant portion of the total investment return is needed to pay annual benefit payments.

Projected Non-Investment Cash Flows (DB Only)



Net cash outflows are projected to exceed 3.5% of total assets until FY 2036.

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.

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 (3.69%)
  - 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 3.69%

GRS

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

	As of June 30, 2022 ($ in Millions) Funding Results	Accounting Results
Valuation Results		
Actuarial Accrued Liability/Total Pension Liability (TPL)	$ 49,870	$ 51,601
Actuarial Value of Assets/Plan Net Position (PNP)	22,555	22,523
Unfunded Actuarial Accrued Liability/Net Pension Liability (NPL)	27,315	29,078
Funded Ratio/PNP as % of TPL	45.23%	43.65%
Alternate Funding Policy Contribution (ARC)/Pension Expense	$ 2,523	$ 1,961
Normal Cost/Service Cost	$ 739	$ 724
Methods and Assumptions		
Measurement Date	June 30, 2022	June 30, 2021 rolled forward to June 30, 2022
Asset Value	Actuarial Value	Market Value
Cost Method	Projected Unit Credit	Entry Age Normal
Discount Rate	6.50%	6.39%
Amortization Method	Level % of Capped Pay Over Remaining 22-Year Closed Period	See following page

Sensitivity of the Net Pension Liability to the Single Discount Rate Assumption

1% Decrease 5.39%	Current Single Discount Rate Assumption 6.39%	1% Increase 7.39%
$ 35,262	$ 29,078	$ 23,929

Fiscal Year Ended June 30, 2022*
GASB Statement No. 68 – Total Pension Expense

Calculation of Total Pension Expense		
1. Service Cost	$	723,509,163
2. Interest on the Total Pension Liability		3,133,079,773
3. Current Period Benefit Changes		0
4. Employee Contributions (made negative for addition here)		(289,070,662)
5. Projected Earnings on Plan Investments (made negative for addition here)		(1,527,041,048)
6. Pension Plan Administrative Expense		22,583,852
7. Other Changes in Plan Fiduciary Net Position		0
8. Recognition of Outflow (Inflow) of Resources due to Liabilities		629,533
9. Recognition of Outflow (Inflow) of Resources due to Assets		(102,469,583)
10. Total Pension Expense	**$**	**1,961,221,028**

** Based on a measurement date of June 30, 2022. Will be used for fiscal year ending June 30, 2023.*

GRS

Disclaimers

- The actuaries submitting this presentation (Brian Murphy and Amy Williams) are Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.
- The purposes of the actuarial valuation are to measure the financial position of 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

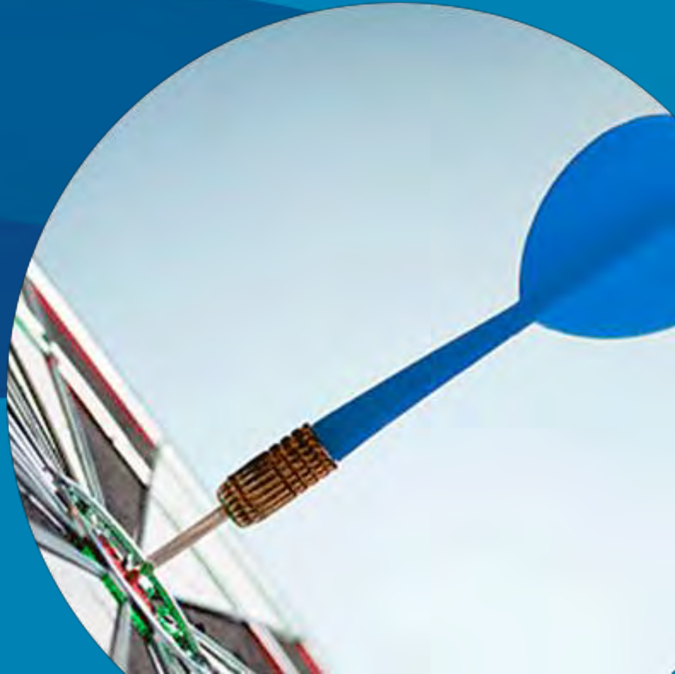
- This presentation is intended to be used in conjunction with the actuarial valuation report issued on October 28, 2022. This presentation should not be relied on for any purpose other than the purpose described in the actuarial valuation report as of June 30, 2022.
- This presentation shall not be 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.

Disclaimers

- This report reflects the impact of COVID-19 through June 30, 2022. However, this report does not reflect the longer term and still developing future impact of COVID-19, which is likely to further influence demographic experience and economic expectations. We will continue to monitor these developments and their impact on the System and the actuarial assumptions. Actual experience will be reflected in each subsequent annual valuation, as experience emerges.
- 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

Appendix



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)
    - FY 2024 pay cap assumed to be $123,489.18 (3% higher than FY 2023 amount of $119,892.41)
  - Tier 2 COLA increase assumption of 1.125% (1/2 increase in CPI)
    - Calendar year 2023 COLA assumed to be 3%
  - 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

GRS

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 through June 30, 2022 as provided by SURS Staff

	Automatic Annual Increase (AAI)	Vested Inactive Buyout (VIB)
Number Eligible for the buyout*	8,862	23,669
Buyout applications received	338	120
Buyout election forms sent	203	96
Buyout election forms approved	136	67
Application %	3.8%	0.5%
Approved %	1.5%	0.3%
Approved buyout amount	$13.0 million	$21.1 million
Approved buyout amount (non EBA)	$13.0 million	$12.7 million
Estimated reduction in liability**	$18.6 million	$21.2 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, 2022 is $15.1 million.*

Number of Projected Future Active Members

- The number of active members has decreased by about 10% between 2012 and 2022, which is an average annualized decrease of about 1.0%
- Currently, the actuarial valuation assumes that the total number of active members in the future will be equal to the number active in the current 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)
2012	71,056	10,100	81,156			$3,956.6
2013	70,556	10,746	81,302	146	0.2%	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
Total Change (10 years)				(7,849)	-1.0%	
Total Change (5 years)				(2,662)	-0.7%	
Total Change (3 years)				(1,813)	-0.8%	

GRS

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)
- Currently, the actuarial valuation assumes that the total number of active members in the future will be equal to the number active in the current actuarial valuation
- If SURS expects to see a decrease in the number of active members from 73,307 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 (for example a decrease of 1% per year for the next 5 years)
  – Reflecting this assumption is estimated to increase the fiscal year 2024 statutory contribution by about $53 million

GRS

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
6/30/2021	2023	$ 2,160.874	$ 5.048	$ 62.000	$ 2,093.826	$ 463.917	$ 1,607.174	$ 89.783
6/30/2022	2024	2,186.028	4.993	65.500	2,115.535	452.900	1,638.956	94.172
6/30/2023	2025	2,235.370	5.303	65.500	2,164.567	441.548	1,693.409	100.413
6/30/2024	2026	2,284.663	4.829	65.500	2,214.334	430.437	1,748.313	105.913
6/30/2025	2027	2,325.999	4.511	65.500	2,255.988	419.914	1,794.695	111.390
6/30/2026	2028	2,421.502	4.193	65.500	2,351.809	410.689	1,893.976	116.837
6/30/2027	2029	2,484.794	3.934	65.500	2,415.360	402.194	1,960.275	122.325
Seven year total		$ 16,099.230	$ 32.811	$ 455.000	$ 15,611.419	$ 3,021.600	$ 12,336.797	$ 740.833

* *Excludes Excess Benefit Arrangement (EBA) contribution.*

** *Contributions expected to be received from employer federal trust funds. Amounts for fiscal years 2025 and after assumed to remain the same as fiscal year 2024 and will be provided each year by SURS.*

The total FY 2025 statutory contribution (for the Qualified Plan) is projected to increase by about $49 million from FY 2024.

Projected RSP contributions are net of RSP forfeitures. (Forfeitures for FY 2023 of $7.2 million and FY 2024 of $8.4 million provided by SURS staff.)

The State portion of the Statutory contribution including the EBA contribution is $2.119 billion for fiscal year 2023 and $2.133 billion for fiscal year 2024 (based on EBA contributions of $24.200 million and $17.300 million, respectively).

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.

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

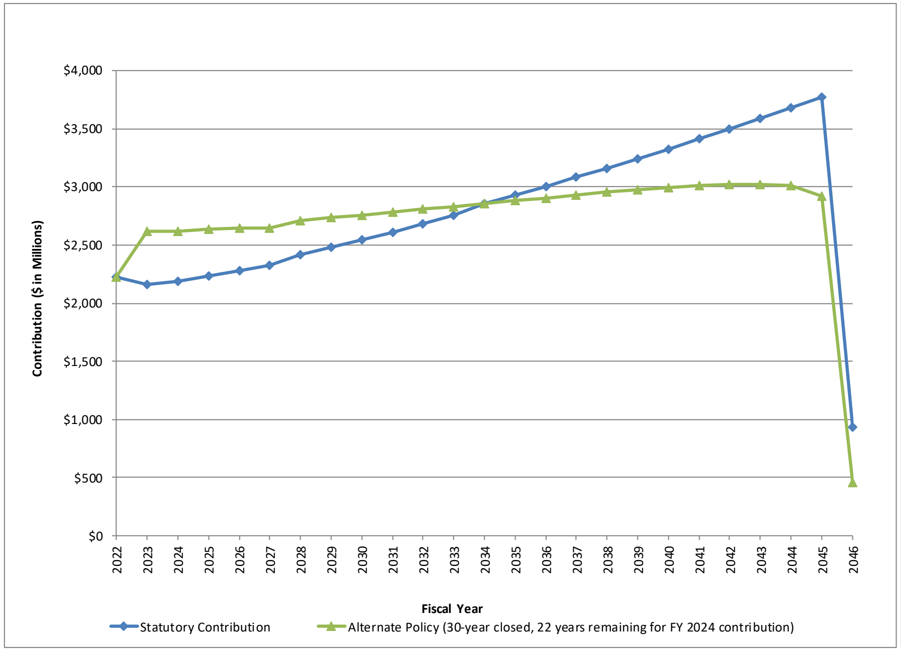
- GRS recommends an "Alternate" funding policy
  - Targets a 100% funded ratio in 2045 (or earlier) compared to 90%
  - Contribution equal to Net Normal cost, plus amortization of the unfunded liability to pay off the total unfunded liability by 2045 (or sooner, if possible)
    - Minimum contribution based on 30-year closed period (22 years remaining as of June 30, 2022, applicable to the FY 2024 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.

FYE	Combined State, Employer and Federal/Trust Fund Contribution			SURS Alternate Policy Contribution		Projected % of Alternate Policy Contributed	Difference in Alternate and Statutory Contribution
	SURS Cont.	RSP Cont.	Total	SURS Cont.	Total (w/RSP)		
2023	$ 2,071.091	$ 89.783	$ 2,160.874	$ 2,532.330	$ 2,622.113	82.41 %	$ 461.239
2024	2,091.856	94.172	2,186.028	2,522.948	2,617.120	83.53	431.092
2025	2,134.957	100.413	2,235.370	2,532.960	2,633.373	84.89	398.003
2026	2,178.750	105.913	2,284.663	2,540.390	2,646.303	86.33	361.640
2027	2,214.609	111.390	2,325.999	2,534.739	2,646.129	87.90	320.130
2028	2,304.665	116.837	2,421.502	2,593.657	2,710.494	89.34	288.992
2029	2,362.469	122.325	2,484.794	2,611.619	2,733.944	90.89	249.150

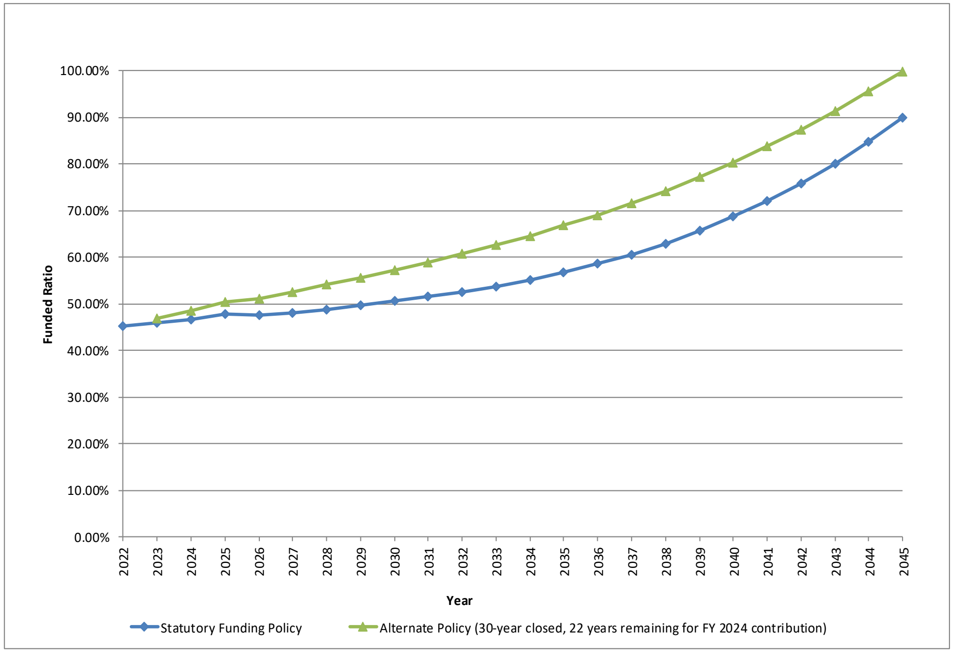
Exhibit 1

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 60,281 as of June 30, 2022 to 50,617 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.

Summary

- Over the last 12 years, the SURS Board decreased the investment return assumption from 8.50%
  - 7.75% (2010), 7.25% (2014), 6.75% (2018), 6.50% (2021)
- 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
- 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 22 years as of June 30, 2022 actuarial valuation, which calculates the fiscal year 2024 contribution

Exhibit 2

S·U·R·S
STATE UNIVERSITIES RETIREMENT SYSTEM

State Universities Retirement System of Illinois

Actuarial Valuation Report as of June 30, 2022

GRS

GRS

P: 312.456.9800 | www.grsconsulting.com

October 28, 2022

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, 2022. 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, 2024, 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, 2022, data on the SURS membership and information on the asset value of the trust fund as of that date. This actuarial valuation does not reflect the provisions of Public Act 98-0599 due to the court ruling that the changes in the Public Act were unconstitutional. 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 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.

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, 2021 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.

To the best of our knowledge, this actuarial statement is complete and accurate, fairly presents the actuarial position of SURS as of June 30, 2022, 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. Contribution shortfalls (the difference between the actual contributions and the annual required contributions) remain the responsibility of the Plan sponsor and can be made in later years. 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.

This report reflects the impact of COVID-19 through June 30, 2022. However, this report does not reflect the longer term and still developing future impact of COVID-19, which is likely to further influence demographic experience and economic expectations. We will continue to monitor these developments and their impact on the System and the actuarial assumptions. Actual experience will be reflected in each subsequent annual valuation, as experience emerges.

The signing actuaries are independent of the plan sponsor.

Amy Williams and Brian B. Murphy 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

Brian B Murphy

Brian B. Murphy, FSA, EA, FCA, MAAA, PhD
Senior Consultant

AW/BBM:sc

Table of Contents

Table of Contents

SUMMARY OF THE ACTUARIAL VALUATION

Executive Summary
($ in Millions)

Actuarial Valuation Date:	June 30, 2021		June 30, 2022	
Fiscal Year Ending:	June 30, 2023		June 30, 2024	
Estimated Statutory Contribution:		% of Payroll[7]		% of Payroll[7]
· Defined Benefit Plan Contribution Amount[1]	$ 2,071.091	41.47%	$ 2,091.856	40.42%
· Retirement Savings Plan Contribution Amount[1]	89.783	1.80%	94.172	1.82%
· Total Qualified Plan Contribution Amount	$ 2,160.874	43.27%	$ 2,186.028	42.24%
· Excess Benefit Arrangement (EBA) Contribution Amount[2]	24.200	0.48%	17.300	0.33%
· Deferred Compensation Plan (DCP) Administrative Expense	0.541	0.01%	0.500	0.01%
· Combined State and Employer Contribution Amount	$ 2,185.615	43.76%	$ 2,203.828	42.59%
Estimated Statutory Contribution from Other Sources:				
· Federal/Trust Contribution Amount[6]	$ 62.000		$ 65.500	
· Employer Contribution Amount Related to				
- Compensation in Excess of Governor's	$ 5.048		$ 4.993	
Net State Contribution:				
· Net Dollar Amount (Including EBA Contribution)	$ 2,118.567	42.42%	$ 2,133.335	41.23%
Actuarially Determined Contribution (ADC): [3,4]				
· Defined Benefit Plan Contribution Amount	$ 2,532.330	50.70%	$ 2,522.948	48.75%
· Defined Benefit Plan Contribution Amount as % of ADC	81.79%		82.91%	
Membership				
· Number of				
- Active Members (full time and part time)	73,443		73,307	
- Members Receiving Payments[3]	70,111		71,458	
- Inactive Members	96,753		98,551	
- Total	240,307		243,316	
· Covered Capped Payroll Provided as of Valuation Date (Total)	$ 4,639.067		$ 4,714.667	
· Covered Capped Payroll Provided as of Valuation Date (DB)	3,532.276		3,567.480	
· Projected Capped Payroll for Fiscal Year (Total)	4,994.329		5,174.795	
· Defined Benefit Plan Capped Payroll[5]	3,638.244		3,613.383	
· Annualized Benefit Payments for Year Ended on the Valuation Date[3]	2,758.151		2,870.951	

[1] *RSP contributions are net of RSP forfeitures of $7,175,000 for fiscal year 2023 and of $8,394,000 for fiscal year 2024. 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 (22 years remaining as of June 30, 2022, applicable to the fiscal year 2024 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 for the June 30, 2022 valuation is based on the employee contributions in the financial statements for fiscal year 2022 and an employee contribution rate of 8.00%.*

[6] *Pay increases in excess of 6% during FAS period for fiscal year 2023 and 2024 are included in the Federal/Trust Contribution Amount.*

[7] *Percent of projected capped payroll.*

Exhibit 2

Executive Summary
($ in Millions)

Actuarial Valuation Date:	June 30, 2021	June 30, 2022
Assets [1]		
Market Value of Assets (MVA)	$ 23,768.313	$ 22,523.123
Actuarial Value of Assets (AVA)	21,484.799	22,554.752
SURS Reported Market Value Rate of Return	23.75%	-1.36%
Estimated Return on MVA	24.66%	-2.92%
Estimated Return on AVA	10.13%	7.68%
Ratio – AVA to MVA	90%	100%
Actuarial Information [2]		
FY 2022/2023 Total Normal Cost Rate	20.84%	20.54%
FY 2022/2023 Employer Normal Cost Rate [3]	12.83%	12.53%
FY 2022/2023 Employer Normal Cost Amount	$ 468.901	$ 463.918
Actuarial Accrued Liability (AAL)	48,898.480	49,869.932
Unfunded Actuarial Accrued Liability (UAAL)	27,413.681	27,315.180
Funded Ratio based on AVA	43.94%	45.23%
UAAL as % of Defined Benefit Plan Capped Payroll	753.49%	755.94%
Funded Ratio based on MVA	48.61%	45.16%
Defined Benefit Plan Capped Payroll [3]	3,638.244	3,613.383

[1] *Amounts provided by SURS.*
[2] *Excludes RSP.*
[3] *Payroll for the year ending on the valuation date. Defined benefit payroll for the June 30, 2022 valuation is based on the employee contributions in the financial statements for fiscal year 2022 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, 2022.

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, 2024, 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 2024 is $2.204 billion ($2.186 billion excluding the EBA contribution and the Deferred Compensation Plan (DCP) projected administrative expense) and includes the State's projected FY 2024 normal cost of $452.9 million, an unfunded liability contribution of $1.639 billion, a contribution to fund benefits from the Excess Benefit Arrangement ("EBA") of $17.3 million, a contribution to fund the administrative expenses of the DCP of $0.5 million and the Retirement Savings Plan ("RSP") contribution of $94.2 million. The 2021 actuarial valuation had projected the Statutory contribution would increase, from $2.161 billion for FY 2023 to $2.183 billion for FY 2024 (excluding EBA contributions). The primary reason for the slight increase in the Statutory contribution over the projected amount from the prior actuarial valuation is due to higher projected payroll than expected from the 2021 actuarial valuation, which was partially offset by investment experience.

Over the past 10 years, SURS experienced investment gains on a market value basis (compared to the actuarial assumption) in fiscal years 2013, 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 and 2022. The market return for the year ending June 30, 2022, was approximately -1.36% and was 23.75% in FY 2021. The average market value investment return over the most recent 10 years has been approximately 8.3%.

The funded ratio decreased from 48.6% as of June 30, 2021, to 45.2% as of June 30, 2022, based on the market value of assets, and increased from 43.9% as of June 30, 2021, to 45.2% as of June 30, 2022, based on the actuarial value of assets. The approximately $31.6 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 Defined Benefit Plan to the annual deductions (consisting of benefit payments, refunds of contributions and administrative expenses) and sometimes referred to as the liquidation ratio is about 7.5.

Summary of the Actuarial Valuation

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

Actuarial Assumptions

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

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.

There were no changes in assumptions from the prior actuarial valuation as of June 30, 2021.

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 69.

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

All benefit provisions valued in this June 30, 2022 actuarial valuation are identical to those valued in the prior actuarial valuation as of June 30, 2021. Due to the court ruling recent pension reform unconstitutional, this actuarial valuation does not reflect the provisions of Public Act 98-0599.

Public Act 100-0769 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.

Experience During 2022

The System assets earned approximately -1.36% on a market value basis during FY 2022 which was less than the investment return assumption of 6.50% for FY 2022. The System assets earned 7.68% on an actuarial value of assets basis during FY 2022, 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 7.68% is more than the assumed rate of investment return of 6.50% for FY 2022, there was an asset gain of $250.9 million on the actuarial value of assets.

Summary of the Actuarial Valuation

There was also a net loss of $83.4 million from actuarial liabilities, which is comprised of a loss of approximately $60.5 million from demographic experience, and a loss of $22.9 million from higher than expected pay increases.

The estimated reduction in the actuarial liabilities due to the buyouts during fiscal year 2022 is $15.1 million.

There was a contribution made during fiscal year 2022 of $58.1 million from the Pension Stabilization Fund in addition to the fiscal year 2022 statutory contribution.

The SURS defined benefit programs experienced an overall actuarial gain of $167.5 million.

The experience of the population determines the liability gain or loss for the year. There was a loss on salaries, due to larger salary increases than assumed and a small loss from active member mortality experience. From last year to this year, there were losses from retirement, termination and disabilities and a gain from retiree mortality experience. The other assumptions not easily attributable to one of the other categories generated an actuarial gain.

See Table 10 (page 33), Appendix C, for detail of the gains and losses by source.

Statutory Appropriations for the 2024 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.

Summary of the Actuarial Valuation

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

Summary of the Actuarial Valuation

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 40).

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 2024 is $65,500,000, 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 decreased from $23,768.3 million as of June 30, 2021, to $22,523.1 million as of June 30, 2022. The actuarial value of assets as of June 30, 2022, is $22,554.8 million, which is $31.6 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 these gains and losses are recognized each year. The $31.6 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 three years, and the remaining asset losses from FY 2019, FY 2021 and FY 2022 will be smoothed in over the next one, two 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 30) of Appendix C.

Summary of the Actuarial Valuation

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% means that all of the benefits earned to date by SURS members are covered by assets. 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 decreased from 48.6% as of June 30, 2021, to 45.2% as of June 30, 2022, based on the market value of assets, and increased from 43.9% as of June 30, 2021, to 45.2% as of June 30, 2022, 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 $31.6 million in net deferred losses and the funding policy, the funded ratio is projected to increase over the next three years and decrease slightly after the fourth year if all assumptions are realized and all employer contributions are made on a timely basis.

Fiscal	Funded Ratio	
Year	AVA	MVA
2018	42.8 %	42.7 %
2019	42.3	42.5
2020	42.2	41.2
2021	43.9	48.6
2022	45.2	45.2

Short Condition Test

The following table shows a comparison, for fiscal years 2013 through 2022, 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 43.5% as of June 30, 2021, to 45.5% as of June 30, 2022.

Summary of the Actuarial Valuation

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)
2013	$ 5,830.1	$ 22,099.9	$ 6,443.1	$ 14,262.6	100.0%	38.2%	0.0%
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%

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 (22 years remaining as of the actuarial valuation as of June 30, 2022, applicable to the fiscal year 2024 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 36) and Graph 4 (page 41), 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 35) 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 downtown 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 $49.870 billion as of the end of FY 2022 to $54.482 billion as of the end of FY 2033 and decrease to $52.374 billion as of the end of FY 2045 (as shown in Graph 2, page 37, and Table 23, page 50). Total benefit payments are projected to increase from $2.962 billion in fiscal year 2022 to $4.273 billion in fiscal year 2045. Graph 3 (page 38, and Table 22, page 49) shows projected benefit payments separately for retirees as of June 30, 2022, active and inactive members as of June 30, 2022, and future members.

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 percent).
4. Changing the actuarial cost method for calculating liabilities from the Projected Unit Credit to the Entry Age Normal method.
5. Considering whether a decrease in total active membership is expected to continue, 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 percent funded by 2045 or earlier. A closed amortization period methodology (with 22 years remaining as of the June 30, 2022 actuarial valuation) pays off the unfunded accrued

Summary of the Actuarial Valuation

liability in full by the end of the period in 2045. The Fiscal Year 2024 contribution would be $2,617.120 ($2,522.948 million for the SURS contribution and $94.172 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 4 on page 41 and projected funded ratios are shown in Graph 1 on page 36.

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 2024 through 2033 compared to if no maximum contribution methodology was in place.

Calculate Defined Benefit Plan Contributions Based on Defined Benefit Payroll Only

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

Implement an Asset Corridor

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

Summary of the Actuarial Valuation

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

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 10 percent between 2012 and 2022, which is an average annualized decrease of about 1.0 percent.

Currently, the actuarial valuation assumes that the total number of active members in the future will be equal to the number of actives or 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.

Exhibit 2

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)
2012	71,056	10,100	81,156			$3,956.6
2013	70,556	10,746	81,302	146	0.2%	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
Total Change (10 years)				(7,849)	-1.0%	
Total Change (5 years)				(2,662)	-0.7%	
Total Change (3 years)				(1,813)	-0.8%	

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 45.2% to 90.0% by 2045. However, policy makers should be aware that current capital market assumptions suggest that average future returns may be lower than 6.50% in the near term, and that a certain amount of erosion in the funding level may occur.

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 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 a 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.

Examples of risk that may reasonably be anticipated to significantly affect the plan's future financial condition include:

1. **Investment Risk** – actual investment returns may differ from the expected returns;
2. **Asset/Liability Mismatch** – changes in asset values may not match changes in liabilities, thereby altering the gap between the accrued liability and assets and consequently altering the funded status and contribution requirements;
3. **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;
4. **Salary and Payroll Risk** – actual salaries and total payroll may differ from expected, resulting in actual future accrued liability and contributions differing from expected;
5. **Longevity Risk** – members may live longer or shorter than expected and receive pensions for a period of time other than assumed;
6. **Other Demographic Risks** – members may terminate, retire or become disabled at times or with benefits other than assumed 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). Likewise, if longevity is improving (or worsening), increases (or decreases) in cost can be anticipated.

Summary of the Actuarial Valuation

The statutory contribution may be considered as a minimum contribution that complies with State statute. Contributions above this minimum level would enhance benefit security and improve the plan's funding level. 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.

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

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.

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. 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.

Summary of the Actuarial Valuation

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%.

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.

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)
2014	$ 37,430	$ 17,391	$ 20,038	$ 4,131	46.5%	$ 24,389	65.2%	906.1%	421.0%
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%

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
2014			485.1%	$ (314)	-1.8%	17.9%	
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%

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

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

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

Summary of the Actuarial Valuation

(10) and (11). The portfolio standard deviation measures the volatility of investment return. When multiplied by the ratio of assets to payroll it gives the effect of a one standard deviation asset move as a percent of payroll. This figure helps users understand the difficulty of dealing with investment volatility and the challenges volatility brings to sustainability. This ratio is likely to increase as the plan approaches full funding which is expected to lead to increasing volatility of contribution rates.

(12). The ratio of unfunded liability to payroll gives an indication of the plan sponsor's ability to actually pay off the unfunded liability. A ratio above approximately 300% or 400% may indicate difficulty in discharging the unfunded liability within a reasonable time frame.

(13) and (14). The ratio of Non-Investment Cash Flow to assets is an important measure of sustainability. A positive net cash flow means contributions exceed benefits and expenses. A negative cash flow means existing funds are being used to make payments. A certain amount of negative net cash flow is generally expected to occur when benefits are prefunded through a qualified trust. Large negative net cash flows as a percent of assets may indicate a super-mature plan or a need for additional contributions.

(15) and (16). Investment return is probably the largest single risk that most systems face. The year-by-year return and the 5-year geometric average both give an indication of the reasonableness of the system's assumed return. Of course, past performance is not a guarantee of future results. Market rate shown is based on actuarial estimation methods and differs modestly from figures reported by SURS.

APPENDICES

Appendix A

Asset Information

Table 1
Statement of Plan Net Position
as of June 30, 2021 and June 30, 2022

	Defined Benefit Plan 2021	2022
Assets		
Cash and short-term investments	$ 1,709,596,995	$ 1,061,255,469
Receivables		
Members	10,614,296	10,649,398
Non-employer contributing entity		-
Federal, trust funds, and other	7,179,061	7,206,887
Pending investment sales	78,168,602	157,904,664
Interest and dividends	59,913,180	61,533,285
Total receivables	155,875,139	237,294,234
Prepaid expenses	140,576	248,928
Investments, at fair value		
Equity investments	9,997,064,955	7,827,398,404
Fixed income investments	6,316,264,651	5,206,315,692
Real estate investments	1,550,843,437	2,091,471,758
Alternative investments	4,198,134,475	6,153,566,562
Total investments	22,062,307,518	21,278,752,416
Securities lending collateral	2,128,804,290	197,353,020
Capital assets, at cost, net of accum deprec	11,092,315	15,259,838
Total assets	26,067,816,833	22,790,163,905
Liabilities		
Benefits payable	17,463,444	18,257,707
Refunds payable	5,318,074	7,567,132
Securities lending collateral	2,128,207,416	197,002,904
Payable to brokers for unsettled trades	127,159,288	29,639,357
Reverse repurchase agreements	619,964	-
Investment expenses payable	14,918,233	9,398,697
Administrative expenses payable	5,817,154	5,174,703
Total liabilities	2,299,503,573	267,040,500
Plan Net Position	$ 23,768,313,260	$ 22,523,123,405

Table 2
Statement of Changes in Plan Net Position for Years Ended June 30, 2021 and June 30, 2022

	Defined Benefit Plan	
	2021	2022
Additions		
Contributions		
Employer	$ 57,001,310	$ 57,906,329
Non-employer contributing entity	1,921,742,123	2,078,152,813 [1]
Member	288,476,321	289,070,662
Total Contributions	2,267,219,754	2,425,129,804
Investment Income		
Net appreciation in fair value of investments	4,458,726,101	(993,854,105)
Interest	198,062,417	180,085,919
Dividends	186,062,862	233,414,277
Securities lending	6,300,112	6,360,276
Gross Investment Income	4,849,151,492	(573,993,633)
Less investment expense		
Asset management expense	85,614,897	111,067,193
Securities lending expense	567,010	572,138
Net investment income	4,762,969,585	(685,632,964)
Total additions	7,030,189,339	1,739,496,840
Deductions		
Benefits	2,780,374,481	2,879,643,912
Refunds of contributions	79,128,037	82,458,931
Administrative expense	19,389,167	22,583,852
Total deductions	2,878,891,685	2,984,686,695
Net increase (decrease)	4,151,297,654	(1,245,189,855)
Plan Net Position Beginning of year	19,617,015,606	23,768,313,260
Plan Net Position End of year	$ 23,768,313,260	$ 22,523,123,405

[1] *Includes a contribution of $58,138,900 from the Pension Stabilization Fund*

Appendix B

Membership Data

Table 3A
Summary of Data Characteristics – Active, Inactive, Retired
($ in Millions)

	June 30, 2021		June 30, 2022	
	Number	Earnings	Number	Earnings
Active Members				
Full time				
Traditional SURS	40,399	$2,292.1	40,304	$2,310.2
Portable SURS	17,198	1,217.8	17,094	1,235.4
RSP	12,669	1,103.0	12,645	1,143.0
Total Full Time[1]	70,266	$4,612.9	70,043	$4,688.6
Part time				
Traditional SURS	2,385	$ 18.6	2,367	$ 17.3
Portable SURS	415	3.8	516	4.6
RSP	377	3.8	381	4.2
Total Part Time	3,177	$ 26.2	3,264	$ 26.1
Total	73,443	$4,639.1	73,307	$4,714.7
Inactive Members				
Traditional SURS	72,539		73,697	
Portable SURS	13,596		14,132	
RSP	10,618		10,722	
Total[2]	96,753		98,551	

[1] Includes 669 police officers and firefighters (including RSP) as of June 30, 2021, and 659 as of June 30, 2022.
[2] Based on SURS plus reciprocal service 23,323 defined benefit members are vested as of June 30, 2021, and 22,882 as of June 30, 2022.

	Number	Annual Benefits	Number	Annual Benefits
Benefit Recipients				
Retirement				
Traditional SURS	51,860	$ 2,226.3	52,509	$ 2,294.1
Portable SURS	8,012	302.2	8,601	336.8
Total Retirement	59,872	$ 2,528.5	61,110	$ 2,630.9
Survivor				
Traditional SURS	9,022	$ 201.4	9,102	$ 210.1
Portable SURS	310	6.6	358	7.8
Total Survivor	9,332	$ 208.0	9,460	$ 217.9
Disability				
Traditional SURS	734	$ 16.8	707	$ 16.7
Portable SURS	173	4.9	181	5.4
Total Disability	907	$ 21.7	888	$ 22.1
Total	70,111	$ 2,758.2	71,458	$ 2,871.0
Total Participants				
Total Traditional SURS	176,939		178,686	
Total Portable SURS	39,704		40,882	
Total RSP	23,664		23,748	
Total	240,307		243,316	

Values may not add due to rounding.

Table 3B
Summary of Data Characteristics – Full Time Active
($ in Millions)

	June 30, 2021		June 30, 2022	
	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	22,274	$ 1,488.5	20,598	$ 1,426.2
Portable SURS	8,689	727.8	8,040	698.0
RSP	4,916	455.9	4,555	445.8
Total	35,879	$ 2,672.2	33,193	$ 2,570.0
Continuing Full Time Actives and Full Time Actives from Inactive and Part Time status - Tier 2				
Traditional SURS	15,462	$ 735.7	15,545	$ 783.8
Portable SURS	7,408	449.3	7,687	490.0
RSP	6,903	595.7	7,078	644.8
Total	29,773	$ 1,780.7	30,310	$ 1,918.5
New Actives - Tier 1				
Traditional SURS	216	$ 6.3	361	$ 9.7
Portable SURS	63	2.5	81	2.7
RSP	26	1.1	40	1.4
Total	305	$ 9.9	482	$ 13.8
New Actives - Tier 2				
Traditional SURS	2,447	$ 61.5	3,800	$ 90.6
Portable SURS	1,038	38.3	1,286	44.7
RSP	824	50.3	972	51.1
Total	4,309	$ 150.1	6,058	$ 186.3
Total Actives - Tier 1				
Traditional SURS	22,490	$ 1,494.8	20,959	$ 1,435.8
Portable SURS	8,752	730.3	8,121	700.7
RSP	4,942	457.0	4,595	447.2
Total	36,184	$ 2,682.1	33,675	$ 2,583.7
Total Actives - Tier 2				
Traditional SURS	17,909	$ 797.2	19,345	$ 874.3
Portable SURS	8,446	487.6	8,973	534.6
RSP	7,727	646.0	8,050	695.8
Total	34,082	$ 1,930.8	36,368	$ 2,104.8
Total Actives - Tier 1 and Tier 2				
Traditional SURS	40,399	$ 2,292.1	40,304	$ 2,310.2
Portable SURS	17,198	1,217.8	17,094	1,235.4
RSP	12,669	1,103.0	12,645	1,143.0
Total	70,266	$ 4,612.9	70,043	$ 4,688.6

Values may not add due to rounding.

Table 3C
Summary of Data Characteristics – Part Time Active/Inactive
($ in Millions)

	June 30, 2021		June 30, 2022	
	Number	Earnings	Number	Earnings
Active Members				
Part time				
Total Actives - Tier 1				
Traditional SURS	563	$ 3.9	593	$ 3.8
Portable SURS	106	0.8	139	1.1
RSP	56	0.4	62	0.6
Total	725	$ 5.1	794	$ 5.4
Total Actives - Tier 2				
Traditional SURS	1,822	$ 14.7	1,774	$ 13.5
Portable SURS	309	3.0	377	3.5
RSP	321	3.3	319	3.6
Total	2,452	$ 21.0	2,470	$ 20.7
Total Actives - Tier 1 and Tier 2				
Traditional SURS	2,385	$ 18.6	2,367	$ 17.3
Portable SURS	415	3.8	516	4.6
RSP	377	3.8	381	4.2
Total	3,177	$ 26.2	3,264	$ 26.1
Inactive Members				
Total Inactives - Tier 1				
Traditional SURS	54,500		53,171	
Portable SURS	8,991		8,766	
RSP	6,879		6,547	
Total	70,370		68,484	
Total Inactives - Tier 2				
Traditional SURS	18,039		20,526	
Portable SURS	4,605		5,366	
RSP	3,739		4,175	
Total	26,383		30,067	
Total Inactives - Tier 1 and Tier 2				
Traditional SURS	72,539		73,697	
Portable SURS	13,596		14,132	
RSP	10,618		10,722	
Total	96,753		98,551	

Values may not add due to rounding.

Table 3D
Summary of Data Characteristics – Academic/Non-Academic
($ in Millions)

	June 30, 2021				June 30, 2022			
	Academic		Non-Academic		Academic		Non-Academic	
	Number	Earnings	Number	Earnings	Number	Earnings	Number	Earnings
Full time								
Traditional SURS	13,489	$ 850.0	26,910	$1,441.3	13,356	$ 850.0	26,948	$1,460.1
Portable SURS	6,012	517.1	11,186	695.6	5,886	517.1	11,208	718.3
RSP	5,455	590.5	7,214	529.1	5,407	590.5	7,238	552.6
Total	24,956	$1,957.6	45,310	$2,666.0	24,649	$1,957.6	45,394	$2,730.9
Part time								
Traditional SURS	1,901	$ 850.0	484	$ 4.1	1,853	$ 13.5	514	$ 3.8
Portable SURS	340	517.1	75	0.7	408	3.6	108	1.0
RSP	328	590.5	49	0.5	331	3.3	50	0.8
Total	2,569	$1,957.6	608	$ 5.3	2,592	$ 20.5	672	$ 5.7
Inactive								
Traditional SURS	38,355		34,184		38,175		35,522	
Portable SURS	6,288		7,308		6,281		7,851	
RSP	5,837		4,781		5,681		5,041	
Total	50,480		46,273		50,137		48,414	
	Number	Annual Benefit	Number	Annual Benefit	Number	Annual Benefit	Number	Annual Benefit
Benefit Recipients								
Traditional SURS	27,659	$1,326.0	33,957	$1,118.5	27,873	$1,354.4	34,445	$1,166.6
Portable SURS	3,662	155.1	4,833	158.6	3,919	173.1	5,221	176.9
Total	31,321	1,481.1	38,790	1,277.1	31,792	1,527.5	39,666	1,343.5
Total Participants								
Total Traditional SURS	81,404		95,535		81,257		97,429	
Total Portable SURS	16,302		23,402		16,494		24,388	
Total RSP	11,620		12,044		11,419		12,329	
Total	109,326		130,981		109,170		134,146	

Values may not add due to rounding.

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

	June 30, 2021				June 30, 2022			
	Academic		Non-Academic		Academic		Non-Academic	
	Number	Earnings	Number	Earnings	Number	Earnings	Number	Earnings
Full time - Tier 1								
Traditional SURS	9,000	$ 646.0	13,490	$ 848.9	8,535	$ 625.3	12,424	$ 810.5
Portable SURS	3,853	378.7	4,899	351.5	3,609	363.9	4,512	336.8
RSP	2,717	286.6	2,225	170.4	2,556	282.9	2,039	164.2
Total	15,570	$ 1,311.3	20,614	$1,370.8	14,700	$1,272.2	18,975	$1,311.6
Full time - Tier 2								
Traditional SURS	4,489	$ 204.8	13,420	$ 592.4	4,821	$ 224.7	14,524	$ 649.6
Portable SURS	2,159	143.4	6,287	344.1	2,277	153.2	6,696	381.5
RSP	2,738	287.3	4,989	358.7	2,851	307.5	5,199	388.3
Total	9,386	$ 635.6	24,696	$1,295.2	9,949	$ 685.4	26,419	$1,419.4
Full time - Total								
Traditional SURS	13,489	$ 850.8	26,910	$1,441.3	13,356	$ 850.0	26,948	$1,460.1
Portable SURS	6,012	522.2	11,186	695.6	5,886	517.1	11,208	718.3
RSP	5,455	573.9	7,214	529.1	5,407	590.5	7,238	552.6
Total	24,956	$ 1,946.9	45,310	$2,666.0	24,649	$1,957.6	45,394	$2,730.9
Part time - Tier 1								
Traditional SURS	477	$ 3.3	86	$ 0.6	493	$ 3.1	100	$ 0.6
Portable SURS	96	0.7	10	0.1	113	0.9	26	0.2
RSP	47	0.4	9	0.1	54	0.4	8	0.1
Total	620	$ 4.4	105	$ 0.8	660	$ 4.5	134	$ 1.0
Part time - Tier 2								
Traditional SURS	1,424	$ 11.2	398	$ 3.5	1,360	$ 10.4	414	$ 3.2
Portable SURS	244	2.4	65	0.6	295	2.7	82	0.8
RSP	281	2.9	40	0.4	277	2.9	42	0.7
Total	1,949	$ 16.5	503	$ 4.5	1,932	$ 16.0	538	$ 4.7
Part time - Total								
Traditional SURS	1,901	$ 14.5	484	$ 4.1	1,853	$ 13.5	514	$ 3.8
Portable SURS	340	3.1	75	0.7	408	3.6	108	1.0
RSP	328	3.3	49	0.5	331	3.3	50	0.8
Total	2,569	$ 20.9	608	$ 5.3	2,592	$ 20.5	672	$ 5.7

Values may not add due to rounding.

Exhibit 2

Table 4
Distribution of Full-Time Active Members by Age and Years of Service as of June 30, 2022

	Years of Service								
Age	Under 1	1-4	5-9	10-14	15-19	20-24	25-29	30 & Over	Totals
Under 20	22	11	-	-	-	-	-	-	33
	$ 128,859	$ 211,242	$ -	$ -	$ -	$ -	$ -	$ -	$ 340,101
20-24	515	763	6	-	-	-	-	-	1,284
	$ 5,404,627	$ 24,802,771	$ 221,687	$ -	$ -	$ -	$ -	$ -	$ 30,429,084
25-29	757	3,157	504	4	-	-	-	-	4,422
	$ 10,248,693	$ 144,570,779	$ 23,763,360	$ 157,950	$ -	$ -	$ -	$ -	$ 178,740,782
30-34	668	4,054	2,051	350	8	-	-	-	7,131
	$ 10,901,524	$ 233,662,702	$ 118,150,876	$ 20,327,225	$ 423,208	$ -	$ -	$ -	$ 383,465,535
35-39	434	3,236	2,772	1,581	438	14	-	-	8,475
	$ 8,351,620	$ 208,974,897	$ 188,244,285	$ 109,265,200	$ 29,533,944	$ 871,630	$ -	$ -	$ 545,241,576
40-44	406	2,512	2,636	1,997	1,395	460	7	-	9,413
	$ 7,743,909	$ 155,522,967	$ 181,030,207	$ 153,241,342	$ 111,756,305	$ 34,912,922	$ 516,191	$ -	$ 644,723,842
45-49	315	1,862	1,983	1,730	1,730	1,257	296	9	9,182
	$ 5,785,369	$ 116,290,281	$ 130,063,716	$ 139,857,029	$ 154,110,829	$ 107,669,633	$ 24,071,427	$ 654,861	$ 678,503,143
50-54	257	1,658	1,761	1,564	1,784	1,599	912	173	9,708
	$ 5,527,256	$ 95,066,259	$ 107,753,059	$ 114,592,612	$ 155,548,207	$ 146,614,558	$ 80,667,175	$ 14,761,362	$ 720,530,488
55-59	172	1,263	1,466	1,383	1,460	1,513	878	403	8,538
	$ 2,807,282	$ 72,913,563	$ 87,861,205	$ 92,230,214	$ 120,704,385	$ 142,182,120	$ 88,929,562	$ 41,065,293	$ 648,693,623
60-64	104	863	1,188	1,063	1,128	1,096	688	460	6,590
	$ 2,146,297	$ 48,220,261	$ 66,309,646	$ 67,356,989	$ 84,457,124	$ 93,544,504	$ 71,167,163	$ 58,218,147	$ 491,420,132
65 & Over	54	555	922	856	955	836	496	593	5,267
	$ 899,035	$ 26,673,688	$ 41,731,873	$ 47,392,866	$ 64,515,617	$ 68,582,499	$ 44,440,496	$ 72,230,472	$ 366,466,545
Total Count	3,704	19,934	15,289	10,528	8,898	6,775	3,277	1,638	70,043
Total Payroll	$ 59,944,471	$ 1,126,909,409	$ 945,129,914	$ 744,421,425	$ 721,049,618	$ 594,377,865	$ 309,792,014	$ 186,930,135	$ 4,688,554,852

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, 2022

Age	Number	Annual Benefit
Retirees and Survivors		
Under 50	407	$ 3,479,212
50-54	377	14,761,036
55-59	3,057	107,722,277
60-64	7,778	289,176,202
65-69	13,427	512,524,788
70-74	15,772	624,219,806
75-79	12,964	569,833,728
80-84	8,436	388,717,010
85-89	5,071	216,986,865
90 & Over	3,281	121,410,072
Total	70,570	$ 2,848,830,996
Disabilitants		
Under 50	113	$ 3,174,188
50-54	110	3,009,154
55-59	161	4,287,605
60-64	189	4,568,811
65-69	171	4,254,000
70-74	80	1,610,731
75-79	28	482,529
80-84	23	537,962
85-89	8	92,409
90 & Over	5	102,773
Total	888	$ 22,120,162

Excludes RSP.

Appendix C

Actuarial Determinations

Table 6
Summary of Actuarial Values as of June 30, 2022
($ 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	$16,012.9	$ 10,623.5	$578.9	15.49%
b. Death	237.9	149.9	10.1	0.27%
c. Disability	261.2	148.8	16.5	0.44%
d. Termination	1,891.0	1,137.8	133.9	3.58%
Total - Active Members	$18,403.0	$ 12,060.1	$739.4	19.79%
2. Benefit Recipients				
a. Retirement	$32,377.8	$32,377.8	$ 0.0	
b. Survivor	1,976.4	1,976.4	0.0	
c. Disability	278.6	278.6	0.0	
Total - Benefit Recipients	$34,632.8	$34,632.8	$ 0.0	
3. Other Inactive	$ 3,177.1	$ 3,177.1		
4. Grand Total	$56,212.9	$49,869.9	$739.4	19.79%
5. Operating Expense			$ 28.1	0.75%
6. Fiscal Year 2023 Total Normal Cost[2]			$767.5	20.54%
7. Expected Pay During Fiscal Year 2023 for Defined Benefit Plans[1]				$ 3,737.0
8. Present Value of Future Salaries (PVFS)[1]				$ 30,933.5

[1] For members currently active as of June 30, 2022, 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 11.90% for Tier 2 members and 26.87% 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, 2022

	2021	2022	2023	2024	2025	2026
Beginning of Year:						
(1) Market Value of Assets	$ 19,617,015,606	$ 23,768,313,260				
(2) Actuarial Value of Assets	20,091,674,784	21,484,798,600				
End of Year:						
(3) Market Value of Assets	23,768,313,260	22,523,123,405				
(4) Net of Contributions and Disbursements	(611,671,931)	(559,556,891)				
(5) Total Investment Return						
=(3)-(1)-(4)	4,762,969,585	(685,632,964)				
(6) Projected Rate of Return	6.75%	6.50%				
(7) Projected Investment Return						
=(1)x(6)+([1+(6)]^.5-1)x(4)	1,303,841,708	1,527,041,048				
(8) Investment Return in						
Excess of Projected Return	3,459,127,877	(2,212,674,012)				
(9) Excess Investment Return Recognized						
This Year (5 year recognition)						
(9a) From This Year	691,825,575	(442,534,802)				
(9b) From One Year Ago	(153,482,516)	691,825,575	$ (442,534,802)			
(9c) From Two Years Ago	(30,001,418)	(153,482,516)	691,825,575	$ (442,534,802)		
(9d) From Three Years Ago	36,662,742	(30,001,418)	(153,482,516)	691,825,575	$ (442,534,802)	
(9e) From Four Years Ago	155,949,656	36,662,744	(30,001,419)	(153,482,517)	691,825,577	$ (442,534,804)
(9f) Total Phased-In Return	700,954,039	102,469,583	65,806,838	95,808,256	249,290,775	(442,534,804)
(10) Change in Actuarial Value of Assets						
=(4)+(7)+(9f)	1,393,123,816	1,069,953,740				
End of Year:						
(3) Market Value of Assets	**23,768,313,260**	**22,523,123,405**				
(11) Final Actuarial Value of Assets	**21,484,798,600**	**22,554,752,340**				
(12) Difference Between Market & Actuarial Values	2,283,514,660	(31,628,935)				
(13) Actuarial Value Rate of Return	10.13 %	7.68 %				
(14) Estimated Market Value Rate of Return	24.66 %	(2.92)%				
(15) Ratio of Actuarial Value to Market Value	90 %	100 %				
(16) SURS Reported Market Value Rate of Return	23.75 %	(1.36)%				

Excludes RSP.

Table 8
Analysis of Change in
Actuarial Accrued Liability and Actuarial Value of Assets
for the Year Ending June 30, 2022
($ in Millions)

1. Actuarial (Gain)/Loss on Actuarial Accrued Liability ("AAL")		
(a) AAL 6/30/2021		$ 48,898.5
(b) Normal Cost FY 2022	$ 765.3	
(c) Benefits and Admin Expenses Paid FY 2022	(2,984.7)	
(d) Interest on (a), (b), and (c) at 6.50%	3,107.4	
(e) Expected AAL 6/30/2022 (a+b+c+d)		49,786.5
(f) Actual AAL 6/30/2022 Before Assumption and Method Changes		49,869.9
(g) Actuarial (Gain)/Loss on AAL (f-e)		$ 83.4
(h) Impact of Benefit Changes		0.0
(i) Impact of Change in Actuarial Assumptions and Methods		0.0
(j) Actual AAL After Changes (f+h+i)		$ 49,869.9
2. Actuarial (Gain)/Loss on Assets		
(a) Actuarial Value of Assets 6/30/2021		$ 21,484.8
(b) Contributions FY 2022	2,425.1	
(c) Benefits and Administrative Expenses	(2,984.7)	
(d) Interest on (a), (b), and (c) at 6.50%	1,378.6	
(e) Expected Assets 6/30/2022 (a+b+c+d)		$ 22,303.9
(f) Actual Actuarial Value of Assets 6/30/2022		22,554.8
(g) Actuarial (Gain)/Loss on Assets (e-f)		$ (250.9)
3. Total Actuarial (Gain)/Loss		
(a) (Gain)/Loss on AAL		$ 83.4
(b) (Gain)/Loss on Assets		(250.9)
(c) Net (Gain)/Loss (a+b)		$ (167.5)

Excludes RSP.

Values may not add due to rounding.

Table 9
Analysis of Change in Unfunded Actuarial Accrued Liability for the Year Ending June 30, 2022
($ in Millions)

1. Unfunded Actuarial Accrued Liability (UAAL) at 06/30/2021	$	27,413.7
2. Contributions		
a. Contributions equal to normal cost plus interest on UAAL		
i Interest on 1)	$	1,781.9
ii Member contributions		289.1
iii Employer/State normal cost		476.2
iv Interest on ii and iii		24.5
v Total due	$	2,571.7
b. Contributions paid based on funding policy		
i Member contributions	$	289.1
ii Employer/State contributions		2,136.1 [1]
iii Interest on i and ii		77.6
iv Total paid	$	2,502.7
c. Expected increase in UAAL (2a.v-2b.iv)		69.0
3. Expected UAAL at 06/30/2022 (1+2c)		27,482.7
4. (Gains)/Losses		
a. Investment income	$	(250.9)
b. Salary increases		22.9
c. Demographic and other		60.5
d. Total	$	(167.5)
5. Plan Provision Changes		-
6. Assumption Changes		-
7. Total Change in UAAL (2c + 4d + 5 + 6)		(98.5)
8. UAAL at 06/30/2022 (1 + 7)	$	27,315.2

[1] *Includes a contribution of $58,138,900 from the Pension Stabilization Fund*

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 2019	FY 2020	FY 2021	FY 2022
Investment Return[1]	$ 234.1	$ 233.5	$ (668.9)	$ (250.9)
Salary Increase	(55.2)	5.4	(88.5)	22.9
Age and Service Retirement	53.4	6.0	9.6	15.2
General Employment Termination	29.3	22.3	28.8	0.1
Disability Incidence	4.5	(1.7)	(2.0)	3.4
In Service Mortality	(5.5)	1.2	3.8	1.5
Benefit Recipient[2]	41.8	13.3	(61.8)	(7.4)
Other[3]	51.2	56.0	62.8	47.7
Total Actuarial (Gain)/Loss	$ 353.6	$ 336.0	$ (716.2)	$ (167.5)
BOY Actuarial Accrued Liability (AAL)	$ 45,258.8	$ 46,443.9	$ 47,580.5	$ 48,898.5
(Gain)/Loss as a % of BOY AAL	0.8%	0.7%	(1.5)%	(0.3)%
Total Non-Investment (Gain)/Loss	$ 119.5	$ 102.5	$ (47.3)	$ 83.4
(Gain)/Loss as a % of BOY AAL	0.3%	0.2%	(0.1)%	0.2%

Excludes RSP.

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

[2] *Benefit recipient (gain)/loss includes mortality gains and losses as well as gains and losses due to 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.*

Exhibit 2

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						767.538	303.620	1,443.902	1,907.820	1,905.047	2,368.965	2,522.948

[1] *Defined benefit payroll for Fiscal Year 2022 is based on the employee contributions in the financial statements for fiscal year 2022 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 2023 and actual for years prior to Fiscal Year 2023.*

[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 22-year closed amortization period for Fiscal Year 2023. (The statutory contribution would apply to Fiscal Year 2024; 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

Exhibit 2

Table 12

Baseline Projections – Actuarial Valuation June 30, 2022

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
2022	$ 4,714.667	$ 1,147.187	$ 3,567.480	$ 2,136.059	$ 289.071	$ 2,962.103	$ 22.584	$ 22,554.752	$ 49,869.932	45.23 %	$ 27,315.180	$ 146.736	$ 2,112.002	45.31 %
2023	5,051.508	1,260.995	3,790.513	2,071.091	303.620	3,139.190	28.118	23,266.611	50,634.943	45.95	27,368.332	153.373	2,083.612	41.00
2024	5,174.795	1,334.337	3,840.458	2,091.856	307.621	3,227.454	28.962	23,984.066	51,350.480	46.71	27,366.414	164.417	2,097.440	40.42
2025	5,309.313	1,412.674	3,896.639	2,134.957	312.121	3,334.248	29.830	24,833.426	51,994.349	47.76	27,160.923	174.604	2,134.957	40.21
2026	5,450.648	1,490.449	3,960.200	2,178.750	317.212	3,433.697	30.725	24,976.860	52,570.302	47.51	27,593.442	179.149	2,178.750	39.97
2027	5,598.054	1,567.866	4,030.188	2,214.609	322.818	3,529.092	31.647	25,544.310	53,079.222	48.12	27,534.912	183.195	2,214.609	39.56
2028	5,747.489	1,644.846	4,102.643	2,304.665	328.622	3,624.414	32.596	26,148.219	53,518.339	48.86	27,370.120	191.634	2,304.665	40.10
2029	5,898.284	1,722.401	4,175.883	2,362.469	334.488	3,717.561	33.574	26,759.953	53,886.150	49.66	27,126.197	199.325	2,362.469	40.05
2030	6,053.083	1,801.305	4,251.779	2,417.868	340.567	3,810.257	34.582	27,378.195	54,178.872	50.53	26,800.677	211.160	2,417.868	39.94
2031	6,210.016	1,882.214	4,327.801	2,475.191	346.657	3,901.287	35.619	28,007.051	54,393.523	51.49	26,386.472	221.997	2,475.191	39.86
2032	6,369.770	1,965.341	4,404.429	2,539.631	352.795	3,989.139	36.688	28,657.852	54,528.690	52.56	25,870.838	226.944	2,539.631	39.87
2033	6,534.404	2,051.234	4,483.171	2,611.831	359.102	4,062.400	37.788	29,355.235	54,595.051	53.77	25,239.816	226.249	2,611.831	39.97
2034	6,704.474	2,140.007	4,564.466	2,701.591	365.614	4,127.612	38.922	30,128.830	54,597.540	55.18	24,468.710	NA	2,911.946	40.30
2035	6,876.602	2,231.114	4,645.488	2,770.951	372.104	4,189.512	40.090	30,965.899	54,535.582	56.78	23,569.683	NA	2,986.706	40.30
2036	7,049.991	2,323.482	4,726.510	2,840.818	378.593	4,245.921	41.292	31,876.723	54,410.613	58.59	22,533.890	NA	3,062.014	40.30
2037	7,225.721	2,418.256	4,807.466	2,911.629	385.078	4,295.374	42.531	32,874.206	54,225.657	60.62	21,351.451	NA	3,138.338	40.30
2038	7,405.643	2,515.754	4,889.890	2,984.129	391.680	4,254.800	43.807	34,058.714	54,070.115	62.99	20,011.401	NA	3,216.484	40.30
2039	7,589.758	2,614.931	4,974.827	3,058.319	398.484	4,285.029	45.121	35,371.246	53,873.943	65.66	18,502.697	NA	3,296.450	40.30
2040	7,777.922	2,717.279	5,060.643	3,134.141	405.358	4,308.710	46.475	36,828.598	53,642.641	68.66	16,814.043	NA	3,378.175	40.30
2041	7,971.764	2,820.944	5,150.821	3,212.250	412.581	4,320.411	47.869	38,455.225	53,388.480	72.03	14,933.255	NA	3,462.366	40.30
2042	8,170.122	2,926.156	5,243.966	3,292.179	420.042	4,321.145	49.305	40,275.530	53,123.974	75.81	12,848.444	NA	3,548.519	40.30
2043	8,372.398	3,032.854	5,339.544	3,373.687	427.697	4,312.605	50.784	42,313.457	52,860.196	80.05	10,546.739	NA	3,636.373	40.30
2044	8,577.249	3,141.557	5,435.692	3,456.232	435.399	4,296.331	52.308	44,592.205	52,606.880	84.76	8,014.675	NA	3,725.346	40.30
2045	8,784.839	3,252.428	5,532.411	3,539.881	443.146	4,272.699	53.877	47,136.160	52,373.511	90.00	5,237.351	NA	3,815.508	40.30

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 73,307 total active members (70,043 full time and 3,264 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.*

Exhibit 2

Graph 1
Projected Funded Ratio Based on Statutory Contributions
Actuarial Valuation as of June 30, 2022
($ in Millions)

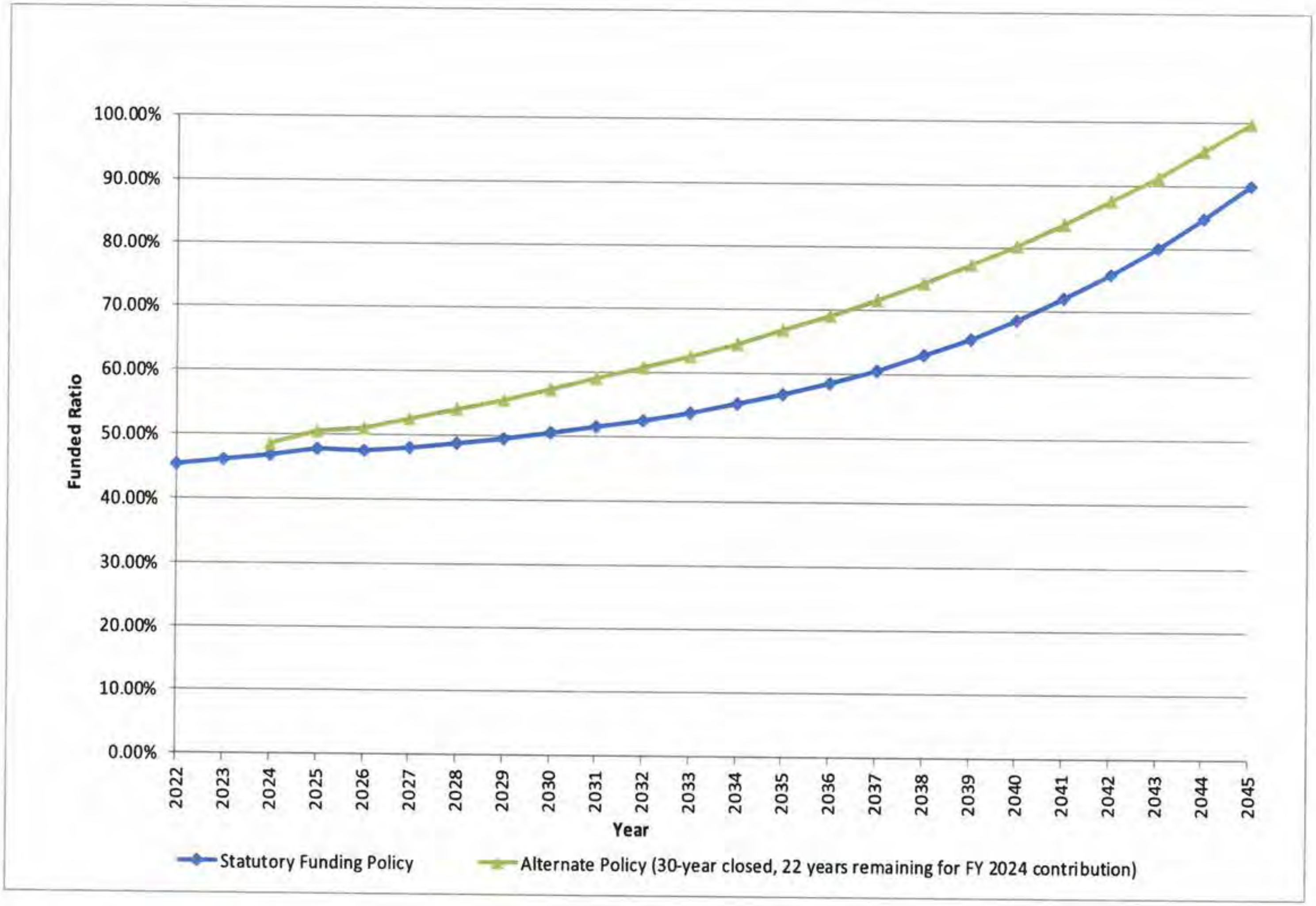
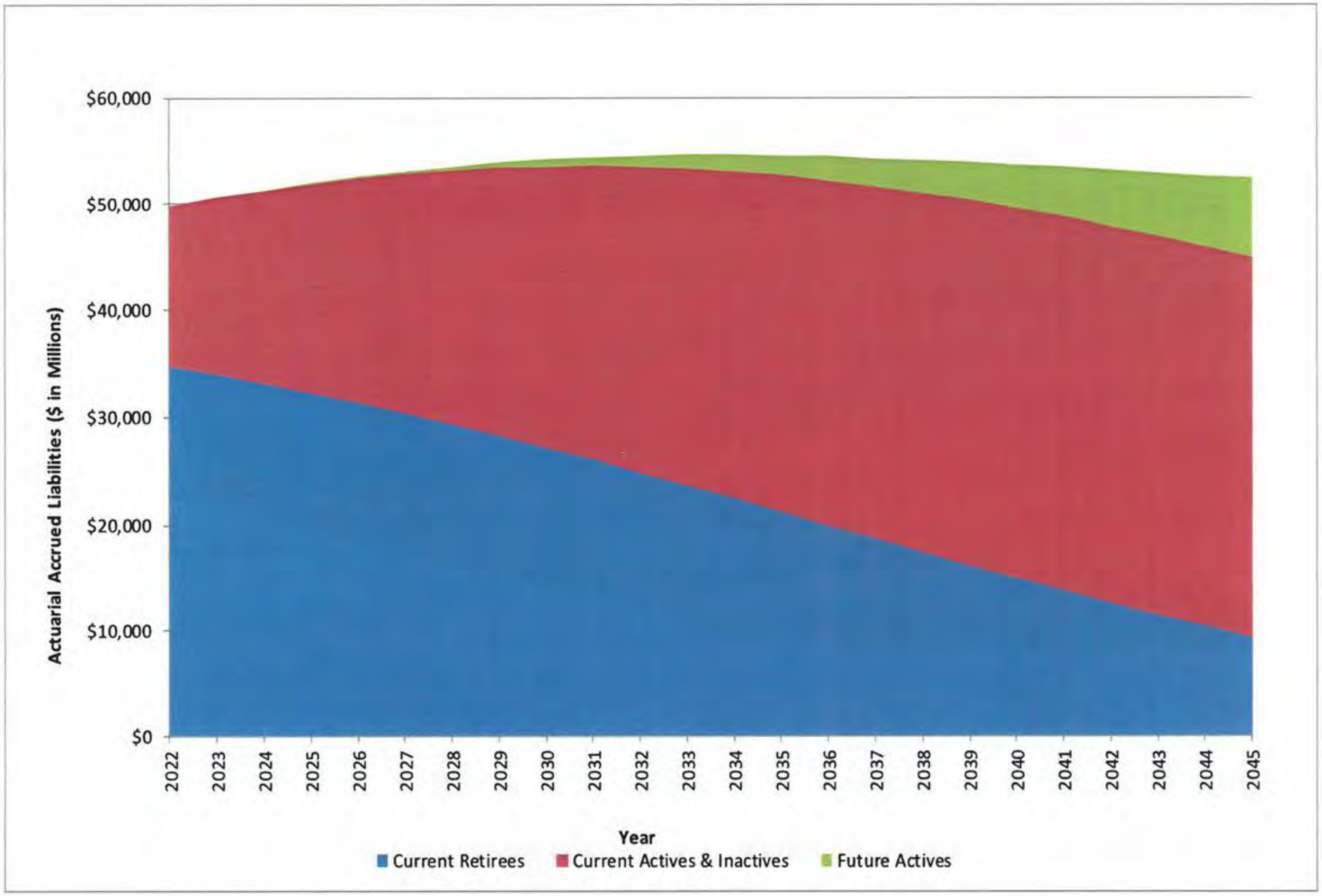


Exhibit 2

Graph 2
Projected Actuarial Accrued Liabilities
Actuarial Valuation as of June 30, 2022
($ in Millions)



Graph 3
Projected Benefit Payments
Actuarial Valuation as of June 30, 2022
($ in Millions)

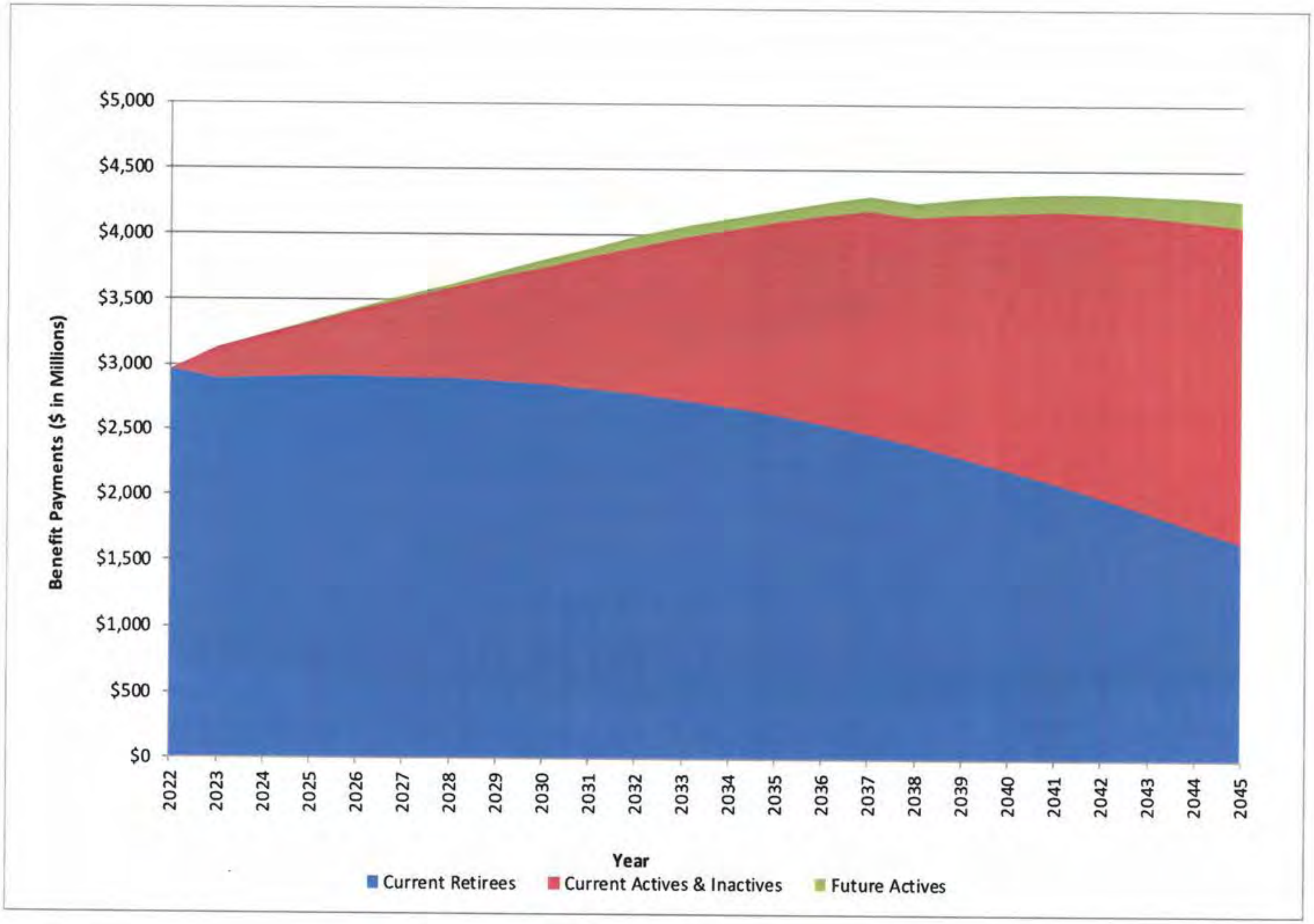


Table 13
Projected Statutory Contributions for the Actuarial Valuation as of June 30, 2022
Before Impact of Bonds Issued in 2004
($ in Millions)

			Combined State and Employer Contribution	
FYE	SURS Cont. [1]	RSP Cont. [1]	$	% of Pay [2]
2023	$ 2,236.985	$ 89.783	$ 2,326.768	46.06 %
2024	2,261.858	94.172	2,356.030	45.53
2025	2,309.561	100.413	2,409.974	45.39
2026	2,357.899	105.913	2,463.812	45.20
2027	2,397.803	111.390	2,509.193	44.82
2028	2,496.300	116.837	2,613.137	45.47
2029	2,561.794	122.325	2,684.119	45.51
2030	2,629.028	127.909	2,756.937	45.55
2031	2,697.188	133.635	2,830.823	45.58
2032	2,766.574	139.519	2,906.093	45.62
2033	2,838.080	145.598	2,983.678	45.66
2034	2,911.946	151.880	3,063.826	45.70
2035	2,986.706	158.328	3,145.034	45.74
2036	3,062.014	164.866	3,226.880	45.77
2037	3,138.338	171.574	3,309.912	45.81
2038	3,216.484	178.476	3,394.960	45.84
2039	3,296.450	185.496	3,481.946	45.88
2040	3,378.175	192.741	3,570.916	45.91
2041	3,462.366	200.081	3,662.447	45.94
2042	3,548.519	207.530	3,756.049	45.97
2043	3,636.373	215.086	3,851.459	46.00
2044	3,725.346	222.784	3,948.130	46.03
2045	3,815.508	230.636	4,046.144	46.06
Total	$67,731.295	$3,566.972	$71,298.267	

[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.*

Exhibit 2

Table 14
Projected Statutory Contributions for the Actuarial Valuation as of June 30, 2022
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
2023	$ 2,071.091	$ 89.783	$ 2,160.874	42.78 %	$ 153.373	3.04 %	$ 2,532.330	$ 2,622.113	82.41 %	$ 5.048	$ 62.000	$ 2,093.826
2024	2,091.856	94.172	2,186.028	42.24	164.417	3.18	2,522.948	2,617.120	83.53	4.993	65.500	2,115.535
2025	2,134.957	100.413	2,235.370	42.10	174.604	3.29	2,532.960	2,633.373	84.89	5.303	*65.500*	2,164.567
2026	2,178.750	105.913	2,284.663	41.92	179.149	3.29	2,540.390	2,646.303	86.33	4.829	*65.500*	2,214.334
2027	2,214.609	111.390	2,325.999	41.55	183.195	3.27	2,534.739	2,646.129	87.90	4.511	*65.500*	2,255.988
2028	2,304.665	116.837	2,421.502	42.13	191.634	3.33	2,593.657	2,710.494	89.34	4.193	*65.500*	2,351.809
2029	2,362.469	122.325	2,484.794	42.13	199.325	3.38	2,611.619	2,733.944	90.89	3.934	*65.500*	2,415.360
2030	2,417.868	127.909	2,545.777	42.06	211.160	3.49	2,630.067	2,757.976	92.31	3.690	*65.500*	2,542.087
2031	2,475.191	133.635	2,608.826	42.01	221.997	3.57	2,648.593	2,782.228	93.77	3.439	*65.500*	2,605.387
2032	2,539.631	139.519	2,679.150	42.06	226.944	3.56	2,667.109	2,806.628	95.46	3.193	*65.500*	2,675.957
2033	2,611.831	145.598	2,757.429	42.20	226.249	3.46	2,685.677	2,831.275	97.39	2.937	*65.500*	2,754.492
2034	2,701.591	151.880	2,853.471	42.56			2,704.457	2,856.337	99.90	2.710	*65.500*	2,850.761
2035	2,770.951	158.328	2,929.279	42.60			2,723.562	2,881.890	101.64	2.497	*65.500*	2,926.782
2036	2,840.818	164.866	3,005.684	42.63			2,742.047	2,906.913	103.40	2.293	*65.500*	3,003.391
2037	2,911.629	171.574	3,083.203	42.67			2,759.375	2,930.949	105.19	2.086	*65.500*	3,081.117
2038	2,984.129	178.476	3,162.605	42.71			2,775.133	2,953.609	107.08	1.883	*65.500*	3,160.722
2039	3,058.319	185.496	3,243.815	42.74			2,789.074	2,974.570	109.05	1.683	*65.500*	3,242.132
2040	3,134.141	192.741	3,326.882	42.77			2,801.000	2,993.741	111.13	1.495	*65.500*	3,325.387
2041	3,212.250	200.081	3,412.331	42.81			2,809.979	3,010.060	113.36	1.324	*65.500*	3,411.007
2042	3,292.179	207.530	3,499.709	42.84			2,814.767	3,022.297	115.80	1.162	*65.500*	3,498.547
2043	3,373.687	215.086	3,588.773	42.86			2,810.563	3,025.649	118.61	1.021	*65.500*	3,587.752
2044	3,456.232	222.784	3,679.016	42.89			2,785.165	3,007.949	122.31	0.891	*65.500*	3,678.125
2045	3,539.881	230.636	3,770.517	42.92			2,691.904	2,922.540	129.02	0.780	*65.500*	3,769.737
Total	$ 62,678.725	$3,566.972	$ 66,245.697		$2,132.046		$ 61,707.113	$ 65,274.085		$ 65.894	$ 1,503.000	$ 65,724.803

[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.

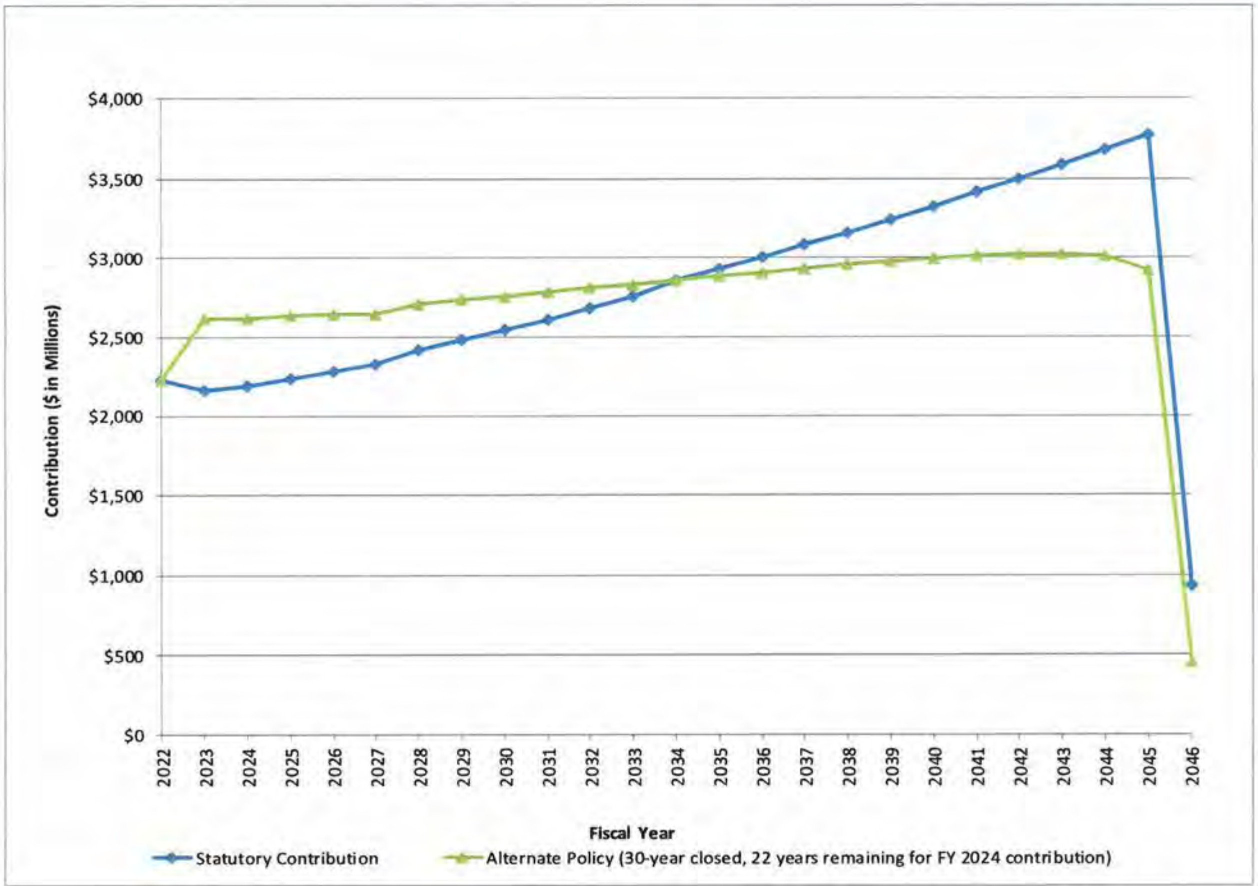
[2] Percent of pay amounts are calculated based on pensionable pay. Pensionable pay does not include amounts in excess of the pay caps applicable to members in Tier 2 participating in the Traditional and Portable plans.

[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 22 years remaining as of FY 2024.

[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 2023 and 2024 were provided by SURS staff. Projected amounts for fiscal years 2025 and after are assumed to remain the same as the fiscal year 2024 amount.

Graph 4
Projected Statutory Contributions vs. Contributions under Alternate Policy
(Net Normal Cost Plus Closed Period Level Percent of Pay Amortization)
(22 years remaining in Amortization Period for FY 2024 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 (22 years remaining for the FY 2024 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
2022	$ 4,714.667	$ 1,147.187	$ 3,567.480	$ 2,136.059	$ 289.071	$ 2,962.103	$ 22.584	$ 22,554.752	$ 49,869.932	45.23 %	$ 27,315.180	$ 146.736	$ 2,112.002	45.31 %
2023	5,051.508	1,260.995	3,790.513	2,071.091	303.620	3,139.190	28.118	23,202.860	50,634.943	45.82	27,432.083	153.373	2,083.612	41.00
2024	5,174.795	1,334.337	3,840.458	2,091.856	307.621	3,227.454	28.962	23,826.696	51,350.480	46.40	27,523.784	164.417	2,097.440	40.42
2025	5,309.313	1,412.674	3,896.639	2,139.149	312.121	3,334.248	29.830	24,433.423	51,994.349	46.99	27,560.926	174.604	2,139.149	40.29
2026	5,450.648	1,490.449	3,960.200	2,189.111	317.212	3,433.697	30.725	25,032.848	52,570.302	47.62	27,537.454	179.149	2,189.111	40.16
2027	5,598.054	1,567.866	4,030.188	2,241.833	322.818	3,529.092	31.647	25,632.032	53,079.222	48.29	27,447.190	183.195	2,241.833	40.05
2028	5,747.489	1,644.846	4,102.643	2,298.128	328.622	3,624.414	32.596	26,234.897	53,518.339	49.02	27,283.442	191.634	2,298.128	39.98
2029	5,898.284	1,722.401	4,175.883	2,355.760	334.488	3,717.561	33.574	26,845.342	53,886.150	49.82	27,040.808	199.325	2,355.760	39.94
2030	6,053.083	1,801.305	4,251.779	2,410.983	340.567	3,810.257	34.582	27,462.029	54,178.872	50.69	26,716.843	211.160	2,410.983	39.83
2031	6,210.016	1,882.214	4,327.801	2,468.128	346.657	3,901.287	35.619	28,089.044	54,393.523	51.64	26,304.479	221.997	2,468.128	39.74
2032	6,369.770	1,965.341	4,404.429	2,532.385	352.795	3,989.139	36.688	28,737.698	54,528.690	52.70	25,790.992	226.944	2,532.385	39.76
2033	6,534.404	2,051.234	4,483.171	2,604.398	359.102	4,062.400	37.788	29,432.600	54,595.051	53.91	25,162.451	226.249	2,604.398	39.86
2034	6,704.474	2,140.007	4,564.466	2,693.451	365.614	4,127.612	38.922	30,202.824	54,597.540	55.32	24,394.716	NA	2,904.320	40.17
2035	6,876.602	2,231.114	4,645.488	2,762.602	372.104	4,189.512	40.090	31,036.088	54,535.582	56.91	23,499.494	NA	2,978.884	40.17
2036	7,049.991	2,323.482	4,726.510	2,832.259	378.593	4,245.921	41.292	31,942.642	54,410.613	58.71	22,467.971	NA	3,053.995	40.17
2037	7,225.721	2,418.256	4,807.466	2,902.857	385.078	4,295.374	42.531	32,935.357	54,225.657	60.74	21,290.300	NA	3,130.120	40.17
2038	7,405.643	2,515.754	4,889.890	2,975.139	391.680	4,254.800	43.807	34,114.561	54,070.115	63.09	19,955.554	NA	3,208.060	40.17
2039	7,589.758	2,614.931	4,974.827	3,049.105	398.484	4,285.029	45.121	35,421.215	53,873.943	65.75	18,452.728	NA	3,287.817	40.17
2040	7,777.922	2,717.279	5,060.643	3,124.698	405.358	4,308.710	46.475	36,872.069	53,642.641	68.74	16,770.572	NA	3,369.328	40.17
2041	7,971.764	2,820.944	5,150.821	3,202.572	412.581	4,320.411	47.869	38,491.536	53,388.480	72.10	14,896.944	NA	3,453.299	40.17
2042	8,170.122	2,926.156	5,243.966	3,282.260	420.042	4,321.145	49.305	40,303.964	53,123.974	75.87	12,820.010	NA	3,539.226	40.17
2043	8,372.398	3,032.854	5,339.544	3,363.522	427.697	4,312.605	50.784	42,333.250	52,860.196	80.09	10,526.946	NA	3,626.850	40.17
2044	8,577.249	3,141.557	5,435.692	3,445.819	435.399	4,296.331	52.308	44,602.539	52,606.880	84.78	8,004.341	NA	3,715.590	40.17
2045	8,784.839	3,252.428	5,532.411	3,529.216	443.146	4,272.699	53.877	47,136.160	52,373.511	90.00	5,237.351	NA	3,805.516	40.17

[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.*

Exhibit 2

Table 16

Development of Market and Actuarial Value of Assets as of June 30, 2022 after Bonds (Valuation Basis) and before Bonds (Hypothetical Basis)

		After Bonds (Valuation Basis)	Before Bonds (Hypothetical)
1	Market Value at 6/30/2021	$23,768,313,260	$21,050,477,648
2a	Employer and Non-Employer Contributing Entity Contributions[1]	2,136,059,142	2,258,737,466
2b	Member Contributions	289,070,662	289,070,662
2c	Benefits and Expenses	2,984,686,695	2,984,686,695
2d	Net Non-Investment Cash Flow	(559,556,891)	(436,878,567)
3	Investment Return (Based on Estimated Rate of -2.92%)	(685,632,964)	(608,042,312)
4	Expected Return (Based on Estimated Rate of 6.50%)	1,527,041,048	1,354,306,013
5	Market Value at 6/30/2022 (1+2d+3)	22,523,123,405	20,005,556,769
6	Expected Market Value at 6/30/2022 (1+2d+4)	24,735,797,417	21,967,905,094
7a	Actuarial Gain/(Loss) Current Year	(2,212,674,012)	(1,962,348,325)
7b	Actuarial Gain/(Loss) 1 Year Prior	3,459,127,877	3,062,643,460
7c	Actuarial Gain/(Loss) 2 Years Prior	(767,412,581)	(676,460,110)
7d	Actuarial Gain/(Loss) 3 Years Prior	(150,007,091)	(131,557,100)
7e	Actuarial Gain/(Loss) 4 Years Prior	183,313,712	161,071,013
8	Actuarial Value at 6/30/2021	21,484,798,600	19,026,647,563
9	Actuarial Value at 6/30/2022 (8+2d+4+.2*(7a+7b+7c+7d+7e))	22,554,752,340	20,034,744,796

[1]*Hypothetical contributions (before bonds) are equal to the total contributions of $2,292,529,000 minus actual fiscal year 2022 RSP contributions of $91,930,434 plus the actual fiscal year 2022 contribution of $58,138,900 from the Pension Stabilization Fund.*

Exhibit 2

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
2022	$ 4,714.667	$ 1,147.187	$ 3,567.480	$ 2,258.737	$ 289.071	$ 2,962.103	$ 22.584	$ 20,034.745	$ 49,869.932	40.17 %	$ 29,835.187	NA	47.91 %
2023	5,051.508	1,260.995	3,790.513	2,236.985	303.620	3,139.190	28.118	20,746.811	50,634.943	40.97	29,888.132	NA	44.28
2024	5,174.795	1,334.337	3,840.458	2,261.858	307.621	3,227.454	28.962	21,465.514	51,350.480	41.80	29,884.966	NA	43.71
2025	5,309.313	1,412.674	3,896.639	2,309.561	312.121	3,334.248	29.830	22,303.479	51,994.349	42.90	29,690.870	NA	43.50
2026	5,450.648	1,490.449	3,960.200	2,357.899	317.212	3,433.697	30.725	22,520.665	52,570.302	42.84	30,049.637	NA	43.26
2027	5,598.054	1,567.866	4,030.188	2,397.803	322.818	3,529.092	31.647	23,117.518	53,079.222	43.55	29,961.704	NA	42.83
2028	5,747.489	1,644.846	4,102.643	2,496.300	328.622	3,624.414	32.596	23,761.450	53,518.339	44.40	29,756.889	NA	43.43
2029	5,898.284	1,722.401	4,175.883	2,561.794	334.488	3,717.561	33.574	24,423.746	53,886.150	45.32	29,462.404	NA	43.43
2030	6,053.083	1,801.305	4,251.779	2,629.028	340.567	3,810.257	34.582	25,108.049	54,178.872	46.34	29,070.823	NA	43.43
2031	6,210.016	1,882.214	4,327.801	2,697.188	346.657	3,901.287	35.619	25,818.443	54,393.523	47.47	28,575.080	NA	43.43
2032	6,369.770	1,965.341	4,404.429	2,766.574	352.795	3,989.139	36.688	26,561.188	54,528.690	48.71	27,967.502	NA	43.43
2033	6,534.404	2,051.234	4,483.171	2,838.080	359.102	4,062.400	37.788	27,355.774	54,595.051	50.11	27,239.277	NA	43.43
2034	6,704.474	2,140.007	4,564.466	2,911.946	365.614	4,127.612	38.922	28,216.488	54,597.540	51.68	26,381.052	NA	43.43
2035	6,876.602	2,231.114	4,645.488	2,986.706	372.104	4,189.512	40.090	29,151.912	54,535.582	53.45	25,383.670	NA	43.43
2036	7,049.991	2,323.482	4,726.510	3,062.014	378.593	4,245.921	41.292	30,173.098	54,410.613	55.45	24,237.515	NA	43.43
2037	7,225.721	2,418.256	4,807.466	3,138.338	385.078	4,295.374	42.531	31,293.807	54,225.657	57.71	22,931.850	NA	43.43
2038	7,405.643	2,515.754	4,889.890	3,216.484	391.680	4,254.800	43.807	32,615.375	54,070.115	60.32	21,454.740	NA	43.43
2039	7,589.758	2,614.931	4,974.827	3,296.450	398.484	4,285.029	45.121	34,079.838	53,873.943	63.26	19,794.105	NA	43.43
2040	7,777.922	2,717.279	5,060.643	3,378.175	405.358	4,308.710	46.475	35,705.089	53,642.641	66.56	17,937.552	NA	43.43
2041	7,971.764	2,820.944	5,150.821	3,462.366	412.581	4,320.411	47.869	37,516.806	53,388.480	70.27	15,871.674	NA	43.43
2042	8,170.122	2,926.156	5,243.966	3,548.519	420.042	4,321.145	49.305	39,540.653	53,123.974	74.43	13,583.321	NA	43.43
2043	8,372.398	3,032.854	5,339.544	3,636.373	427.697	4,312.605	50.784	41,801.902	52,860.196	79.08	11,058.294	NA	43.43
2044	8,577.249	3,141.557	5,435.692	3,725.346	435.399	4,296.331	52.308	44,325.122	52,606.880	84.26	8,281.758	NA	43.43
2045	8,784.839	3,252.428	5,532.411	3,815.508	443.146	4,272.699	53.877	47,136.160	52,373.511	90.00	5,237.351	NA	43.43

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
2022	$ 4,714.667	$ 1,147.187	$ 3,567.480	$ 2,258.737	$ 289.071	$ 2,962.103	$ 22.584	$ 20,034.745	$ 49,869.932	40.17 %	$ 29,835.187	NA	47.91 %
2023	5,051.508	1,260.995	3,790.513	2,236.985	303.620	3,139.190	28.118	20,690.253	50,634.943	40.86	29,944.690	NA	44.28
2024	5,174.795	1,334.337	3,840.458	2,261.858	307.621	3,227.454	28.962	21,326.209	51,350.480	41.53	30,024.271	NA	43.71
2025	5,309.313	1,412.674	3,896.639	2,313.752	312.121	3,334.248	29.830	21,950.593	51,994.349	42.22	30,043.756	NA	43.58
2026	5,450.648	1,490.449	3,960.200	2,368.259	317.212	3,433.697	30.725	22,573.513	52,570.302	42.94	29,996.789	NA	43.45
2027	5,598.054	1,567.866	4,030.188	2,425.028	322.818	3,529.092	31.647	23,201.896	53,079.222	43.71	29,877.326	NA	43.32
2028	5,747.489	1,644.846	4,102.643	2,489.762	328.622	3,624.414	32.596	23,844.567	53,518.339	44.55	29,673.772	NA	43.32
2029	5,898.284	1,722.401	4,175.883	2,555.085	334.488	3,717.561	33.574	24,505.341	53,886.150	45.48	29,380.809	NA	43.32
2030	6,053.083	1,801.305	4,251.779	2,622.143	340.567	3,810.257	34.582	25,187.842	54,178.872	46.49	28,991.030	NA	43.32
2031	6,210.016	1,882.214	4,327.801	2,690.125	346.657	3,901.287	35.619	25,896.134	54,393.523	47.61	28,497.389	NA	43.32
2032	6,369.770	1,965.341	4,404.429	2,759.329	352.795	3,989.139	36.688	26,636.452	54,528.690	48.85	27,892.238	NA	43.32
2033	6,534.404	2,051.234	4,483.171	2,830.647	359.102	4,062.400	37.788	27,428.260	54,595.051	50.24	27,166.791	NA	43.32
2034	6,704.474	2,140.007	4,564.466	2,904.320	365.614	4,127.612	38.922	28,285.815	54,597.540	51.81	26,311.725	NA	43.32
2035	6,876.602	2,231.114	4,645.488	2,978.884	372.104	4,189.512	40.090	29,217.674	54,535.582	53.58	25,317.908	NA	43.32
2036	7,049.991	2,323.482	4,726.510	3,053.995	378.593	4,245.921	41.292	30,234.859	54,410.613	55.57	24,175.754	NA	43.32
2037	7,225.721	2,418.256	4,807.466	3,130.120	385.078	4,295.374	42.531	31,351.100	54,225.657	57.82	22,874.557	NA	43.32
2038	7,405.643	2,515.754	4,889.890	3,208.060	391.680	4,254.800	43.807	32,667.700	54,070.115	60.42	21,402.415	NA	43.32
2039	7,589.758	2,614.931	4,974.827	3,287.817	398.484	4,285.029	45.121	34,126.655	53,873.943	63.35	19,747.288	NA	43.32
2040	7,777.922	2,717.279	5,060.643	3,369.328	405.358	4,308.710	46.475	35,745.819	53,642.641	66.64	17,896.822	NA	43.32
2041	7,971.764	2,820.944	5,150.821	3,453.299	412.581	4,320.411	47.869	37,550.826	53,388.480	70.34	15,837.654	NA	43.32
2042	8,170.122	2,926.156	5,243.966	3,539.226	420.042	4,321.145	49.305	39,567.294	53,123.974	74.48	13,556.680	NA	43.32
2043	8,372.398	3,032.854	5,339.544	3,626.850	427.697	4,312.605	50.784	41,820.447	52,860.196	79.12	11,039.749	NA	43.32
2044	8,577.249	3,141.557	5,435.692	3,715.590	435.399	4,296.331	52.308	44,334.804	52,606.880	84.28	8,272.076	NA	43.32
2045	8,784.839	3,252.428	5,532.411	3,805.516	443.146	4,272.699	53.877	47,136.160	52,373.511	90.00	5,237.351	NA	43.32

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	Total Normal Cost [1]				Admin Expense				Normal Cost with Admin Expense			
		Tier 2				Tier 2				Tier 2		
Ending	Tier 1	Current	Future	Total	Tier 1	Current	Future	Total	Tier 1	Current	Future	Total
2023	$ 563.095	$ 176.325	$ 0.000	$ 739.420	$ 16.220	$ 11.898	$ 0.000	$ 28.118	$ 579.314	$ 188.223	$ 0.000	$ 767.538
2024	533.309	170.699	27.551	731.559	15.483	11.421	2.057	28.962	548.793	182.120	29.608	760.521
2025	504.338	165.702	53.798	723.838	14.743	10.962	4.125	29.830	519.082	176.664	57.923	753.669
2026	476.036	161.821	79.066	716.923	13.983	10.578	6.165	30.725	490.019	172.399	85.230	747.648
2027	448.781	159.085	103.218	711.084	13.234	10.302	8.110	31.647	462.015	169.388	111.329	742.732
2028	422.500	157.130	127.084	706.714	12.495	10.095	10.006	32.596	434.995	167.226	137.090	739.311
2029	396.534	155.668	150.905	703.107	11.759	9.925	11.891	33.574	408.293	165.593	162.796	736.682
2030	370.342	154.543	174.991	699.876	11.009	9.774	13.798	34.582	381.351	164.318	188.789	734.458
2031	343.951	153.681	199.185	696.817	10.257	9.646	15.716	35.619	354.208	163.327	214.901	732.436
2032	317.482	152.944	223.703	694.129	9.506	9.532	17.650	36.688	326.988	162.476	241.352	730.816
2033	291.634	152.377	248.193	692.204	8.771	9.427	19.590	37.788	300.405	161.804	267.783	729.992
2034	266.598	152.129	272.616	691.343	8.050	9.328	21.544	38.922	274.648	161.457	294.160	730.265
2035	241.702	152.139	296.798	690.639	7.340	9.240	23.510	40.090	249.041	161.379	320.308	730.728
2036	216.617	152.216	321.057	689.890	6.631	9.153	25.509	41.292	223.248	161.369	346.566	731.183
2037	191.406	152.235	345.448	689.089	5.925	9.058	27.548	42.531	197.330	161.293	372.996	731.619
2038	166.405	152.191	370.069	688.665	5.226	8.953	29.627	43.807	171.631	161.144	399.697	732.472
2039	142.403	152.142	394.776	689.321	4.554	8.840	31.727	45.121	146.956	160.982	426.502	734.440
2040	119.966	151.854	419.497	691.317	3.921	8.712	33.841	46.475	123.887	160.567	453.338	737.792
2041	99.982	151.200	444.254	695.436	3.348	8.563	35.959	47.869	103.329	159.763	480.213	743.305
2042	82.968	150.251	468.934	702.153	2.846	8.395	38.065	49.305	85.814	158.645	506.999	751.458
2043	68.503	148.953	493.522	710.978	2.408	8.210	40.166	50.784	70.911	157.163	533.688	761.762
2044	56.276	147.055	518.125	721.456	2.028	8.000	42.280	52.308	58.304	155.056	560.404	773.764
2045	45.924	144.349	542.835	733.108	1.698	7.758	44.421	53.877	47.622	152.108	587.256	786.986
2046	37.191	140.929	567.664	745.784	1.411	7.489	46.593	55.493	38.602	148.418	614.257	801.277

[1] *Normal Cost excludes expense portion.*

Values may not add due to rounding.

Exhibit 2

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
2023	$ 2,155.700	$ 1,581.320	$ 0.000	$ 3,737.020	26.87%	11.90%		20.54%	11.90%	18.86%	3.89%	12.53%
2024	2,022.962	1,492.227	268.771	3,783.960	27.13%	12.20%	11.02%	20.10%	12.02%	19.12%	4.01%	12.09%
2025	1,895.433	1,409.285	530.327	3,835.045	27.39%	12.54%	10.92%	19.65%	12.09%	19.38%	4.08%	11.64%
2026	1,771.973	1,340.457	781.216	3,893.646	27.65%	12.86%	10.91%	19.20%	12.14%	19.64%	4.13%	11.19%
2027	1,654.859	1,288.234	1,014.163	3,957.256	27.92%	13.15%	10.98%	18.77%	12.19%	19.91%	4.18%	10.76%
2028	1,543.022	1,246.673	1,235.727	4,025.422	28.19%	13.41%	11.09%	18.37%	12.26%	20.18%	4.25%	10.36%
2029	1,434.252	1,210.593	1,450.356	4,095.201	28.47%	13.68%	11.22%	17.99%	12.34%	20.46%	4.33%	9.98%
2030	1,327.146	1,178.326	1,663.455	4,168.927	28.73%	13.94%	11.35%	17.62%	12.43%	20.72%	4.42%	9.61%
2031	1,221.871	1,149.075	1,872.165	4,243.111	28.99%	14.21%	11.48%	17.26%	12.52%	20.98%	4.51%	9.25%
2032	1,118.863	1,121.922	2,077.363	4,318.148	29.23%	14.48%	11.62%	16.92%	12.62%	21.21%	4.61%	8.91%
2033	1,019.903	1,096.223	2,277.974	4,394.100	29.45%	14.76%	11.76%	16.61%	12.73%	21.44%	4.72%	8.60%
2034	925.371	1,072.231	2,476.467	4,474.069	29.68%	15.06%	11.88%	16.32%	12.84%	21.67%	4.83%	8.31%
2035	833.664	1,049.560	2,670.332	4,553.556	29.87%	15.38%	12.00%	16.05%	12.95%	21.86%	4.94%	8.04%
2036	743.980	1,026.984	2,862.212	4,633.176	30.01%	15.71%	12.11%	15.78%	13.06%	22.00%	5.05%	7.77%
2037	656.493	1,003.656	3,052.441	4,712.590	30.06%	16.07%	12.22%	15.52%	13.17%	22.05%	5.16%	7.51%
2038	571.914	979.738	3,242.065	4,793.717	30.01%	16.45%	12.33%	15.28%	13.28%	22.00%	5.27%	7.27%
2039	492.205	955.518	3,429.226	4,876.949	29.86%	16.85%	12.44%	15.06%	13.40%	21.85%	5.39%	7.05%
2040	418.644	930.162	3,612.983	4,961.789	29.59%	17.26%	12.55%	14.87%	13.51%	21.58%	5.50%	6.86%
2041	353.163	903.312	3,793.501	5,049.976	29.26%	17.69%	12.66%	14.72%	13.63%	21.25%	5.62%	6.71%
2042	296.795	875.482	3,969.765	5,142.042	28.91%	18.12%	12.77%	14.61%	13.74%	20.90%	5.73%	6.60%
2043	248.269	846.554	4,141.493	5,236.316	28.56%	18.57%	12.89%	14.55%	13.85%	20.55%	5.84%	6.54%
2044	206.713	815.475	4,309.606	5,331.794	28.21%	19.01%	13.00%	14.51%	13.96%	20.20%	5.95%	6.50%
2045	171.053	781.606	4,475.064	5,427.723	27.84%	19.46%	13.12%	14.50%	14.07%	19.83%	6.06%	6.49%
2046	140.502	745.548	4,638.329	5,524.379	27.47%	19.91%	13.24%	14.50%	14.17%	19.46%	6.16%	6.49%

[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.

Exhibit 2

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

Fiscal Year Ending	RSP Total Active Members	Number of Defined Benefit Plan Active				Defined Benefit Plan Payroll [1]				Member Contributions			
			Tier 2				Tier 2				Tier 2		
		Tier 1	Current	Future	Total	Tier 1	Current	Future	Total	Tier 1	Current	Future	Total
2022	13,026	29,812	30,469	0	60,281	$ 2,141.438	$ 1,426.042	$ 0.000	$ 3,567.480				$ 289.071
2023	14,265	26,708	26,823	5,511	59,042	2,043.592	1,487.104	259.818	3,790.514	$ 163.692	$ 119.117	$ 20.811	303.620
2024	15,421	23,905	23,581	10,400	57,886	1,917.903	1,408.818	513.737	3,840.458	153.625	112.846	41.150	307.621
2025	16,513	21,328	20,743	14,723	56,794	1,796.134	1,336.508	763.997	3,896.639	143.871	107.054	61.196	312.121
2026	17,265	19,149	18,828	18,065	56,042	1,679.087	1,281.398	999.715	3,960.200	134.494	102.640	80.077	317.211
2027	17,840	17,234	17,421	20,812	55,467	1,567.556	1,239.277	1,223.355	4,030.188	125.561	99.266	97.991	322.818
2028	18,347	15,494	16,221	23,245	54,960	1,460.544	1,203.321	1,438.778	4,102.643	116.990	96.386	115.246	328.622
2029	18,804	13,884	15,169	25,450	54,503	1,354.690	1,171.213	1,649.980	4,175.883	108.511	93.814	132.163	334.488
2030	19,214	12,395	14,243	27,455	54,093	1,250.823	1,142.353	1,858.603	4,251.779	100.192	91.502	148.874	340.568
2031	19,592	11,011	13,415	29,289	53,715	1,148.247	1,115.537	2,064.018	4,327.802	91.975	89.355	165.328	346.658
2032	19,945	9,744	12,663	30,955	53,362	1,048.723	1,090.369	2,265.337	4,404.429	84.002	87.339	181.453	352.794
2033	20,270	8,591	11,975	32,471	53,037	954.100	1,066.451	2,462.620	4,483.171	76.423	85.423	197.256	359.102
2034	20,572	7,535	11,353	33,847	52,735	863.180	1,044.384	2,656.902	4,564.466	69.141	83.655	212.818	365.614
2035	20,857	6,556	10,773	35,121	52,450	773.990	1,022.832	2,848.666	4,645.488	61.996	81.929	228.178	372.103
2036	21,120	5,651	10,228	36,308	52,187	686.981	1,000.806	3,038.722	4,726.509	55.027	80.165	243.402	378.594
2037	21,366	4,811	9,710	37,420	51,941	602.067	977.907	3,227.491	4,807.465	48.225	78.330	258.522	385.077
2038	21,595	4,046	9,216	38,450	51,712	520.778	954.629	3,414.483	4,889.890	41.714	76.466	273.500	391.680
2039	21,804	3,364	8,746	39,393	51,503	445.486	930.941	3,598.400	4,974.827	35.684	74.568	288.232	398.484
2040	21,999	2,763	8,287	40,258	51,308	376.274	905.218	3,779.150	5,060.642	30.139	72.508	302.710	405.357
2041	22,171	2,264	7,841	41,031	51,136	316.993	878.516	3,955.311	5,150.820	25.392	70.369	316.820	412.581
2042	22,321	1,846	7,412	41,728	50,986	265.638	850.700	4,127.627	5,243.965	21.277	68.141	330.623	420.041
2043	22,455	1,501	6,988	42,363	50,852	221.761	821.680	4,296.103	5,339.544	17.763	65.817	344.118	427.698
2044	22,577	1,213	6,564	42,953	50,730	184.068	789.533	4,462.091	5,435.692	14.743	63.242	357.413	435.398
2045	22,690	975	6,139	43,503	50,617	151.757	754.996	4,625.657	5,532.410	12.156	60.475	370.515	443.146

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.

Exhibit 2

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

Fiscal Year Ending	Present Value of Future Benefits						Benefit Payments					
	Current Retirees	Current Inactives	Tier 1 Actives	Tier 2 Actives		Total	Current Retirees	Current Inactives	Tier 1 Actives	Tier 2 Actives		Total
				Current	Future					Current	Future	
2022	$ 34,632.815	$ 3,177.067	$ 15,298.097	$ 3,104.910	$ 0.000	$ 56,212.889						$ 2,962.103
2023	33,900.853	3,296.739	16,175.484	3,254.044	278.462	56,905.582	$ 2,890.629	$ 84.145	$ 113.363	$ 51.053	$ 0.000	3,139.190
2024	33,107.249	3,409.184	17,052.836	3,409.739	579.069	57,558.077	2,904.256	98.687	168.660	54.087	1.764	3,227.454
2025	32,253.965	3,516.700	17,903.129	3,574.646	904.178	58,152.618	2,912.100	110.545	250.140	54.968	6.495	3,334.248
2026	31,343.599	3,617.713	18,726.314	3,752.306	1,251.456	58,691.388	2,913.671	123.618	329.963	52.997	13.448	3,433.697
2027	30,378.910	3,712.742	19,519.212	3,944.165	1,621.596	59,176.625	2,908.969	135.779	411.160	50.428	22.755	3,529.091
2028	29,362.697	3,797.222	20,276.274	4,152.700	2,014.960	59,603.853	2,898.135	151.986	495.826	46.353	32.114	3,624.414
2029	28,298.658	3,868.539	20,993.835	4,379.419	2,431.686	59,972.137	2,880.474	170.063	581.786	41.867	43.371	3,717.561
2030	27,190.805	3,925.889	21,664.800	4,622.548	2,872.054	60,276.096	2,855.910	188.089	672.134	40.246	53.878	3,810.257
2031	26,043.650	3,967.349	22,283.571	4,882.402	3,336.221	60,513.193	2,824.215	207.098	764.971	39.353	65.650	3,901.287
2032	24,862.183	3,993.698	22,844.502	5,156.381	3,823.775	60,680.539	2,785.210	224.352	859.992	42.032	77.553	3,989.139
2033	23,652.032	4,004.922	23,346.969	5,439.927	4,345.697	60,789.547	2,738.590	240.667	951.973	50.019	81.150	4,062.399
2034	22,419.234	3,998.988	23,789.346	5,733.014	4,902.367	60,842.949	2,684.313	258.001	1,041.849	58.633	84.816	4,127.612
2035	21,170.142	3,975.412	24,164.762	6,035.568	5,496.560	60,842.444	2,622.454	274.722	1,134.598	67.919	89.820	4,189.513
2036	19,911.427	3,932.964	24,468.596	6,347.352	6,129.083	60,789.422	2,553.105	291.525	1,227.607	78.032	95.653	4,245.922
2037	18,650.036	3,870.472	24,697.693	6,667.769	6,801.941	60,687.911	2,476.417	308.274	1,319.163	89.304	102.216	4,295.374
2038	17,393.282	3,874.269	24,846.710	6,996.145	7,516.042	60,626.448	2,392.477	240.102	1,411.191	101.773	109.257	4,254.800
2039	16,148.378	3,866.443	24,915.145	7,331.890	8,271.595	60,533.451	2,301.835	251.606	1,498.662	115.315	117.611	4,285.029
2040	14,922.519	3,846.127	24,900.926	7,673.951	9,070.147	60,413.670	2,204.969	263.215	1,583.064	130.342	127.120	4,308.710
2041	13,722.769	3,813.805	24,807.092	8,020.797	9,911.600	60,276.063	2,102.459	273.569	1,659.315	147.250	137.817	4,320.410
2042	12,555.906	3,770.313	24,636.178	8,370.780	10,797.802	60,130.979	1,995.027	282.357	1,728.095	166.057	149.610	4,321.146
2043	11,428.249	3,716.004	24,391.146	8,722.131	11,730.560	59,988.090	1,883.540	290.100	1,789.152	186.775	163.038	4,312.605
2044	10,345.646	3,651.022	24,075.160	9,072.446	12,711.847	59,856.121	1,768.857	297.021	1,842.472	209.909	178.071	4,296.330
2045	9,313.289	3,576.079	23,692.794	9,418.195	13,743.380	59,743.737	1,651.979	302.580	1,886.893	236.398	194.849	4,272.699

Values may not add due to rounding.

Exhibit 2

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
2022	$ 34,632.815	$ 3,177.067	$ 11,103.824	$ 956.226	$ 0.000	$ 49,869.932	2023	$ 415.622	$ 48.295	$ 463.917
2023	33,900.853	3,296.739	12,289.691	1,147.660	0.000	50,634.943	2024	395.168	57.732	452.900
2024	33,107.249	3,409.184	13,464.835	1,342.601	26.612	51,350.481	2025	375.211	66.337	441.548
2025	32,253.965	3,516.700	14,602.380	1,544.146	77.158	51,994.349	2026	355.525	74.912	430.437
2026	31,343.599	3,617.713	15,702.280	1,756.821	149.889	52,570.302	2027	336.454	83.460	419.914
2027	30,378.910	3,712.742	16,761.753	1,983.148	242.669	53,079.222	2028	318.005	92.684	410.689
2028	29,362.697	3,797.222	17,775.595	2,226.374	356.451	53,518.339	2029	299.782	102.412	402.194
2029	28,298.658	3,868.539	18,739.830	2,488.529	490.594	53,886.150	2030	281.159	112.731	393.890
2030	27,190.805	3,925.889	19,646.472	2,768.237	647.469	54,178.872	2031	262.233	123.545	385.778
2031	26,043.650	3,967.349	20,489.005	3,066.157	827.361	54,393.522	2032	242.986	135.036	378.022
2032	24,862.183	3,993.698	21,260.926	3,379.917	1,031.965	54,528.689	2033	223.982	146.908	370.890
2033	23,652.032	4,004.922	21,961.426	3,705.243	1,271.429	54,595.052	2034	205.507	159.144	364.651
2034	22,419.234	3,998.988	22,588.868	4,042.571	1,547.879	54,597.540	2035	187.045	171.580	358.625
2035	21,170.142	3,975.412	23,135.687	4,392.252	1,862.090	54,535.583	2036	168.221	184.368	352.589
2036	19,911.427	3,932.964	23,596.175	4,754.306	2,215.740	54,410.612	2037	149.105	197.437	346.542
2037	18,650.036	3,870.472	23,966.094	5,128.279	2,610.776	54,225.657	2038	129.917	210.875	340.792
2038	17,393.282	3,874.269	24,239.285	5,513.647	3,049.632	54,070.115	2039	111.272	224.684	335.956
2039	16,148.378	3,866.443	24,415.195	5,910.038	3,533.889	53,873.943	2040	93.748	238.687	332.435
2040	14,922.519	3,846.127	24,492.282	6,316.391	4,065.321	53,642.640	2041	77.937	252.787	330.724
2041	13,722.769	3,813.805	24,475.068	6,731.032	4,645.806	53,388.480	2042	64.537	266.880	331.417
2042	12,555.906	3,770.313	24,368.195	7,152.238	5,277.323	53,123.975	2043	53.148	280.916	334.064
2043	11,428.249	3,716.004	24,176.437	7,578.101	5,961.405	52,860.196	2044	43.561	294.805	338.366
2044	10,345.646	3,651.022	23,904.572	8,005.813	6,699.827	52,606.880	2045	35.466	308.374	343.840
2045	9,313.289	3,576.079	23,558.512	8,431.198	7,494.433	52,373.511	2046	28.664	321.636	350.300

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
2022	$ 2,141.438	$ 1,426.042	$ 0.000	$ 3,567.480	$ 54.291	$ 0.000	$ 54.291
2023	2,043.592	1,487.104	259.818	3,790.514	62.667	0.000	62.667
2024	1,917.903	1,408.818	513.737	3,840.458	59.249	0.000	59.249
2025	1,796.134	1,336.508	763.997	3,896.639	57.585	0.000	57.585
2026	1,679.087	1,281.398	999.715	3,960.200	55.670	0.000	55.670
2027	1,567.556	1,239.277	1,223.355	4,030.188	54.264	0.000	54.264
2028	1,460.544	1,203.321	1,438.778	4,102.643	52.826	0.000	52.826
2029	1,354.690	1,171.213	1,649.980	4,175.883	51.133	0.000	51.133
2030	1,250.823	1,142.353	1,858.603	4,251.779	49.302	0.000	49.302
2031	1,148.247	1,115.537	2,064.018	4,327.802	47.072	0.000	47.072
2032	1,048.723	1,090.369	2,265.337	4,404.429	45.003	0.000	45.003
2033	954.100	1,066.451	2,462.620	4,483.171	42.910	0.000	42.910
2034	863.180	1,044.384	2,656.902	4,564.466	40.753	0.000	40.753
2035	773.990	1,022.832	2,848.666	4,645.488	38.352	0.000	38.352
2036	686.981	1,000.806	3,038.722	4,726.509	35.789	0.000	35.789
2037	602.067	977.907	3,227.491	4,807.465	33.070	0.000	33.070
2038	520.778	954.629	3,414.483	4,889.890	30.297	0.000	30.297
2039	445.486	930.941	3,598.400	4,974.827	27.584	0.000	27.584
2040	376.274	905.218	3,779.150	5,060.642	24.733	0.000	24.733
2041	316.993	878.516	3,955.311	5,150.820	22.087	0.000	22.087
2042	265.638	850.700	4,127.627	5,243.965	19.477	0.000	19.477
2043	221.761	821.680	4,296.103	5,339.544	17.135	0.000	17.135
2044	184.068	789.533	4,462.091	5,435.692	14.973	0.000	14.973
2045	151.757	754.996	4,625.657	5,532.410	12.930	0.000	12.930

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 $190,700 in 2023 and is projected to increase annually by 1.125 percent.*

Values may not add due to rounding.

Exhibit 2

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
2024	18.86%	12.53%			$ 4.993	$ 0.000	$ 0.000	$ 4.993
2025	19.12%	12.09%	$ 5.303	$ 0.000	5.303	5.303	0.000	5.303
2026	19.38%	11.64%	4.829	0.000	4.829	4.829	0.000	4.829
2027	19.64%	11.19%	4.511	0.000	4.511	4.511	0.000	4.511
2028	19.91%	10.76%	4.193	0.000	4.193	4.193	0.000	4.193
2029	20.18%	10.36%	3.934	0.000	3.934	3.934	0.000	3.934
2030	20.46%	9.98%	3.690	0.000	3.690	3.690	0.000	3.690
2031	20.72%	9.61%	3.439	0.000	3.439	3.439	0.000	3.439
2032	20.98%	9.25%	3.193	0.000	3.193	3.193	0.000	3.193
2033	21.21%	8.91%	2.937	0.000	2.937	2.937	0.000	2.937
2034	21.44%	8.60%	2.710	0.000	2.710	2.710	0.000	2.710
2035	21.67%	8.31%	2.497	0.000	2.497	2.497	0.000	2.497
2036	21.86%	8.04%	2.293	0.000	2.293	2.293	0.000	2.293
2037	22.00%	7.77%	2.086	0.000	2.086	2.086	0.000	2.086
2038	22.05%	7.51%	1.883	0.000	1.883	1.883	0.000	1.883
2039	22.00%	7.27%	1.683	0.000	1.683	1.683	0.000	1.683
2040	21.85%	7.05%	1.495	0.000	1.495	1.495	0.000	1.495
2041	21.58%	6.86%	1.324	0.000	1.324	1.324	0.000	1.324
2042	21.25%	6.71%	1.162	0.000	1.162	1.162	0.000	1.162
2043	20.90%	6.60%	1.021	0.000	1.021	1.021	0.000	1.021
2044	20.55%	6.54%	0.891	0.000	0.891	0.891	0.000	0.891
2045	20.20%	6.50%	0.780	0.000	0.780	0.780	0.000	0.780
2046	19.83%	6.49%	0.680	0.000	0.680	0.680	0.000	0.680
2047	19.46%	6.49%	0.588	0.000	0.588	0.588	0.000	0.588

1 *FY 2024 amount based on excess pay amount as provided by SURS and the total employer normal cost rate. Amounts in FY 2025 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
2008	$ 14,586,325	$ 24,917,678	$10,331,353	58.54 %	$3,303,220	312.77 %
2009	11,032,973	26,316,231	15,283,258	41.92	3,463,922	441.21
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

AAL – Actuarial Accrued Liability.

UAAL – Unfunded Actuarial Accrued Liability.

* *Defined benefit payroll as of June 30, 2022 is based on the employee contributions in the financial statements for fiscal year 2022 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.*

** *Assets at Actuarial Value (Market Value through first 2009, then Actuarial Value).*

*** *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.*

Exhibit 2

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
2013	$ 1,549,287	$ 1,401,481	$ 147,806	$ 3,533,858	39.66 %
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

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 is based on the employee contributions in the financial statements for fiscal year 2022 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.

Exhibit 2

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

Actuarial Methods and Assumptions

Employer Contributions

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

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

Employer Contributions

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

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

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

Statutory Contributions Related to the Optional Hybrid Plan

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

Phase In of the Financial Impact of Assumption Changes

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

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

Actuarial Methods and Assumptions

Valuation Year Ending 6/30	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.)

	Governor's Pay		Pay for Preceding Fiscal Year for Affected Members ($ in Millions)					
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.*

Actuarial Methods and Assumptions

Asset Valuation Method

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

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

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

Actuarial Methods and Assumptions

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

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

Actuarial Methods and Assumptions

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

Mortality. The mortality assumptions are as follows:

Members classified as an employee type of academic:

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

Members classified as an employee type of non-academic:

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

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

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

	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

Actuarial Methods and Assumptions

Disability. A table of disability incidence with rates follows:

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

Disability rates apply during the retirement eligibility period.

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

Actuarial Methods and Assumptions

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.

Actuarial Methods and Assumptions

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).

Actuarial Methods and Assumptions

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

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

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

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

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

Actuarial Methods and Assumptions

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

Actuarial Methods and Assumptions

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

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

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

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

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

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

New entrants have an average age of 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

Actuarial Methods and Assumptions

Non-Academic

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

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								
	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 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

Actuarial Methods and Assumptions

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

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

APPENDIX H

SUMMARY OF BENEFIT PROVISIONS OF SURS

Summary of Benefit Provisions of SURS

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

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

Summary of Benefit Provisions of SURS

Plans

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

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

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

The pay cap history is as follows:

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

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

The actuarial valuation reflects a projected pay cap of $123,489.18 for fiscal year 2024 (the maximum increase in the pay cap) based on actual increases in inflation.

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

Summary of Benefit Provisions of SURS

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

Member Contributions

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

The total contribution is broken down as follows:

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

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

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

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

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

Effective Rate of Interest

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

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

Summary of Benefit Provisions of SURS

Retirement Benefits

Final Average Salary

Final average salary is equal to:

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

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

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

Normal Retirement

Eligibility

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

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

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

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

Initial Benefit Amount

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

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

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

Summary of Benefit Provisions of SURS

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

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

2. Money Purchase Formula (Applicable to Tier 1 only, hired before July 1, 2005):

   a) The member contributions for retirement benefits (8.0% of compensation for police officers and firefighters and 6.5% of compensation for all others) accumulated with interest at the ERI, plus

   b) An imputed employer contribution match at $1.40 per dollar of member contribution accumulated with interest at the ERI.

   c) The total of the accumulations in (a) and (b) is converted into an annuity using a life annuity factor that takes into account neither the automatic 50% spousal survivor benefit nor the automatic annual increases.

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

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

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

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

Maximum Benefit

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

Summary of Benefit Provisions of SURS

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

Benefit Duration

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

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

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

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

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

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

Annual Increases

For Tier 1 members who have not elected the Automatic Annual Increase (AAI) buyout, each January 1 subsequent to retirement date, the monthly benefit being paid each retiree shall be increased by 3% (compound COLA). The adjustment for the first January after retirement shall be proportional based on the portion of the year retired. See Accelerated Pension Benefit Options on pages 85 and 86 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")

Summary of Benefit Provisions of SURS

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%

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.*

The actuarial valuation reflects a projected calendar year 2023 annual increase of 3% (the maximum increase in the pay cap) based on actual increases in inflation.

Early Retirement

Eligibility

For Tier 1 members other than police and fire employees, separation from service on or after attainment of age 55 with 8 years of service, but not eligible for Normal Retirement.
For Tier 2 members, separation from service on or after attainment of age 62 with 10 years of service, but not eligible for Normal Retirement.

Benefits

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

Summary of Benefit Provisions of SURS

Benefits on Death before Retirement

Survivor Benefits

Traditional Plan

Eligibility

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

Benefits

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

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

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

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

Benefit Duration

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

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

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.

Summary of Benefit Provisions of SURS

Traditional Plan

Benefits

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

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

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

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

Benefit Duration

Surviving spouse

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

Dependent child

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

Dependent parent

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

Summary of Benefit Provisions of SURS

Portable Plan

Benefits

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

Benefit Duration

Surviving spouse

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

Annual Increases

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

Benefits for Disability

Disability Benefit

Eligibility

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

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

Pregnancy and childbirth are, by definition, disablement.

Benefit

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

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

Summary of Benefit Provisions of SURS

Duration of Benefit

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

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

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

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

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.

Summary of Benefit Provisions of SURS

Duration of Benefit

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

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

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

Annual Increases

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

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

Benefits for Deferred Members

Eligibility

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

Benefit

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

Commencement of Benefit

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

Annual Increases

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

Summary of Benefit Provisions of SURS

Pension Benefit Options on pages 85 and 86 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.

Glossary of Terms

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

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

APPENDIX J

STRESS TESTING SCENARIOS

P: 312.456.9800 | www.grsconsulting.com

November 18, 2022

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, 2022

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, 2022 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.

GRS performed stress testing scenarios focusing on variations in future rates of inflation and issued a letter earlier this year on May 6, 2022. Therefore, 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.

<u>Description of Stress Testing Scenarios</u>

<u>Volatile Investment Return Scenarios</u>
GRS recommended and performed four alternative investment return stress testing scenarios. Graphs of the total statutory contributions under each of these four scenarios can be found in Exhibits I(A) and I(B), a summary of the total statutory contributions can be found in Exhibits III(A) and III(B) 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 2023 through 2045:

1. Scenarios 1 – 2: Volatile returns in each year from 2023 through 2045, with a 23-year geometric average of 6.50 percent
   - 6.50 percent is the investment return assumption used in the actuarial valuation as of June 30, 2022
2. Scenario 3: Volatile returns in each year from 2023 through 2045, with a 23-year geometric average of 5.65 percent
   - 5.65 percent is approximately the 50th percentile return based on the SURS target asset allocation and capital market assumptions from 12 investment consultants as presented in our June 2022 SURS Experience Review
3. Scenario 4: Volatile returns in each year from 2023 through 2045, with a 23-year geometric average of 4.70 percent
   - 4.70 percent is approximately the 40th percentile return based on the SURS target asset allocation and capital market assumptions from 12 investment consultants as presented in our June 2022 SURS Experience Review

We have also included a baseline scenario (the basis for the June 30, 2022 actuarial valuation results) which assumes a static return of 6.50 percent each year from 2023 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 and approximately the 50th and 40th percentile returns (60 percent probability that the average return will be higher than the 40th percentile return and 50 percent probability that the average return will be higher than the 50th percentile return). 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 investment return scenario, the discount rate used to determine liabilities remains at 6.50 percent, average future uncapped salary growth or wage inflation remains at 3.00 percent per year and the future active population remains constant at 70,043 active members (the number of combined total full-time active members as of June 30, 2022, in the SURS defined benefit plan and the Retirement Savings Plan "RSP"). The assumed election percentages for future new hires are 25 percent to the RSP and 75 percent to Tier 2 for Non-Academic members and 45 percent to the RSP and 55 percent to Tier 2 for Academic members for all investment return scenarios, which is the same as the baseline from the actuarial valuation as of June 30, 2022.

Number of Active Members Scenario

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

4. Scenario 5: one percent decrease in the number of full-time active members for 5 years (70,043 full-time active members in 2022 to 66,610 full-time active members in 2027)
5. Scenario 6: five percent decrease in the number of full-time active members for one year (70,043 full-time active members in 2022 to 66,541 full-time active members in 2023)

Future New Hire Plan Election Scenarios
Furthermore, GRS 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 percent in each future year and the following future new hire plan election changes:

6. Scenario 7: The assumed election percentages for future new hires are 15 percent lower than the valuation assumption (10 percent of Non-Academic members and 30 percent of Academic members elect RSP)
7. Scenario 8: The assumed election percentages for future new hires are 15 percent higher than the valuation assumption (40 percent of Non-Academic members and 60 percent of Academic members elect RSP)

The following exhibits and graphs are included in this letter:

Exhibit	Scenario	Average of Volatile Returns	% of Non-Academic /Academic New Hires to RSP	Ultimate Number of Full-Time Actives	Scenario Description
I(A)	1-2	6.50%	25%/45%	70,043	Graphs of the Projected Total Statutory Contributions and Funded Ratio
I(B)	3-4	5.65%, 4.70%	25%/45%	70,043	
I(C)	5-8	6.50% Static	Varies by Scenario	70,043 (66,610 Scenario 5, 66,541 Scenario 6)	Graphs of the Projected Total Statutory Contributions and Funded Ratio under the Number of Active Member Sensitivity and Future New Hire Plan Election Scenarios
II	1-4	5.65%, 4.70%, 6.50%	25%/45%	70,043	Graph of the Projected Annual Rates of Return used in the Volatile Investment Return Stress Testing Scenarios
III(A)	1-8	5.65%, 4.70%, 6.50%	Varies by Scenario	70,043 (66,610 Scenario 5, 66,541 Scenario 6)	Comparison of Total Contributions, Unfunded Liability and Funded Ratio
III(B)	1-8	5.65%, 4.70%, 6.50%	Varies by Scenario	70,043 (66,610 Scenario 5, 66,541 Scenario 6)	Comparison of Number of Full Time Active Members Used in the Stress Testing Scenarios and Total Statutory Contributions
IV(A)	1	6.50%	25%/45%	70,043	Comparison of Actuarial Valuation Results and Volatile Investment Return Stress Testing Scenario
IV(B)	2	6.50%	25%/45%	70,043	
V(A)	3	5.65%	25%/45%	70,043	
V(B)	4	4.80%	25%/45%	70,043	
VI(A)	5	6.50% Static	25%/45%	66,610	Comparison of Actuarial Valuation Results and Number of Active Member Sensitivity Scenario
VI(B)	6	6.50% Static	25%/45%	66,541	
VII(A)	7	6.50% Static	10%/30%	70,043	Comparison of Actuarial Valuation Results and Future New Hire Plan Election Scenario
VII(B)	8	6.50% Static	40%/60%	70,043	
VIII	1-4	5.65%, 4.70%, 6.50%	25%/45%	70,043	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 23-year geometric average of actual returns may be either higher or lower than the assumption of 6.50 percent. 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 percent 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, 2022 in which all future actuarial assumptions are assumed to be realized, the statutory contribution gradually increases by a steady rate (once the deferred asset gains and losses are fully recognized in the actuarial value of assets and the phase-in of assumption changes). There is also an increase in the funded ratio from 45.2 percent on an actuarial value of assets basis as of June 30, 2022 to 90 percent 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 percent to 90 percent 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 2023 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 percent.

	Contributions* FY 2023-2045 ($ 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)	$ 66,245.697	$ 32,574.025	90.00%	$ 5,939.285	$ 1,310.218	$33,884.243
Scenario 1 (6.50% Volatile)	66,810.220	33,024.134	91.10%	5,323.712	1,174.421	34,198.555
Scenario 2 (6.50% Volatile)	71,116.819	35,043.471	96.76%	2,167.987	478.262	35,521.733
Scenario 3 (5.65% Volatile)	71,394.477	33,875.163	84.06%	9,251.240	2,040.842	35,916.005
Scenario 4 (4.70% Volatile)	78,586.223	37,396.506	79.73%	11,668.004	2,573.985	39,970.491
Scenario 5 (Decrease Actives 1% per year for 5 yrs)	65,833.751	32,466.249	90.00%	5,175.913	1,141.817	33,608.066
Scenario 6 (Decrease Actives 5% in first year)	65,950.844	32,445.210	90.00%	5,165.267	1,139.468	33,584.678
Scenario 7 (-15% of New Hires Elect RSP)	65,070.450	32,198.285	90.00%	5,458.948	1,204.255	33,402.540
Scenario 8 (+15% of New Hires Elect RSP)	67,419.579	32,949.764	90.00%	4,974.445	1,097.372	34,047.136

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

Because of the volatility and deviation of the returns from the actuarial assumption of 6.50 percent 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 percent in 2045. In Scenarios 3 and 4 the market value funded ratio is less than 90 percent in 2045 and in Scenarios 1 and 2 the market value funded ratio is greater than 90 percent. 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.

Based on the scenarios that are summarized above, the total statutory contributions and 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 percent over the years 2023 through 2045 (Baseline and Scenarios 1-2), the amount of total statutory contributions varies up to $4.9 billion between the scenarios and the sum of the present value of contributions and the present value of the market value UAAL at 2045 varies up to $1.6 billion between the scenarios. In the scenarios in which the average geometric return is 5.65 percent and 4.70 percent over the years 2023 through 2045 (Scenarios 3-4), the amount of total statutory contributions varies up to $7.2 billion between the scenarios and the sum of the present value of contributions and the present value of the market value UAAL at 2045 varies up to $4.1 billion between the two scenarios. Although the average geometric return is 6.50 percent under Scenario 2 and 5.65 percent under Scenario 3, the sum of the present value of contributions and the present value of the market value UAAL at 2045 varies only by $0.4 billion between the scenarios due to the patterns of the investment returns.

In each scenario, we have assumed that the State and the employers will make the statutory contribution when due. However, some scenarios 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.
Due to the volatility of the investment returns, the minimum market value funded ratio during the projection period is less than 30 percent in Scenario 2 and less than 40 percent in Scenario 4. 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, 2022 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.

GRS

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, 2022 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, 2022 including the 6.50 percent discount rate used to determine liabilities in all stress testing scenarios and the assumed election percentages for future new hires of 25 percent of Non-Academic and 45 percent of Academic members elect the RSP and 75 percent of Non-Academic and 55 percent of Academic members elect Tier 2 for scenarios 1 through 6. The future new hire election scenarios use a static return assumption of 6.50 percent 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 percent 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 percent from the valuation date to 2045. 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. In addition, GRS performed stress testing focusing on variations in inflation and issued a letter dated May 6, 2022. 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.

This report reflects the impact of COVID-19 through June 30, 2022. However, this report does not reflect the longer term and still developing future impact of COVID-19, which is likely to further influence demographic experience and economic expectations. We will continue to monitor these developments and their impact on the System and the actuarial assumptions. Actual experience will be reflected in each subsequent annual valuation, as experience emerges.

The signing actuaries are independent of the plan sponsor.

Amy Williams and Brian B. Murphy 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

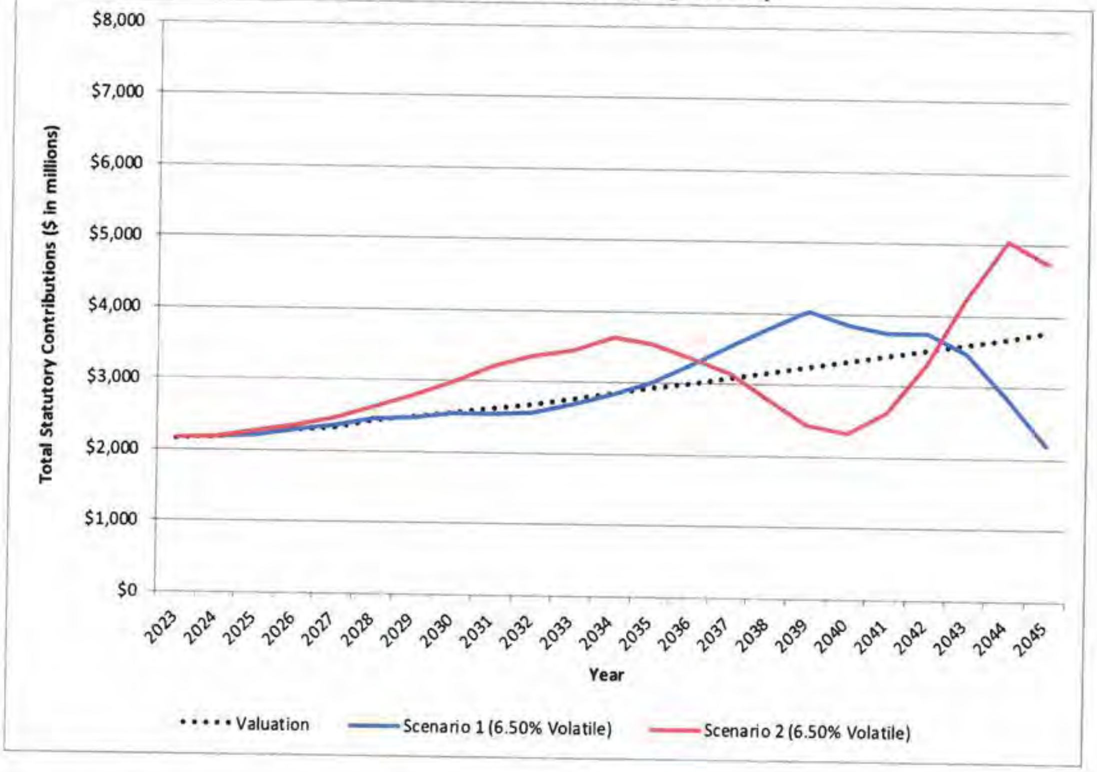
Brian B. Murphy, FSA, EA, FCA, MAAA, PhD
Senior Consultant

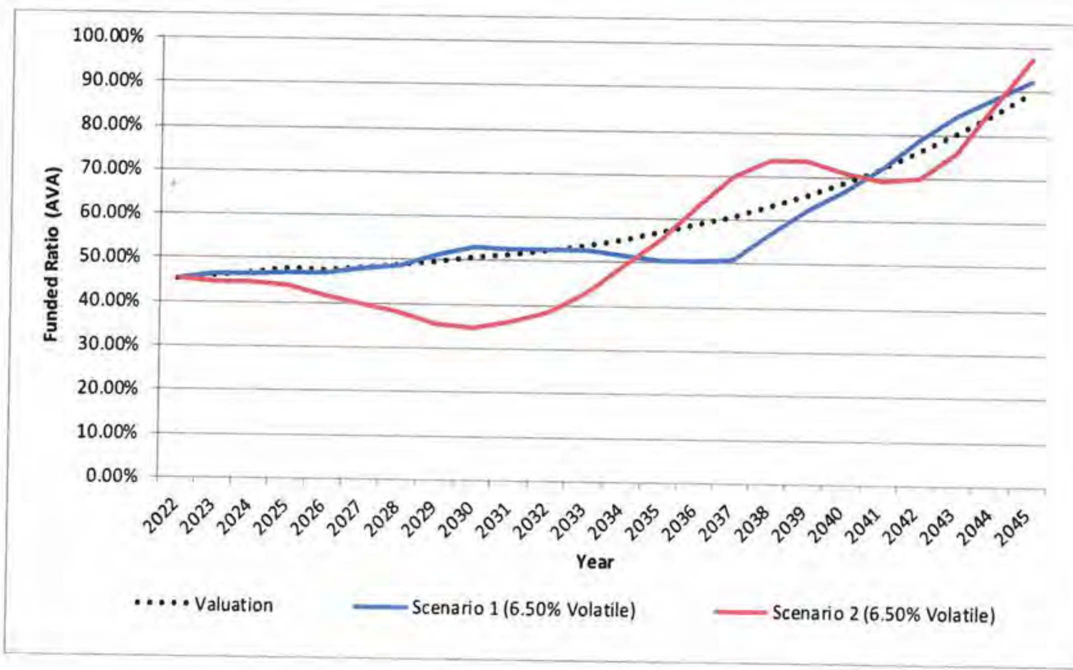
AW/BBM:dj

cc: Kristen Brundirks, Gabriel, Roeder, Smith & Company
Kevin Noelke, Gabriel, Roeder, Smith & Company

EXHIBIT I(A)

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%)

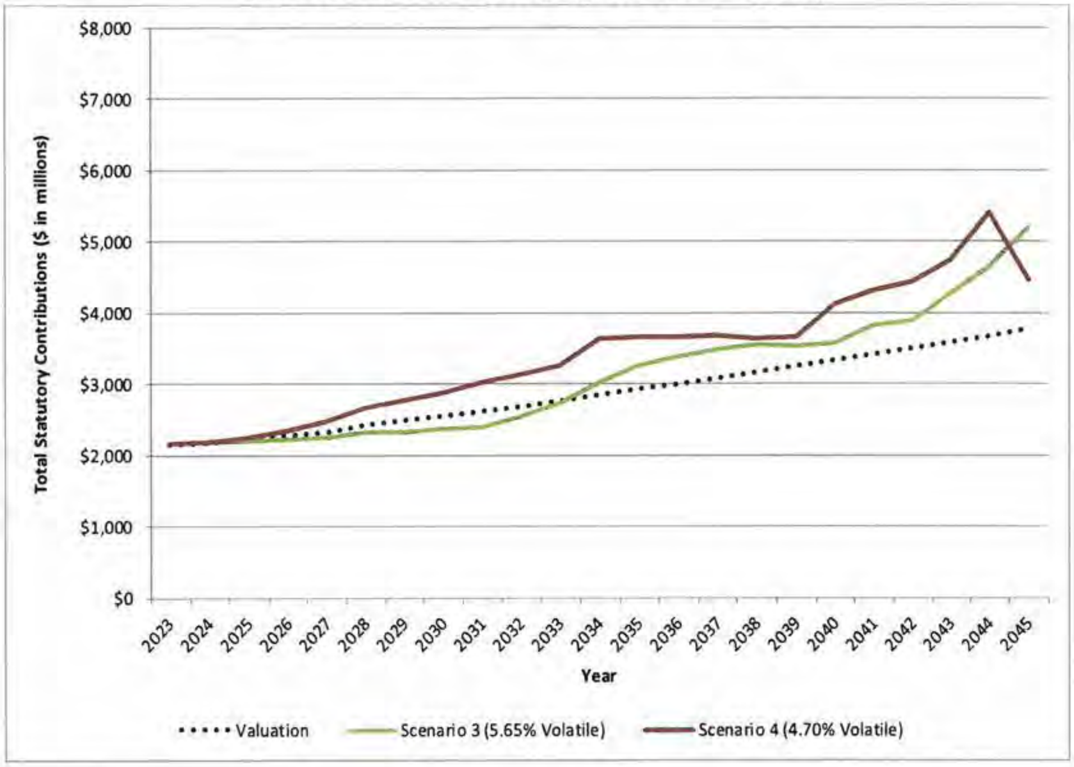


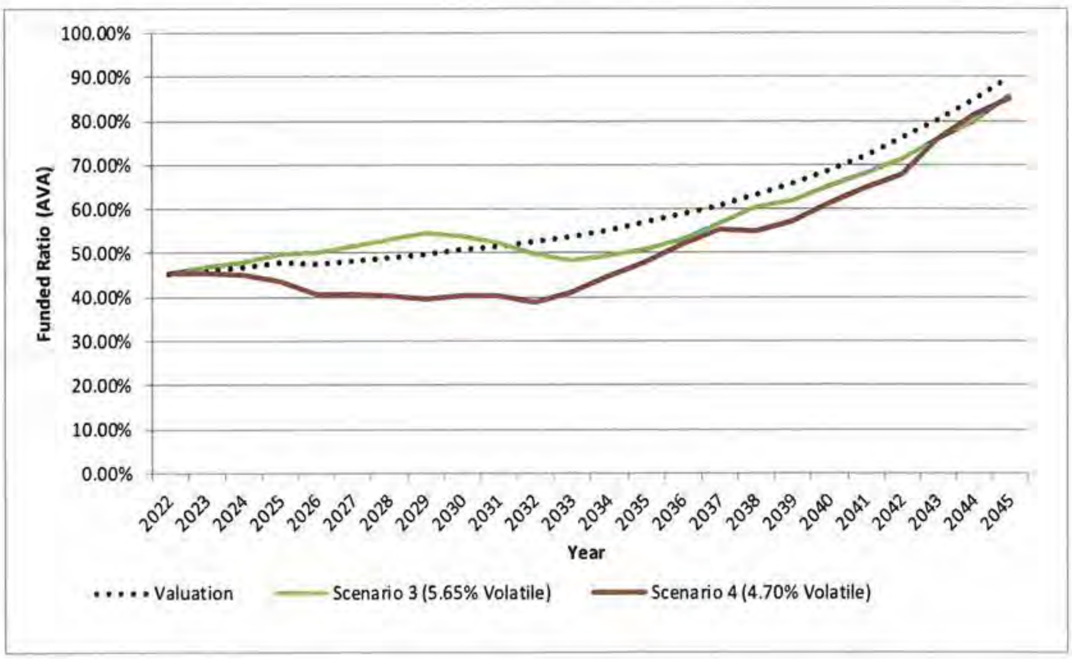


Total statutory contributions include contributions from both the State and employers and include total RSP contributions. Total statutory contributions exclude EBA and DCP administrative expense contributions.

EXHIBIT I(B)

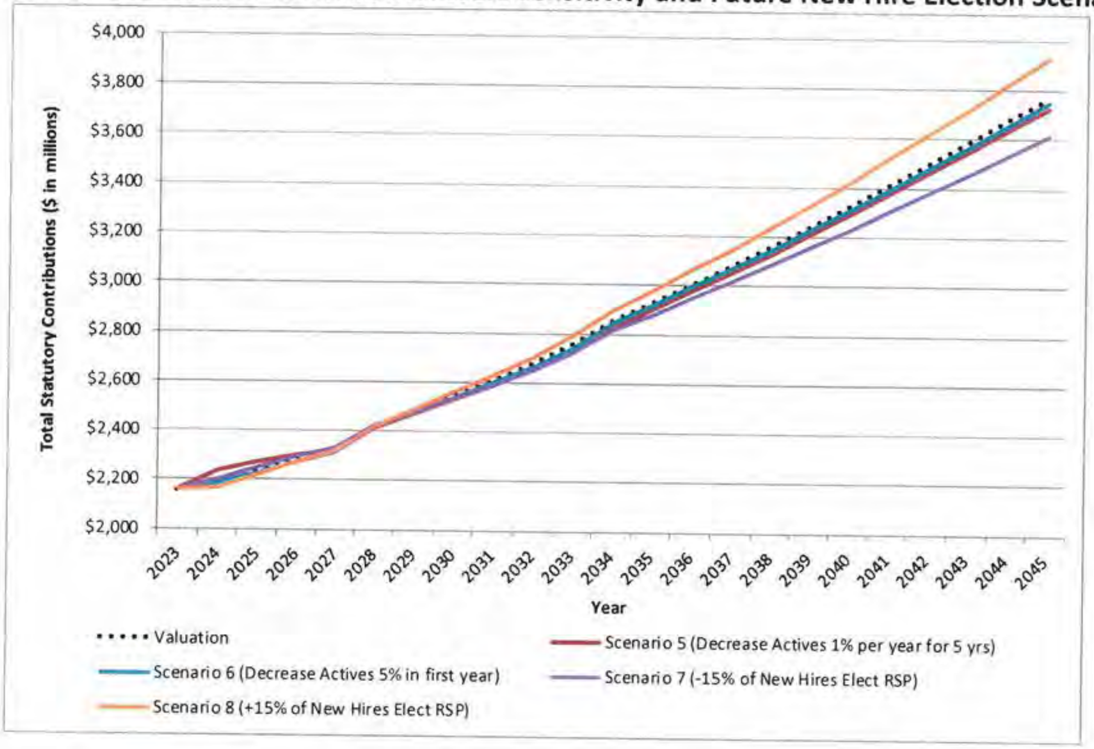
State Universities Retirement System
Comparison of Total Statutory Contributions and Funded Ratio Assuming an Annual Return of 6.50% (Valuation Assumption) and Rates under the Volatile Investment Return Stress Testing Scenarios (Volatile Returns Averaging 5.65% and 4.70%)

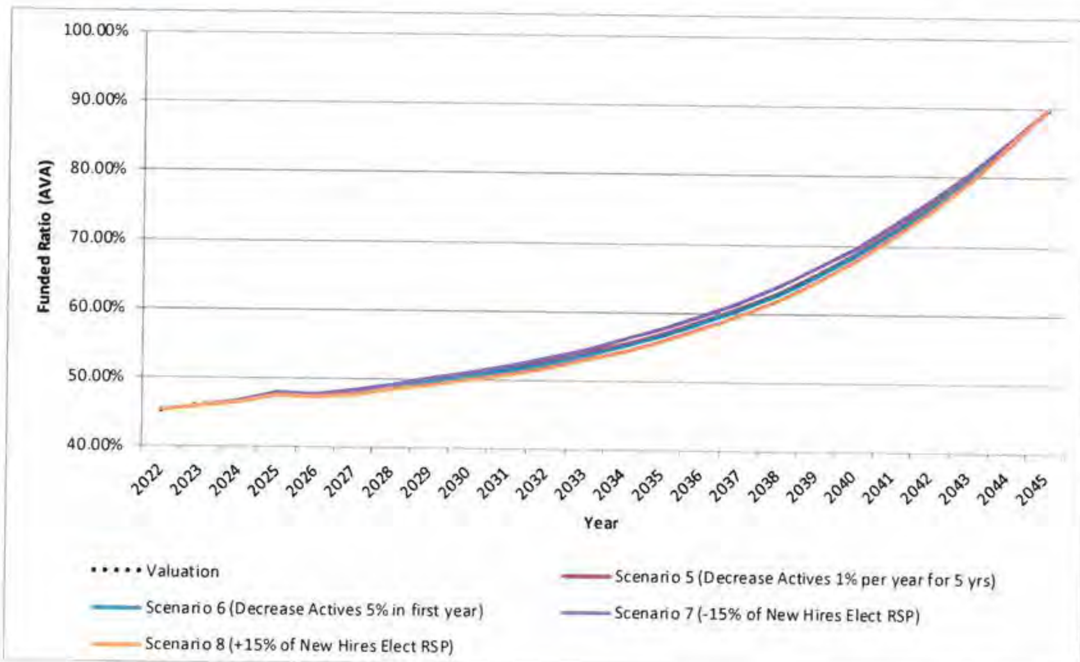




Total statutory contributions include contributions from both the State and employers and include total RSP contributions. Total statutory contributions exclude EBA and DCP administrative expense contributions.

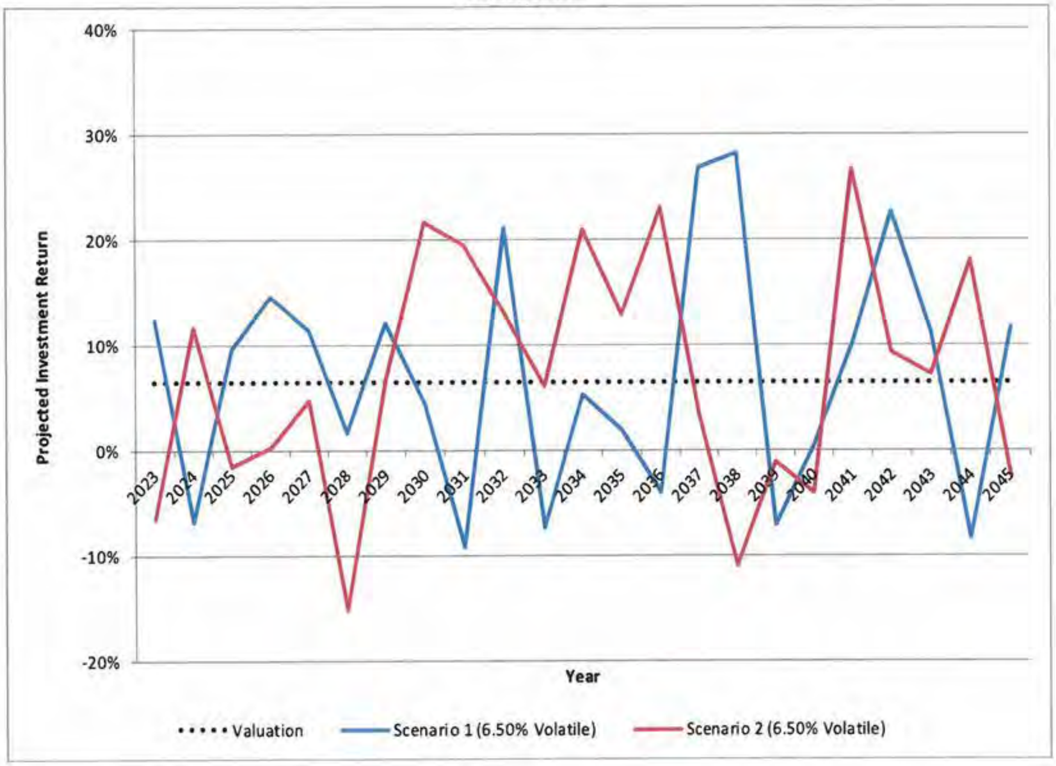
State Universities Retirement System
Comparison of Total Statutory Contributions and Funded Ratio
Assuming an Annual Return of 6.50% (Valuation Assumption) and
Rates under the Number of Active Members Sensitivity and Future New Hire Election Scenarios

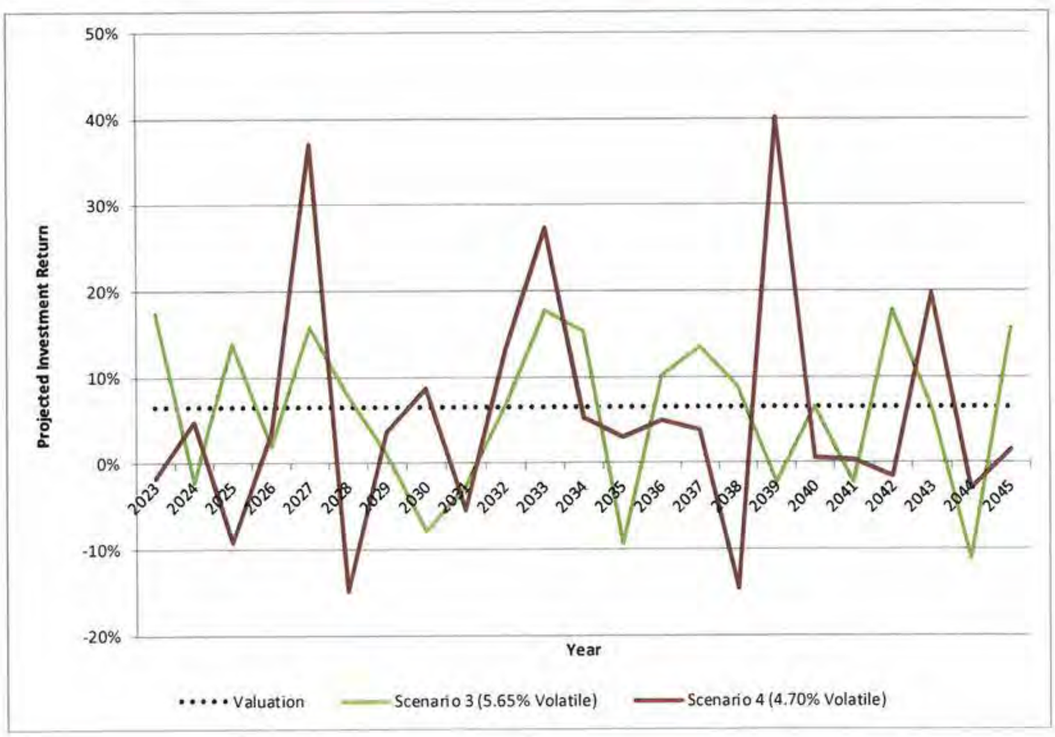




Total statutory contributions include contributions from both the State and employers and include total RSP contributions. Total statutory contributions exclude EBA and DCP administrative expense contributions.

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





State Universities Retirement System
Comparison of Total Contributions, Unfunded Liability and Funded Ratio
Based on Actuarial Valuation as of June 30, 2022

	Contributions* FY 2023-2045 ($ 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)	$ 66,245.697	$ 32,574.025	90.00%	$ 5,939.285	$ 1,310.218	$33,884.243
Scenario 1 (6.50% Volatile)	66,810.220	33,024.134	91.10%	5,323.712	1,174.421	34,198.555
Scenario 2 (6.50% Volatile)	71,116.819	35,043.471	96.76%	2,167.987	478.262	35,521.733
Scenario 3 (5.65% Volatile)	71,394.477	33,875.163	84.06%	9,251.240	2,040.842	35,916.005
Scenario 4 (4.70% Volatile)	78,586.223	37,396.506	79.73%	11,668.004	2,573.985	39,970.491
Scenario 5 (Decrease Actives 1% per year for 5 yrs)	65,833.751	32,466.249	90.00%	5,175.913	1,141.817	33,608.066
Scenario 6 (Decrease Actives 5% in first year)	65,950.844	32,445.210	90.00%	5,165.267	1,139.468	33,584.678
Scenario 7 (-15% of New Hires Elect RSP)	65,070.450	32,198.285	90.00%	5,458.948	1,204.255	33,402.540
Scenario 8 (+15% of New Hires Elect RSP)	67,419.579	32,949.764	90.00%	4,974.445	1,097.372	34,047.136

	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)			45.95%	45.76%		
Scenario 1 (6.50% Volatile)	8.63%	-24.09%	46.46%	42.73%	6.56%	-1.12%
Scenario 2 (6.50% Volatile)	27.65%	-12.78%	34.77%	29.81%	10.89%	-2.53%
Scenario 3 (5.65% Volatile)	11.78%	-0.41%	46.90%	43.33%	5.92%	-2.50%
Scenario 4 (4.70% Volatile)	14.23%	-17.53%	38.83%	34.92%	7.78%	-3.08%
Scenario 5 (Decrease Actives 1% per year for 5 yrs)	3.92%	0.84%	45.95%	45.76%	5.25%	-0.21%
Scenario 6 (Decrease Actives 5% in first year)	4.50%	1.64%	45.94%	45.75%	5.30%	-0.27%
Scenario 7 (-15% of New Hires Elect RSP)	3.96%	1.51%	45.97%	45.78%	4.92%	-0.17%
Scenario 8 (+15% of New Hires Elect RSP)	4.33%	2.05%	45.93%	45.74%	5.56%	-0.33%

**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 percent.

The maximum increase and decrease in the annual statutory contribution is for fiscal years 2024 through 2045.

Exhibit 2

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, 2022

	Full-Time Active Count (DB and RSP)			Total Statutory Contributions ($ in Millions)								
Year	Baseline	Scenario 5	Scenario 6	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6	Scenario 7	Scenario 8
2022	70,043	70,043	70,043									
2023	70,043	69,343	66,541	$2,160.874	$2,160.874	$2,160.874	$2,160.874	$2,160.874	$2,160.874	$2,160.874	$2,160.874	$2,160.874
2024	70,043	68,650	66,541	2,186.028	2,186.029	2,186.029	2,186.029	2,186.029	2,239.249	2,183.627	2,203.817	2,168.878
2025	70,043	67,962	66,541	2,235.370	2,215.714	2,273.313	2,198.069	2,259.279	2,272.060	2,228.761	2,250.108	2,219.874
2026	70,043	67,283	66,541	2,284.663	2,289.260	2,359.178	2,233.717	2,345.423	2,302.546	2,275.024	2,294.907	2,274.309
2027	70,043	66,610	66,541	2,325.999	2,357.300	2,457.642	2,242.780	2,472.453	2,321.832	2,312.238	2,329.635	2,321.027
2028	70,043	66,610	66,541	2,421.502	2,449.629	2,637.634	2,326.281	2,677.829	2,412.960	2,416.301	2,421.922	2,421.614
2029	70,043	66,610	66,541	2,484.794	2,481.957	2,798.020	2,336.213	2,769.035	2,472.329	2,477.555	2,479.356	2,490.700
2030	70,043	66,610	66,541	2,545.777	2,546.752	2,981.380	2,371.395	2,884.331	2,530.235	2,536.316	2,534.110	2,557.841
2031	70,043	66,610	66,541	2,608.826	2,541.131	3,208.275	2,393.874	3,032.949	2,590.566	2,597.397	2,590.530	2,627.436
2032	70,043	66,610	66,541	2,679.150	2,555.239	3,370.298	2,541.874	3,127.602	2,658.335	2,665.791	2,653.858	2,704.659
2033	70,043	66,610	66,541	2,757.429	2,700.093	3,455.551	2,740.902	3,266.310	2,734.240	2,742.340	2,724.791	2,790.181
2034	70,043	66,610	66,541	2,853.471	2,839.896	3,631.768	3,026.466	3,637.099	2,829.017	2,843.730	2,812.430	2,895.143
2035	70,043	66,610	66,541	2,929.279	3,007.548	3,549.827	3,260.553	3,666.958	2,902.839	2,918.289	2,880.349	2,978.739
2036	70,043	66,610	66,541	3,005.684	3,258.464	3,365.691	3,377.701	3,653.394	2,977.267	2,993.223	2,948.374	3,063.414
2037	70,043	66,610	66,541	3,083.203	3,539.632	3,148.245	3,492.893	3,674.851	3,052.839	3,069.311	3,016.986	3,149.717
2038	70,043	66,610	66,541	3,162.605	3,791.490	2,794.305	3,556.212	3,639.087	3,130.331	3,147.352	3,086.938	3,238.431
2039	70,043	66,610	66,541	3,243.815	4,048.471	2,437.198	3,541.711	3,668.232	3,209.702	3,227.303	3,158.178	3,329.461
2040	70,043	66,610	66,541	3,326.882	3,849.060	2,335.966	3,569.771	4,115.725	3,290.934	3,309.135	3,230.714	3,422.893
2041	70,043	66,610	66,541	3,412.331	3,739.288	2,624.779	3,829.294	4,307.963	3,374.636	3,393.459	3,305.126	3,519.201
2042	70,043	66,610	66,541	3,499.709	3,737.210	3,324.728	3,900.626	4,434.003	3,460.330	3,479.769	3,380.916	3,617.977
2043	70,043	66,610	66,541	3,588.773	3,467.269	4,244.012	4,263.831	4,735.684	3,547.784	3,567.953	3,457.838	3,718.976
2044	70,043	66,610	66,541	3,679.016	2,869.536	5,045.297	4,647.854	5,409.588	3,636.443	3,657.232	3,535.306	3,821.774
2045	70,043	66,610	66,541	3,770.517	2,178.378	4,726.809	5,195.557	4,461.525	3,726.403	3,747.864	3,613.387	3,926.460
Total Contributions FY 2023-2045				$66,245.697	$66,810.220	$71,116.819	$71,394.477	$78,586.223	$65,833.751	$65,950.844	$65,070.450	$67,419.579
Total Present Value FY 2023-2045				$32,574.025	$33,024.134	$35,043.471	$33,875.163	$37,396.506	$32,466.249	$32,445.210	$32,198.285	$32,949.764
Difference from June 30, 2022 Valuation												
Total Contributions FY 2023-2045				$0.000	$564.523	$4,871.122	$5,148.780	$12,340.526	-$411.946	-$294.853	-$1,175.247	$1,173.882
Total Present Value FY 2023-2045				$0.000	$450.109	$2,469.446	$1,301.138	$4,822.481	-$107.776	-$128.815	-$375.740	$375.739

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 percent.

State Universities Retirement System
Comparison of Actuarial Valuation Results and Stress Testing Scenario 1 (Volatile Returns Averaging 6.50%)
Based on Actuarial Valuation as of June 30, 2022

$ in Millions

	June 30, 2022 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 2023)	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
2022		$2,136.059	$2,227.990	45.23%	45.16%			-1.36%		$2,136.059	$2,227.990	45.23%	45.16%		
2023	6.50%	2,071.091	2,160.874	45.95%	45.76%	-3.01%	0.72%	12.29%	12.29%	2,071.091	2,160.874	46.46%	48.29%	-3.01%	1.23%
2024	6.50%	2,091.856	2,186.028	46.71%	46.33%	1.16%	0.76%	-6.88%	2.26%	2,091.856	2,186.029	46.62%	42.73%	1.16%	0.16%
2025	6.50%	2,134.957	2,235.370	47.76%	46.91%	2.26%	1.06%	9.51%	4.62%	2,115.301	2,215.714	46.91%	44.33%	1.36%	0.29%
2026	6.50%	2,178.750	2,284.663	47.51%	47.51%	2.21%	-0.25%	14.63%	7.04%	2,183.346	2,289.260	46.72%	48.29%	3.32%	-0.19%
2027	6.50%	2,214.609	2,325.999	48.12%	48.12%	1.81%	0.61%	11.37%	7.89%	2,245.910	2,357.300	48.12%	51.30%	2.97%	1.40%
2028	6.50%	2,304.665	2,421.502	48.86%	48.86%	4.11%	0.73%	1.67%	6.83%	2,332.793	2,449.629	48.81%	49.85%	3.92%	0.69%
2029	6.50%	2,362.469	2,484.794	49.66%	49.66%	2.61%	0.80%	12.05%	7.56%	2,359.632	2,481.957	51.10%	53.40%	1.32%	2.29%
2030	6.50%	2,417.868	2,545.777	50.53%	50.53%	2.45%	0.87%	4.47%	7.17%	2,418.843	2,546.752	53.18%	53.44%	2.61%	2.08%
2031	6.50%	2,475.191	2,608.826	51.49%	51.49%	2.48%	0.96%	-9.16%	5.22%	2,407.496	2,541.131	52.85%	46.28%	-0.22%	-0.33%
2032	6.50%	2,539.631	2,679.150	52.56%	52.56%	2.70%	1.07%	21.14%	6.71%	2,415.720	2,555.239	52.88%	53.39%	0.56%	0.03%
2033	6.50%	2,611.831	2,757.429	53.77%	53.77%	2.92%	1.21%	-7.40%	5.34%	2,554.495	2,700.093	52.60%	47.28%	5.67%	-0.28%
2034	6.50%	2,701.591	2,853.471	55.18%	55.18%	3.48%	1.41%	5.23%	5.33%	2,688.016	2,839.896	51.48%	47.66%	5.18%	-1.12%
2035	6.50%	2,770.951	2,929.279	56.78%	56.78%	2.66%	1.60%	1.96%	5.07%	2,849.220	3,007.548	50.43%	46.79%	5.90%	-1.05%
2036	6.50%	2,840.818	3,005.684	58.59%	58.59%	2.61%	1.80%	-4.07%	4.39%	3,093.598	3,258.464	50.39%	43.52%	8.34%	-0.04%
2037	6.50%	2,911.629	3,083.203	60.62%	60.62%	2.58%	2.04%	26.82%	5.75%	3,368.058	3,539.632	51.06%	54.16%	8.63%	0.66%
2038	6.50%	2,984.129	3,162.605	62.99%	62.99%	2.58%	2.37%	28.20%	7.03%	3,613.014	3,791.490	56.75%	69.02%	7.12%	5.69%
2039	6.50%	3,058.319	3,243.815	65.66%	65.66%	2.57%	2.67%	-7.05%	6.15%	3,862.975	4,048.471	62.16%	64.27%	6.78%	5.41%
2040	6.50%	3,134.141	3,326.882	68.66%	68.66%	2.56%	3.00%	0.45%	5.82%	3,656.319	3,849.060	66.54%	64.28%	-4.93%	4.39%
2041	6.50%	3,212.250	3,412.331	72.03%	72.03%	2.57%	3.37%	10.07%	6.04%	3,539.207	3,739.288	72.20%	70.28%	-2.85%	5.65%
2042	6.50%	3,292.179	3,499.709	75.81%	75.81%	2.56%	3.79%	22.62%	6.82%	3,529.680	3,737.210	78.76%	85.73%	-0.06%	6.56%
2043	6.50%	3,373.687	3,588.773	80.05%	80.05%	2.54%	4.23%	11.29%	7.02%	3,252.183	3,467.269	84.27%	94.52%	-7.22%	5.52%
2044	6.50%	3,456.232	3,679.016	84.76%	84.76%	2.51%	4.72%	-8.33%	6.27%	2,646.752	2,869.536	88.37%	84.75%	-17.24%	4.10%
2045	6.50%	3,539.881	3,770.517	90.00%	90.00%	2.49%	5.24%	11.60%	6.50%	1,947.742	2,178.378	92.13%	91.10%	-24.09%	3.76%
Total Contributions FY 2023-2045		$62,678.725	$66,245.697							$63,243.247	$66,810.220				
Total Present Value FY 2023-2045		$30,895.302	$32,574.025							$31,345.410	$33,024.134				
Difference from June 30, 2022 Valuation															
Total Contributions FY 2023-2045		$0.000	$0.000							$564.522	$564.523				
Total Present Value FY 2023-2045		$0.000	$0.000							$450.108	$450.109				
Maximum Annual Increase														8.63%	6.56%
Maximum Annual Decrease														-24.09%	-1.12%

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 2022 includes a contribution of $58.139 million from the Pension Stabilization Fund.

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

State Universities Retirement System
Comparison of Actuarial Valuation Results and Stress Testing Scenario 2 (Volatile Returns Averaging 6.50%)
Based on Actuarial Valuation as of June 30, 2022

$ in Millions

	June 30, 2022 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 2023)	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
2022		$2,136.059	$2,227.990	45.23%	45.16%			-1.36%		$2,136.059	$2,227.990	45.23%	45.16%		
2023	6.50%	2,071.091	2,160.874	45.95%	45.76%	-3.01%	0.72%	-6.50%	-6.50%	2,071.091	2,160.874	44.81%	40.08%	-3.01%	-0.41%
2024	6.50%	2,091.856	2,186.028	46.71%	46.33%	1.16%	0.76%	11.59%	2.15%	2,091.856	2,186.029	44.50%	42.34%	1.16%	-0.32%
2025	6.50%	2,134.957	2,235.370	47.76%	46.91%	2.26%	1.06%	-1.61%	0.88%	2,172.900	2,273.313	44.02%	39.46%	3.99%	-0.48%
2026	6.50%	2,178.750	2,284.663	47.51%	47.51%	2.21%	-0.25%	0.20%	0.71%	2,253.264	2,359.178	41.63%	37.40%	3.78%	-2.39%
2027	6.50%	2,214.609	2,325.999	48.12%	48.12%	1.81%	0.61%	4.65%	1.48%	2,346.252	2,457.642	39.94%	37.05%	4.17%	-1.69%
2028	6.50%	2,304.665	2,421.502	48.86%	48.86%	4.11%	0.73%	-15.09%	-1.49%	2,520.798	2,637.634	38.01%	29.81%	7.32%	-1.92%
2029	6.50%	2,362.469	2,484.794	49.66%	49.66%	2.61%	0.80%	6.60%	-0.37%	2,675.695	2,798.020	35.48%	30.14%	6.08%	-2.53%
2030	6.50%	2,417.868	2,545.777	50.53%	50.53%	2.45%	0.87%	21.71%	2.15%	2,853.471	2,981.380	34.77%	35.16%	6.55%	-0.71%
2031	6.50%	2,475.191	2,608.826	51.49%	51.49%	2.48%	0.96%	19.47%	3.95%	3,074.640	3,208.275	36.06%	40.81%	7.61%	1.30%
2032	6.50%	2,539.631	2,679.150	52.56%	52.56%	2.70%	1.07%	13.08%	4.83%	3,230.779	3,370.298	38.58%	45.17%	5.05%	2.51%
2033	6.50%	2,611.831	2,757.429	53.77%	53.77%	2.92%	1.21%	6.10%	4.94%	3,309.953	3,455.551	42.93%	47.05%	2.53%	4.35%
2034	6.50%	2,701.591	2,853.471	55.18%	55.18%	3.48%	1.41%	20.95%	6.19%	3,479.888	3,631.768	49.00%	56.26%	5.10%	6.08%
2035	6.50%	2,770.951	2,929.279	56.78%	56.78%	2.66%	1.60%	12.92%	6.69%	3,391.499	3,549.827	55.30%	62.69%	-2.26%	6.30%
2036	6.50%	2,840.818	3,005.684	58.59%	58.59%	2.61%	1.80%	22.99%	7.78%	3,200.825	3,365.691	62.79%	75.84%	-5.19%	7.49%
2037	6.50%	2,911.629	3,083.203	60.62%	60.62%	2.58%	2.04%	3.49%	7.49%	2,976.671	3,148.245	69.75%	76.92%	-6.46%	6.96%
2038	6.50%	2,984.129	3,162.605	62.99%	62.99%	2.58%	2.37%	-11.00%	6.23%	2,615.829	2,794.305	73.54%	66.40%	-11.24%	3.79%
2039	6.50%	3,058.319	3,243.815	65.66%	65.66%	2.57%	2.67%	-1.15%	5.78%	2,251.702	2,437.198	73.60%	62.78%	-12.78%	0.06%
2040	6.50%	3,134.141	3,326.882	68.66%	68.66%	2.56%	3.00%	-4.00%	5.21%	2,143.225	2,335.966	71.20%	57.23%	-4.15%	-2.40%
2041	6.50%	3,212.250	3,412.331	72.03%	72.03%	2.57%	3.37%	26.60%	6.24%	2,424.698	2,624.779	69.12%	69.57%	12.36%	-2.08%
2042	6.50%	3,292.179	3,499.709	75.81%	75.81%	2.56%	3.79%	9.27%	6.39%	3,117.198	3,324.728	70.03%	74.76%	26.67%	0.91%
2043	6.50%	3,373.687	3,588.773	80.05%	80.05%	2.54%	4.23%	7.24%	6.43%	4,028.926	4,244.012	75.90%	80.75%	27.65%	5.87%
2044	6.50%	3,456.232	3,679.016	84.76%	84.76%	2.51%	4.72%	18.00%	6.93%	4,822.513	5,045.297	86.68%	97.62%	18.88%	10.78%
2045	6.50%	3,539.881	3,770.517	90.00%	90.00%	2.49%	5.24%	-2.50%	6.50%	4,496.173	4,726.809	97.57%	96.76%	-6.31%	10.89%
Total Contributions FY 2023-2045		$62,678.725	$66,245.697							$67,549.846	$71,116.819				
Total Present Value FY 2023-2045		$30,895.302	$32,574.025							$33,364.747	$35,043.471				
Difference from June 30, 2022 Valuation															
Total Contributions FY 2023-2045		$0.000	$0.000							$4,871.121	$4,871.122				
Total Present Value FY 2023-2045		$0.000	$0.000							$2,469.445	$2,469.446				
Maximum Annual Increase														27.65%	10.89%
Maximum Annual Decrease														-12.78%	-2.53%

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 2022 includes a contribution of $58.139 million from the Pension Stabilization Fund.

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

State Universities Retirement System
Comparison of Actuarial Valuation Results and Stress Testing Scenario 3 (Volatile Returns Averaging 5.65%)
Based on Actuarial Valuation as of June 30, 2022

$ in Millions

	June 30, 2022 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 2023)	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
2022		$2,136.059	$2,227.990	45.23%	45.16%			-1.36%		$2,136.059	$2,227.990	45.23%	45.16%		
2023	6.50%	2,071.091	2,160.874	45.95%	45.76%	-3.01%	0.72%	17.34%	17.34%	2,071.091	2,160.874	46.90%	50.50%	-3.01%	1.67%
2024	6.50%	2,091.856	2,186.028	46.71%	46.33%	1.16%	0.76%	-2.21%	7.12%	2,091.856	2,186.029	48.03%	47.04%	1.16%	1.13%
2025	6.50%	2,134.957	2,235.370	47.76%	46.91%	2.26%	1.06%	13.87%	9.32%	2,097.656	2,198.069	49.79%	50.95%	0.55%	1.76%
2026	6.50%	2,178.750	2,284.663	47.51%	47.51%	2.21%	-0.25%	1.96%	7.43%	2,127.804	2,233.717	49.97%	49.42%	1.62%	0.18%
2027	6.50%	2,214.609	2,325.999	48.12%	48.12%	1.81%	0.61%	15.75%	9.05%	2,131.390	2,242.780	51.71%	54.41%	0.41%	1.73%
2028	6.50%	2,304.665	2,421.502	48.86%	48.86%	4.11%	0.73%	7.83%	8.84%	2,209.444	2,326.281	53.05%	56.02%	3.72%	1.34%
2029	6.50%	2,362.469	2,484.794	49.66%	49.66%	2.61%	0.80%	0.99%	7.69%	2,213.888	2,336.213	54.62%	53.94%	0.43%	1.57%
2030	6.50%	2,417.868	2,545.777	50.53%	50.53%	2.45%	0.87%	-7.89%	5.60%	2,243.486	2,371.395	53.87%	47.19%	1.51%	-0.74%
2031	6.50%	2,475.191	2,608.826	51.49%	51.49%	2.48%	0.96%	-2.67%	4.65%	2,260.239	2,393.874	52.26%	43.33%	0.95%	-1.62%
2032	6.50%	2,539.631	2,679.150	52.56%	52.56%	2.70%	1.07%	6.67%	4.85%	2,402.355	2,541.874	49.75%	43.70%	6.18%	-2.50%
2033	6.50%	2,611.831	2,757.429	53.77%	53.77%	2.92%	1.21%	17.78%	5.96%	2,595.304	2,740.902	48.41%	49.13%	7.83%	-1.34%
2034	6.50%	2,701.591	2,853.471	55.18%	55.18%	3.48%	1.41%	15.35%	6.72%	2,874.586	3,026.466	49.35%	54.85%	10.42%	0.94%
2035	6.50%	2,770.951	2,929.279	56.78%	56.78%	2.66%	1.60%	-9.38%	5.38%	3,102.225	3,260.553	50.82%	48.44%	7.73%	1.47%
2036	6.50%	2,840.818	3,005.684	58.59%	58.59%	2.61%	1.80%	10.16%	5.72%	3,212.835	3,377.701	53.24%	52.14%	3.59%	2.42%
2037	6.50%	2,911.629	3,083.203	60.62%	60.62%	2.58%	2.04%	13.53%	6.22%	3,321.319	3,492.893	56.79%	58.16%	3.41%	3.56%
2038	6.50%	2,984.129	3,162.605	62.99%	62.99%	2.58%	2.37%	8.87%	6.38%	3,377.736	3,556.212	60.22%	62.48%	1.81%	3.43%
2039	6.50%	3,058.319	3,243.815	65.66%	65.66%	2.57%	2.67%	-2.20%	5.86%	3,356.215	3,541.711	61.95%	60.27%	-0.41%	1.73%
2040	6.50%	3,134.141	3,326.882	68.66%	68.66%	2.56%	3.00%	6.48%	5.89%	3,377.030	3,569.771	65.33%	63.35%	0.79%	3.38%
2041	6.50%	3,212.250	3,412.331	72.03%	72.03%	2.57%	3.37%	-2.13%	5.46%	3,629.213	3,829.294	67.98%	61.69%	7.27%	2.65%
2042	6.50%	3,292.179	3,499.709	75.81%	75.81%	2.56%	3.79%	17.82%	6.04%	3,693.096	3,900.626	71.33%	72.52%	1.86%	3.35%
2043	6.50%	3,373.687	3,588.773	80.05%	80.05%	2.54%	4.23%	6.37%	6.06%	4,048.745	4,263.831	75.82%	77.75%	9.31%	4.49%
2044	6.50%	3,456.232	3,679.016	84.76%	84.76%	2.51%	4.72%	-11.04%	5.21%	4,425.070	4,647.854	79.79%	70.42%	9.01%	3.97%
2045	6.50%	3,539.881	3,770.517	90.00%	90.00%	2.49%	5.24%	15.71%	5.65%	4,964.921	5,195.557	85.71%	84.06%	11.78%	5.92%
Total Contributions FY 2023-2045		$62,678.725	$66,245.697							$67,827.504	$71,394.477				
Total Present Value FY 2023-2045		$30,895.302	$32,574.025							$32,196.439	$33,875.163				
Difference from June 30, 2022 Valuation															
Total Contributions FY 2023-2045		$0.000	$0.000							$5,148.779	$5,148.780				
Total Present Value FY 2023-2045		$0.000	$0.000							$1,301.137	$1,301.138				
Maximum Annual Increase														11.78%	5.92%
Maximum Annual Decrease														-0.41%	-2.50%

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. Total statutory contribution in fiscal year 2022 includes a contribution of $58.139 million from the Pension Stabilization Fund.

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

State Universities Retirement System
Comparison of Actuarial Valuation Results and Stress Testing Scenario 4 (Volatile Returns Averaging 4.70%)
Based on Actuarial Valuation as of June 30, 2022

$ in Millions

June 30, 2022 Valuation Baseline

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
2022		$2,136.059	$2,227.990	45.23%	45.16%		
2023	6.50%	2,071.091	2,160.874	45.95%	45.76%	-3.01%	0.72%
2024	6.50%	2,091.856	2,186.028	46.71%	46.33%	1.16%	0.76%
2025	6.50%	2,134.957	2,235.370	47.76%	46.91%	2.26%	1.06%
2026	6.50%	2,178.750	2,284.663	47.51%	47.51%	2.21%	-0.25%
2027	6.50%	2,214.609	2,325.999	48.12%	48.12%	1.81%	0.61%
2028	6.50%	2,304.665	2,421.502	48.86%	48.86%	4.11%	0.73%
2029	6.50%	2,362.469	2,484.794	49.66%	49.66%	2.61%	0.80%
2030	6.50%	2,417.868	2,545.777	50.53%	50.53%	2.45%	0.87%
2031	6.50%	2,475.191	2,608.826	51.49%	51.49%	2.48%	0.96%
2032	6.50%	2,539.631	2,679.150	52.56%	52.56%	2.70%	1.07%
2033	6.50%	2,611.831	2,757.429	53.77%	53.77%	2.92%	1.21%
2034	6.50%	2,701.591	2,853.471	55.18%	55.18%	3.48%	1.41%
2035	6.50%	2,770.951	2,929.279	56.78%	56.78%	2.66%	1.60%
2036	6.50%	2,840.818	3,005.684	58.59%	58.59%	2.61%	1.80%
2037	6.50%	2,911.629	3,083.203	60.62%	60.62%	2.58%	2.04%
2038	6.50%	2,984.129	3,162.605	62.99%	62.99%	2.58%	2.37%
2039	6.50%	3,058.319	3,243.815	65.66%	65.66%	2.57%	2.67%
2040	6.50%	3,134.141	3,326.882	68.66%	68.66%	2.56%	3.00%
2041	6.50%	3,212.250	3,412.331	72.03%	72.03%	2.57%	3.37%
2042	6.50%	3,292.179	3,499.709	75.81%	75.81%	2.56%	3.79%
2043	6.50%	3,373.687	3,588.773	80.05%	80.05%	2.54%	4.23%
2044	6.50%	3,456.232	3,679.016	84.76%	84.76%	2.51%	4.72%
2045	6.50%	3,539.881	3,770.517	90.00%	90.00%	2.49%	5.24%
Total Contributions FY 2023-2045		$62,678.725	$66,245.697				
Total Present Value FY 2023-2045		$30,895.302	$32,574.025				
Difference from June 30, 2022 Valuation							
Total Contributions FY 2023-2045		$0.000	$0.000				
Total Present Value FY 2023-2045		$0.000	$0.000				
Maximum Annual Increase							
Maximum Annual Decrease							

Stress Test Scenario 4

Year Ending June 30	Annual Rate of Investment Return	Cumulative Geometric Return (from 2023)	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
2022	-1.36%		$2,136.059	$2,227.990	45.23%	45.16%		
2023	-1.69%	-1.69%	2,071.091	2,160.874	45.23%	42.18%	-3.01%	0.01%
2024	4.73%	1.47%	2,091.856	2,186.029	44.92%	41.85%	1.16%	-0.31%
2025	-9.11%	-2.19%	2,158.866	2,259.279	43.65%	35.93%	3.35%	-1.27%
2026	3.53%	-0.79%	2,239.509	2,345.423	40.58%	35.03%	3.81%	-3.08%
2027	37.08%	5.84%	2,361.063	2,472.453	40.55%	45.63%	5.42%	-0.03%
2028	-14.84%	2.07%	2,560.993	2,677.829	40.27%	37.21%	8.31%	-0.28%
2029	3.65%	2.30%	2,646.710	2,769.035	39.45%	36.85%	3.41%	-0.82%
2030	8.62%	3.07%	2,756.422	2,884.331	40.10%	38.38%	4.16%	0.65%
2031	-5.42%	2.09%	2,899.314	3,032.949	40.33%	34.92%	5.15%	0.22%
2032	12.97%	3.13%	2,988.083	3,127.602	38.83%	38.01%	3.12%	-1.50%
2033	27.37%	5.13%	3,120.712	3,266.310	41.13%	47.08%	4.43%	2.31%
2034	5.23%	5.13%	3,485.219	3,637.099	44.74%	48.94%	11.35%	3.61%
2035	3.07%	4.97%	3,508.630	3,666.958	47.98%	49.85%	0.82%	3.24%
2036	4.93%	4.97%	3,488.528	3,653.394	51.94%	51.64%	-0.37%	3.96%
2037	3.86%	4.90%	3,503.277	3,674.851	55.32%	52.97%	0.59%	3.38%
2038	-14.50%	3.56%	3,460.611	3,639.087	54.98%	44.66%	-0.97%	-0.34%
2039	40.04%	5.42%	3,482.736	3,668.232	57.22%	61.78%	0.80%	2.24%
2040	0.59%	5.14%	3,922.984	4,115.725	61.05%	62.36%	12.20%	3.83%
2041	0.35%	4.89%	4,107.882	4,307.963	64.69%	63.17%	4.67%	3.64%
2042	-1.51%	4.56%	4,226.473	4,434.003	67.91%	63.04%	2.93%	3.22%
2043	19.74%	5.23%	4,520.598	4,735.684	75.69%	77.07%	6.80%	7.78%
2044	-2.99%	4.85%	5,186.804	5,409.588	81.23%	77.51%	14.23%	5.54%
2045	1.55%	4.70%	4,230.889	4,461.525	84.94%	79.73%	-17.53%	3.72%
Total Contributions FY 2023-2045			$75,019.250	$78,586.223				
Total Present Value FY 2023-2045			$35,717.782	$37,396.506				
Difference from June 30, 2022 Valuation								
Total Contributions FY 2023-2045			$12,340.525	$12,340.526				
Total Present Value FY 2023-2045			$4,822.480	$4,822.481				
Maximum Annual Increase							14.23%	7.78%
Maximum Annual Decrease							-17.53%	-3.08%

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 2022 includes a contribution of $58.139 million from the Pension Stabilization Fund.

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

State Universities Retirement System

Comparison of Actuarial Valuation Results and Stress Testing Scenario 5 (Decreasing Full-Time Active Members – 1%/year for 5 Years) Based on Actuarial Valuation as of June 30, 2022

$ in Millions

	June 30, 2022 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 2023)	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
2022		$2,136.059	$2,227.990	45.23%	45.16%			-1.36%		$2,136.059	$2,227.990	45.23%	45.16%		
2023	6.50%	2,071.091	2,160.874	45.95%	45.76%	-3.01%	0.72%	6.50%	6.50%	2,072.026	2,160.874	45.95%	45.76%	-3.01%	0.72%
2024	6.50%	2,091.856	2,186.028	46.71%	46.33%	1.16%	0.76%	6.50%	6.50%	2,147.073	2,239.249	46.81%	46.43%	3.63%	0.86%
2025	6.50%	2,134.957	2,235.370	47.76%	46.91%	2.26%	1.06%	6.50%	6.50%	2,174.589	2,272.060	47.94%	47.09%	1.47%	1.13%
2026	6.50%	2,178.750	2,284.663	47.51%	47.51%	2.21%	-0.25%	6.50%	6.50%	2,200.766	2,302.546	47.74%	47.74%	1.34%	-0.21%
2027	6.50%	2,214.609	2,325.999	48.12%	48.12%	1.81%	0.61%	6.50%	6.50%	2,215.856	2,321.832	48.35%	48.35%	0.84%	0.62%
2028	6.50%	2,304.665	2,421.502	48.86%	48.86%	4.11%	0.73%	6.50%	6.50%	2,301.951	2,412.960	49.09%	49.09%	3.92%	0.74%
2029	6.50%	2,362.469	2,484.794	49.66%	49.66%	2.61%	0.80%	6.50%	6.50%	2,356.209	2,472.329	49.89%	49.89%	2.46%	0.80%
2030	6.50%	2,417.868	2,545.777	50.53%	50.53%	2.45%	0.87%	6.50%	6.50%	2,408.874	2,530.235	50.75%	50.75%	2.34%	0.87%
2031	6.50%	2,475.191	2,608.826	51.49%	51.49%	2.48%	0.96%	6.50%	6.50%	2,463.807	2,590.566	51.70%	51.70%	2.38%	0.95%
2032	6.50%	2,539.631	2,679.150	52.56%	52.56%	2.70%	1.07%	6.50%	6.50%	2,526.018	2,658.335	52.75%	52.75%	2.62%	1.05%
2033	6.50%	2,611.831	2,757.429	53.77%	53.77%	2.92%	1.21%	6.50%	6.50%	2,596.167	2,734.240	53.95%	53.95%	2.86%	1.20%
2034	6.50%	2,701.591	2,853.471	55.18%	55.18%	3.48%	1.41%	6.50%	6.50%	2,684.986	2,829.017	55.35%	55.35%	3.47%	1.40%
2035	6.50%	2,770.951	2,929.279	56.78%	56.78%	2.66%	1.60%	6.50%	6.50%	2,752.683	2,902.839	56.93%	56.93%	2.61%	1.58%
2036	6.50%	2,840.818	3,005.684	58.59%	58.59%	2.61%	1.80%	6.50%	6.50%	2,820.901	2,977.267	58.71%	58.71%	2.56%	1.78%
2037	6.50%	2,911.629	3,083.203	60.62%	60.62%	2.58%	2.04%	6.50%	6.50%	2,890.098	3,052.839	60.73%	60.73%	2.54%	2.02%
2038	6.50%	2,984.129	3,162.605	62.99%	62.99%	2.58%	2.37%	6.50%	6.50%	2,961.028	3,130.331	63.07%	63.07%	2.54%	2.34%
2039	6.50%	3,058.319	3,243.815	65.66%	65.66%	2.57%	2.67%	6.50%	6.50%	3,033.722	3,209.702	65.71%	65.71%	2.54%	2.64%
2040	6.50%	3,134.141	3,326.882	68.66%	68.66%	2.56%	3.00%	6.50%	6.50%	3,108.063	3,290.934	68.69%	68.69%	2.53%	2.98%
2041	6.50%	3,212.250	3,412.331	72.03%	72.03%	2.57%	3.37%	6.50%	6.50%	3,184.784	3,374.636	72.04%	72.04%	2.54%	3.35%
2042	6.50%	3,292.179	3,499.709	75.81%	75.81%	2.56%	3.79%	6.50%	6.50%	3,263.394	3,460.330	75.81%	75.81%	2.54%	3.77%
2043	6.50%	3,373.687	3,588.773	80.05%	80.05%	2.54%	4.23%	6.50%	6.50%	3,343.662	3,547.784	80.03%	80.03%	2.53%	4.23%
2044	6.50%	3,456.232	3,679.016	84.76%	84.76%	2.51%	4.72%	6.50%	6.50%	3,424.999	3,636.443	84.75%	84.75%	2.50%	4.72%
2045	6.50%	3,539.881	3,770.517	90.00%	90.00%	2.49%	5.24%	6.50%	6.50%	3,507.489	3,726.403	90.00%	90.00%	2.47%	5.25%
Total Contributions FY 2023-2045		$62,678.725	$66,245.697							$62,439.145	$65,833.751				
Total Present Value FY 2023-2045		$30,895.302	$32,574.025							$30,864.231	$32,466.249				
Difference from June 30, 2022 Valuation															
Total Contributions FY 2023-2045		$0.000	$0.000							-$239.580	-$411.946				
Total Present Value FY 2023-2045		$0.000	$0.000							-$31.071	-$107.776				
Maximum Annual Increase														3.92%	5.25%
Maximum Annual Decrease														0.84%	-0.21%

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 2022 includes a contribution of $58.139 million from the Pension Stabilization Fund.

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

State Universities Retirement System
Comparison of Actuarial Valuation Results and Stress Testing Scenario 6 (Decreasing Full-Time Active Members – 5%/year for 1 Year)
Based on Actuarial Valuation as of June 30, 2022

$ in Millions

	June 30, 2022 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 2023)	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
2022		$2,136.059	$2,227.990	45.23%	45.16%			-1.36%		$2,136.059	$2,227.990	45.23%	45.16%		
2023	6.50%	2,071.091	2,160.874	45.95%	45.76%	-3.01%	0.72%	6.50%	6.50%	2,075.773	2,160.874	45.94%	45.75%	-3.01%	0.71%
2024	6.50%	2,091.856	2,186.028	46.71%	46.33%	1.16%	0.76%	6.50%	6.50%	2,094.660	2,183.627	46.69%	46.32%	1.05%	0.75%
2025	6.50%	2,134.957	2,235.370	47.76%	46.91%	2.26%	1.06%	6.50%	6.50%	2,133.645	2,228.761	47.74%	46.89%	2.07%	1.04%
2026	6.50%	2,178.750	2,284.663	47.51%	47.51%	2.21%	-0.25%	6.50%	6.50%	2,174.777	2,275.024	47.47%	47.47%	2.08%	-0.27%
2027	6.50%	2,214.609	2,325.999	48.12%	48.12%	1.81%	0.61%	6.50%	6.50%	2,206.841	2,312.238	48.06%	48.06%	1.64%	0.59%
2028	6.50%	2,304.665	2,421.502	48.86%	48.86%	4.11%	0.73%	6.50%	6.50%	2,305.774	2,416.301	48.79%	48.79%	4.50%	0.73%
2029	6.50%	2,362.469	2,484.794	49.66%	49.66%	2.61%	0.80%	6.50%	6.50%	2,361.854	2,477.555	49.59%	49.59%	2.54%	0.79%
2030	6.50%	2,417.868	2,545.777	50.53%	50.53%	2.45%	0.87%	6.50%	6.50%	2,415.346	2,536.316	50.45%	50.45%	2.37%	0.86%
2031	6.50%	2,475.191	2,608.826	51.49%	51.49%	2.48%	0.96%	6.50%	6.50%	2,471.008	2,597.397	51.39%	51.39%	2.41%	0.94%
2032	6.50%	2,539.631	2,679.150	52.56%	52.56%	2.70%	1.07%	6.50%	6.50%	2,533.828	2,665.791	52.44%	52.44%	2.63%	1.05%
2033	6.50%	2,611.831	2,757.429	53.77%	53.77%	2.92%	1.21%	6.50%	6.50%	2,604.606	2,742.340	53.64%	53.64%	2.87%	1.19%
2034	6.50%	2,701.591	2,853.471	55.18%	55.18%	3.48%	1.41%	6.50%	6.50%	2,700.034	2,843.730	55.04%	55.04%	3.70%	1.41%
2035	6.50%	2,770.951	2,929.279	56.78%	56.78%	2.66%	1.60%	6.50%	6.50%	2,768.454	2,918.289	56.63%	56.63%	2.62%	1.59%
2036	6.50%	2,840.818	3,005.684	58.59%	58.59%	2.61%	1.80%	6.50%	6.50%	2,837.179	2,993.223	58.43%	58.43%	2.57%	1.80%
2037	6.50%	2,911.629	3,083.203	60.62%	60.62%	2.58%	2.04%	6.50%	6.50%	2,906.892	3,069.311	60.46%	60.46%	2.54%	2.03%
2038	6.50%	2,984.129	3,162.605	62.99%	62.99%	2.58%	2.37%	6.50%	6.50%	2,978.372	3,147.352	62.82%	62.82%	2.54%	2.36%
2039	6.50%	3,058.319	3,243.815	65.66%	65.66%	2.57%	2.67%	6.50%	6.50%	3,051.645	3,227.303	65.48%	65.48%	2.54%	2.66%
2040	6.50%	3,134.141	3,326.882	68.66%	68.66%	2.56%	3.00%	6.50%	6.50%	3,126.585	3,309.135	68.48%	68.48%	2.54%	3.00%
2041	6.50%	3,212.250	3,412.331	72.03%	72.03%	2.57%	3.37%	6.50%	6.50%	3,203.927	3,393.459	71.87%	71.87%	2.55%	3.38%
2042	6.50%	3,292.179	3,499.709	75.81%	75.81%	2.56%	3.79%	6.50%	6.50%	3,283.152	3,479.769	75.67%	75.67%	2.54%	3.80%
2043	6.50%	3,373.687	3,588.773	80.05%	80.05%	2.54%	4.23%	6.50%	6.50%	3,364.141	3,567.953	79.94%	79.94%	2.53%	4.27%
2044	6.50%	3,456.232	3,679.016	84.76%	84.76%	2.51%	4.72%	6.50%	6.50%	3,446.097	3,657.232	84.70%	84.70%	2.50%	4.76%
2045	6.50%	3,539.881	3,770.517	90.00%	90.00%	2.49%	5.24%	6.50%	6.50%	3,529.254	3,747.864	90.00%	90.00%	2.48%	5.30%
Total Contributions FY 2023-2045		$62,678.725	$66,245.697							$62,573.844	$65,950.844				
Total Present Value FY 2023-2045		$30,895.302	$32,574.025							$30,856.219	$32,445.210				
Difference from June 30, 2022 Valuation															
Total Contributions FY 2023-2045		$0.000	$0.000							-$104.881	-$294.853				
Total Present Value FY 2023-2045		$0.000	$0.000							-$39.083	-$128.815				
Maximum Annual Increase														4.50%	5.30%
Maximum Annual Decrease														1.64%	-0.27%

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 2022 includes a contribution of $58.139 million from the Pension Stabilization Fund.

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

Exhibit 2

State Universities Retirement System
Comparison of Actuarial Valuation Results and Sensitivity Scenario 7 (Decrease Percentage of Future New Hires Who Elect RSP by 15%)
Based on Actuarial Valuation as of June 30, 2022

$ in Millions

	June 30, 2022 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 2023)	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
2022		$2,136.059	$2,227.990	45.23%	45.16%			-1.36%		$2,136.059	$2,227.990	45.23%	45.16%		
2023	6.50%	2,071.091	2,160.874	45.95%	45.76%	-3.01%	0.72%	6.50%	6.50%	2,075.627	2,160.874	45.97%	45.78%	-3.01%	0.74%
2024	6.50%	2,091.856	2,186.028	46.71%	46.33%	1.16%	0.76%	6.50%	6.50%	2,118.662	2,203.817	46.79%	46.42%	1.99%	0.82%
2025	6.50%	2,134.957	2,235.370	47.76%	46.91%	2.26%	1.06%	6.50%	6.50%	2,162.189	2,250.108	47.92%	47.07%	2.10%	1.13%
2026	6.50%	2,178.750	2,284.663	47.51%	47.51%	2.21%	-0.25%	6.50%	6.50%	2,205.461	2,294.907	47.75%	47.75%	1.99%	-0.17%
2027	6.50%	2,214.609	2,325.999	48.12%	48.12%	1.81%	0.61%	6.50%	6.50%	2,238.553	2,329.635	48.43%	48.43%	1.51%	0.69%
2028	6.50%	2,304.665	2,421.502	48.86%	48.86%	4.11%	0.73%	6.50%	6.50%	2,329.160	2,421.922	49.25%	49.25%	3.96%	0.81%
2029	6.50%	2,362.469	2,484.794	49.66%	49.66%	2.61%	0.80%	6.50%	6.50%	2,384.864	2,479.356	50.13%	50.13%	2.37%	0.88%
2030	6.50%	2,417.868	2,545.777	50.53%	50.53%	2.45%	0.87%	6.50%	6.50%	2,437.813	2,534.110	51.08%	51.08%	2.21%	0.95%
2031	6.50%	2,475.191	2,608.826	51.49%	51.49%	2.48%	0.96%	6.50%	6.50%	2,492.302	2,590.530	52.11%	52.11%	2.23%	1.03%
2032	6.50%	2,539.631	2,679.150	52.56%	52.56%	2.70%	1.07%	6.50%	6.50%	2,553.538	2,653.858	53.25%	53.25%	2.44%	1.14%
2033	6.50%	2,611.831	2,757.429	53.77%	53.77%	2.92%	1.21%	6.50%	6.50%	2,622.182	2,724.791	54.53%	54.53%	2.67%	1.28%
2034	6.50%	2,701.591	2,853.471	55.18%	55.18%	3.48%	1.41%	6.50%	6.50%	2,707.350	2,812.430	56.01%	56.01%	3.22%	1.48%
2035	6.50%	2,770.951	2,929.279	56.78%	56.78%	2.66%	1.60%	6.50%	6.50%	2,772.663	2,880.349	57.66%	57.66%	2.41%	1.65%
2036	6.50%	2,840.818	3,005.684	58.59%	58.59%	2.61%	1.80%	6.50%	6.50%	2,838.041	2,948.374	59.51%	59.51%	2.36%	1.85%
2037	6.50%	2,911.629	3,083.203	60.62%	60.62%	2.58%	2.04%	6.50%	6.50%	2,903.894	3,016.986	61.58%	61.58%	2.33%	2.07%
2038	6.50%	2,984.129	3,162.605	62.99%	62.99%	2.58%	2.37%	6.50%	6.50%	2,970.955	3,086.938	63.96%	63.96%	2.32%	2.38%
2039	6.50%	3,058.319	3,243.815	65.66%	65.66%	2.57%	2.67%	6.50%	6.50%	3,039.223	3,158.178	66.62%	66.62%	2.31%	2.66%
2040	6.50%	3,134.141	3,326.882	68.66%	68.66%	2.56%	3.00%	6.50%	6.50%	3,108.609	3,230.714	69.58%	69.58%	2.30%	2.96%
2041	6.50%	3,212.250	3,412.331	72.03%	72.03%	2.57%	3.37%	6.50%	6.50%	3,179.794	3,305.126	72.87%	72.87%	2.30%	3.30%
2042	6.50%	3,292.179	3,499.709	75.81%	75.81%	2.56%	3.79%	6.50%	6.50%	3,252.281	3,380.916	76.54%	76.54%	2.29%	3.67%
2043	6.50%	3,373.687	3,588.773	80.05%	80.05%	2.54%	4.23%	6.50%	6.50%	3,325.827	3,457.838	80.60%	80.60%	2.28%	4.06%
2044	6.50%	3,456.232	3,679.016	84.76%	84.76%	2.51%	4.72%	6.50%	6.50%	3,399.837	3,535.306	85.08%	85.08%	2.24%	4.48%
2045	6.50%	3,539.881	3,770.517	90.00%	90.00%	2.49%	5.24%	6.50%	6.50%	3,474.369	3,613.387	90.00%	90.00%	2.21%	4.92%
Total Contributions FY 2023-2045		$62,678.725	$66,245.697							$62,593.194	$65,070.450				
Total Present Value FY 2023-2045		$30,895.302	$32,574.025							$30,968.119	$32,198.285				
Difference from June 30, 2022 Valuation															
Total Contributions FY 2023-2045		$0.000	$0.000							-$85.531	-$1,175.247				
Total Present Value FY 2023-2045		$0.000	$0.000							$72.817	-$375.740				
Maximum Annual Increase														3.96%	4.92%
Maximum Annual Decrease														1.51%	-0.17%

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 2022 includes a contribution of $58.139 million from the Pension Stabilization Fund.

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

Exhibit 2

State Universities Retirement System
Comparison of Actuarial Valuation Results and Sensitivity Scenario 8 (Increase Percentage of Future New Hires Who Elect RSP by 15%)
Based on Actuarial Valuation as of June 30, 2022

$ in Millions

	June 30, 2022 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 2023)	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
2022		$2,136.059	$2,227.990	45.23%	45.16%			-1.36%		$2,136.059	$2,227.990	45.23%	45.16%		
2023	6.50%	2,071.091	2,160.874	45.95%	45.76%	-3.01%	0.72%	6.50%	6.50%	2,066.554	2,160.874	45.93%	45.74%	-3.01%	0.70%
2024	6.50%	2,091.856	2,186.028	46.71%	46.33%	1.16%	0.76%	6.50%	6.50%	2,065.689	2,168.878	46.62%	46.25%	0.37%	0.69%
2025	6.50%	2,134.957	2,235.370	47.76%	46.91%	2.26%	1.06%	6.50%	6.50%	2,106.968	2,219.874	47.60%	46.75%	2.35%	0.98%
2026	6.50%	2,178.750	2,284.663	47.51%	47.51%	2.21%	-0.25%	6.50%	6.50%	2,151.928	2,274.309	47.28%	47.28%	2.45%	-0.33%
2027	6.50%	2,214.609	2,325.999	48.12%	48.12%	1.81%	0.61%	6.50%	6.50%	2,189.329	2,321.027	47.81%	47.81%	2.05%	0.54%
2028	6.50%	2,304.665	2,421.502	48.86%	48.86%	4.11%	0.73%	6.50%	6.50%	2,280.702	2,421.614	48.47%	48.47%	4.33%	0.65%
2029	6.50%	2,362.469	2,484.794	49.66%	49.66%	2.61%	0.80%	6.50%	6.50%	2,340.543	2,490.700	49.19%	49.19%	2.85%	0.72%
2030	6.50%	2,417.868	2,545.777	50.53%	50.53%	2.45%	0.87%	6.50%	6.50%	2,398.319	2,557.841	49.98%	49.98%	2.70%	0.79%
2031	6.50%	2,475.191	2,608.826	51.49%	51.49%	2.48%	0.96%	6.50%	6.50%	2,458.394	2,627.436	50.86%	50.86%	2.72%	0.88%
2032	6.50%	2,539.631	2,679.150	52.56%	52.56%	2.70%	1.07%	6.50%	6.50%	2,525.943	2,704.659	51.86%	51.86%	2.94%	0.99%
2033	6.50%	2,611.831	2,757.429	53.77%	53.77%	2.92%	1.21%	6.50%	6.50%	2,601.595	2,790.181	53.00%	53.00%	3.16%	1.14%
2034	6.50%	2,701.591	2,853.471	55.18%	55.18%	3.48%	1.41%	6.50%	6.50%	2,696.462	2,895.143	54.35%	54.35%	3.76%	1.35%
2035	6.50%	2,770.951	2,929.279	56.78%	56.78%	2.66%	1.60%	6.50%	6.50%	2,769.770	2,978.739	55.89%	55.89%	2.89%	1.54%
2036	6.50%	2,840.818	3,005.684	58.59%	58.59%	2.61%	1.80%	6.50%	6.50%	2,844.016	3,063.414	57.65%	57.65%	2.84%	1.76%
2037	6.50%	2,911.629	3,083.203	60.62%	60.62%	2.58%	2.04%	6.50%	6.50%	2,919.660	3,149.717	59.65%	59.65%	2.82%	2.00%
2038	6.50%	2,984.129	3,162.605	62.99%	62.99%	2.58%	2.37%	6.50%	6.50%	2,997.462	3,238.431	62.00%	62.00%	2.82%	2.35%
2039	6.50%	3,058.319	3,243.815	65.66%	65.66%	2.57%	2.67%	6.50%	6.50%	3,077.422	3,329.461	64.67%	64.67%	2.81%	2.67%
2040	6.50%	3,134.141	3,326.882	68.66%	68.66%	2.56%	3.00%	6.50%	6.50%	3,159.516	3,422.893	67.71%	67.71%	2.81%	3.04%
2041	6.50%	3,212.250	3,412.331	72.03%	72.03%	2.57%	3.37%	6.50%	6.50%	3,244.372	3,519.201	71.16%	71.16%	2.81%	3.45%
2042	6.50%	3,292.179	3,499.709	75.81%	75.81%	2.56%	3.79%	6.50%	6.50%	3,331.552	3,617.977	75.06%	75.06%	2.81%	3.90%
2043	6.50%	3,373.687	3,588.773	80.05%	80.05%	2.54%	4.23%	6.50%	6.50%	3,420.816	3,718.976	79.47%	79.47%	2.79%	4.41%
2044	6.50%	3,456.232	3,679.016	84.76%	84.76%	2.51%	4.72%	6.50%	6.50%	3,511.676	3,821.774	84.44%	84.44%	2.76%	4.96%
2045	6.50%	3,539.881	3,770.517	90.00%	90.00%	2.49%	5.24%	6.50%	6.50%	3,604.206	3,926.460	90.00%	90.00%	2.74%	5.56%
Total Contributions FY 2023-2045		$62,678.725	$66,245.697							$62,762.894	$67,419.579				
Total Present Value FY 2023-2045		$30,895.302	$32,574.025							$30,822.485	$32,949.764				
Difference from June 30, 2022 Valuation															
Total Contributions FY 2023-2045		$0.000	$0.000							$84.169	$1,173.882				
Total Present Value FY 2023-2045		$0.000	$0.000							-$72.817	$375.739				
Maximum Annual Increase														4.33%	5.56%
Maximum Annual Decrease														2.05%	-0.33%

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 2022 includes a contribution of $58.139 million from the Pension Stabilization Fund.

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

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, 2022

		Scenario 1 (6.50% Volatile)		Scenario 2 (6.50% Volatile)		Scenario 3 (5.65% Volatile)		Scenario 4 (4.70% Volatile)	
Year	Baseline	Nominal [1]	Geometric [2]	Nominal [1]	Geometric [2]	Nominal [1]	Geometric [2]	Nominal [1]	Geometric [2]
2023	6.50%	12.29%	12.29%	-6.50%	-6.50%	17.34%	17.34%	-1.69%	-1.69%
2024	6.50%	-6.88%	2.26%	11.59%	2.15%	-2.21%	7.12%	4.73%	1.47%
2025	6.50%	9.51%	4.62%	-1.61%	0.88%	13.87%	9.32%	-9.11%	-2.19%
2026	6.50%	14.63%	7.04%	0.20%	0.71%	1.96%	7.43%	3.53%	-0.79%
2027	6.50%	11.37%	7.89%	4.65%	1.48%	15.75%	9.05%	37.08%	5.84%
2028	6.50%	1.67%	6.83%	-15.09%	-1.49%	7.83%	8.84%	-14.84%	2.07%
2029	6.50%	12.05%	7.56%	6.60%	-0.37%	0.99%	7.69%	3.65%	2.30%
2030	6.50%	4.47%	7.17%	21.71%	2.15%	-7.89%	5.60%	8.62%	3.07%
2031	6.50%	-9.16%	5.22%	19.47%	3.95%	-2.67%	4.65%	-5.42%	2.09%
2032	6.50%	21.14%	6.71%	13.08%	4.83%	6.67%	4.85%	12.97%	3.13%
2033	6.50%	-7.40%	5.34%	6.10%	4.94%	17.78%	5.96%	27.37%	5.13%
2034	6.50%	5.23%	5.33%	20.95%	6.19%	15.35%	6.72%	5.23%	5.13%
2035	6.50%	1.96%	5.07%	12.92%	6.69%	-9.38%	5.38%	3.07%	4.97%
2036	6.50%	-4.07%	4.39%	22.99%	7.78%	10.16%	5.72%	4.93%	4.97%
2037	6.50%	26.82%	5.75%	3.49%	7.49%	13.53%	6.22%	3.86%	4.90%
2038	6.50%	28.20%	7.03%	-11.00%	6.23%	8.87%	6.38%	-14.50%	3.56%
2039	6.50%	-7.05%	6.15%	-1.15%	5.78%	-2.20%	5.86%	40.04%	5.42%
2040	6.50%	0.45%	5.82%	-4.00%	5.21%	6.48%	5.89%	0.59%	5.14%
2041	6.50%	10.07%	6.04%	26.60%	6.24%	-2.13%	5.46%	0.35%	4.89%
2042	6.50%	22.62%	6.82%	9.27%	6.39%	17.82%	6.04%	-1.51%	4.56%
2043	6.50%	11.29%	7.02%	7.24%	6.43%	6.37%	6.06%	19.74%	5.23%
2044	6.50%	-8.33%	6.27%	18.00%	6.93%	-11.04%	5.21%	-2.99%	4.85%
2045	6.50%	11.60%	6.50%	-2.50%	6.50%	15.71%	5.65%	1.55%	4.70%

[1] *Nominal one-year rate of return.*

[2] *Cumulative average geometric return from 2022 through the current year.*

Exhibit 3

State Universities Retirement System of Illinois

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

Measured as of June 30, 2022

Applicable to Plan's Fiscal Year End June 30, 2022

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

GRS

P: 312.456.9800 | www.grsconsulting.com

October 26, 2022

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, 2021, and June 30, 2022, 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.

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.

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, 2021 and 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.

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.

This report reflects the impact of COVID-19 through June 30, 2022 on the assets and June 30, 2021 on the liabilities (which are then projected to June 30, 2022). However, this report does not reflect the longer term and still developing future impact of COVID-19, which is likely to further influence demographic experience and economic expectations. We will continue to monitor these developments and their impact on the Fund and the actuarial assumptions. Actual experience will be reflected in each subsequent annual valuation, as experience emerges.

The signing actuaries are independent of the plan sponsor.

Amy Williams and Brian Murphy 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

By Amy Williams
Amy Williams, ASA, MAAA, FCA
Senior Consultant

By Brian B Murphy
Brian Murphy, FSA, EA, MAAA, FCA, PhD
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, 2022

Actuarial Valuation Date		June 30, 2021
Measurement Date of the Net Pension Liability		June 30, 2022
Pension Plan's Fiscal Year Ending Date (Reporting Date) for GASB 67		June 30, 2022
Employer's Fiscal Year Ending Date (Reporting Date) for GASB 68		June 30, 2023
Membership as of the Actuarial Valuation Date		
Number of		
- Retirees and Beneficiaries		70,111
- Inactive, Nonretired Members		86,135
- Active Members		60,397
- Total		216,643
Estimated Covered Payroll [1]	$	3,613,383,275
Net Pension Liability		
Total Pension Liability	$	51,601,177,262
Plan Fiduciary Net Position		22,523,123,405
Net Pension Liability	$	29,078,053,857
Plan Fiduciary Net Position as a Percentage of Total Pension Liability		43.65 %
Net Pension Liability as a Percentage of Estimated Covered Payroll		804.73 %
Development of the Single Discount Rate		
Single Discount Rate, Beginning of Year		6.12 %
Single Discount Rate, End of Year		6.39 %
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*		1.92 %
Long-Term Municipal Bond Rate, End of Year*		3.69 %
Last year ending June 30 in the 2022 to 2121 projection period for which projected benefit payments are fully funded		2076
Total Pension Expense	$	1,961,221,028

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	$	31,973,496	$	28,674,599
Changes in assumptions		279,362,441		982,954,268
Net difference between projected and actual earnings on pension plan investments		31,628,935		0
Total	$	342,964,872	$	1,011,628,867

[1] *Defined benefit payroll for fiscal year ending June 30, 2022 is based on the employee contributions in the financial statements for fiscal year 2022 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, 2021 for beginning of year and as of June 30, 2022 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, 2022.

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 2076 and a GASB single discount rate of 6.39% to measure the total pension liability as of June 30, 2022. 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, 2021, 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 6.39%), and projected to a measurement date of June 30, 2022. The Total Pension Liability was rolled-forward to the June 30, 2022 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 6.39%. 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 3.69% (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 6.39%.

The last year for which projected benefits for current members are fully funded by projected assets attributable to those members changed from 2075 to 2076 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

No benefit changes were reflected in the funding actuarial valuation as of June 30, 2021, and therefore no benefit changes were reflected in this GASB Statement Nos. 67 and 68 valuation applicable to the plan's fiscal year ending June 30, 2022 and the employer's fiscal year ending June 30, 2023.

Actuarial Assumption Changes

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, 2021 and 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, 2022*

A. Expense

1. Service Cost	$	723,509,163
2. Interest on the Total Pension Liability		3,133,079,773
3. Current-Period Benefit Changes		0
4. Employee Contributions (made negative for addition here)		(289,070,662)
5. Projected Earnings on Plan Investments (made negative for addition here)		(1,527,041,048)
6. Pension Plan Administrative Expense		22,583,852
7. Other Changes in Plan Fiduciary Net Position		0
8. Recognition of Outflow (Inflow) of Resources due to Liabilities		629,533
9. Recognition of Outflow (Inflow) of Resources due to Assets		(102,469,583)
10. Total Pension Expense	**$**	**1,961,221,028**

* *Based on a measurement date of June 30, 2022. Will be used for fiscal year ending June 30, 2023. 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 595,514 years. Additionally, the total plan membership (active employees, inactive employees and retired members and beneficiaries) was 216,643. 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 2.7488 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, 2022*

Increase (Decrease) in Pension Expense Arising from difference between expected and actual experience
Recognized in Year Ending June 30

Year Ending June 30	Difference between expected and actual experience	Recognition Period (Years)	Total Deferred (2023-2026)	2020 & Prior**	2021	2022	2023	2024	2025	2026
2017	$ 210,625,398	2.9031	$ -	$ 210,625,398						
2018	(281,807,425)	2.7952	-	(281,807,425)						
2019	254,283,755	2.7008	-	188,302,544	$ 65,981,211					
2020	167,491,408	2.6805	-	62,485,136	62,485,136	$ 42,521,136				
2021	109,919,610	2.8204	31,973,496		38,973,057	38,973,057	$ 31,973,496			
2022	(45,071,327)	2.7488	(28,674,599)			(16,396,728)	(16,396,728)	$ (12,277,871)		
Total			3,298,897	179,605,653	167,439,404	65,097,465	15,576,768	(12,277,871)	-	-

Increase (Decrease) in Pension Expense Arising from changes in assumptions
Recognized in Year Ending June 30

Year Ending June 30	Changes in assumptions	Recognition Period (Years)	Total Deferred (2023-2026)	2020 & Prior**	2021	2022	2023	2024	2025	2026
2017	$ (396,096,848)	2.9031	$ -	$ (396,096,848)						
2018	1,992,356,758	2.7952	-	1,992,356,758						
2019	327,945,723	2.7008	-	242,850,802	$ 85,094,921					
2020	618,763,571	2.6805	-	230,838,863	230,838,863	$ 157,085,845				
2021	960,402,037	2.8204	279,362,441		340,519,798	340,519,798	$ 279,362,441			
2022	(1,545,027,843)	2.7488	(982,954,268)			(562,073,575)	(562,073,575)	$ (420,880,693)		
Total			(703,591,827)	2,069,949,575	656,453,582	(64,467,932)	(282,711,134)	(420,880,693)	-	-

Increase (Decrease) in Pension Expense Arising from net difference between projected and actual earnings on pension plan investments
Recognized in Year Ending June 30

Year Ending June 30	Difference between projected and actual earnings on pension plan investments	Recognition Period (Years)	Total Deferred (2023-2026)	2020 & Prior**	2021	2022	2023	2024	2025	2026
2017	$ (779,748,280)	5.0000	$ -	$ (623,798,624)	$ (155,949,656)					
2018	(183,313,712)	5.0000	-	(109,988,226)	(36,662,742)	$ (36,662,744)				
2019	150,007,091	5.0000	30,001,419	60,002,836	30,001,418	30,001,418	$ 30,001,419			
2020	767,412,581	5.0000	306,965,033	153,482,516	153,482,516	153,482,516	153,482,516	$ 153,482,517		
2021	(3,459,127,877)	5.0000	(2,075,476,727)		(691,825,575)	(691,825,575)	(691,825,575)	(691,825,575)	$ (691,825,577)	
2022	2,212,674,012	5.0000	1,770,139,210			442,534,802	442,534,802	442,534,802	442,534,802	$ 442,534,804
Total			31,628,935	(520,301,498)	(700,954,039)	(102,469,583)	(65,806,838)	(95,808,256)	(249,290,775)	442,534,804

Increase (Decrease) in Pension Expense Arising from All Sources
Recognized in Year Ending June 30

Year Ending June 30	Total Difference	Recognition Period (Years)	Total Deferred (2023-2026)	2020 & Prior**	2021	2022	2023	2024	2025	2026
2017	$ 1,761,222,552	Varies by Type	$ -	$ (809,270,074)	$ (155,949,656)					
2018	(965,219,730)	Varies by Type	-	1,600,561,107	(36,662,742)	$ (36,662,744)				
2019	1,527,235,621	Varies by Type	30,001,419	491,156,182	181,077,550	30,001,418	$ 30,001,419			
2020	732,236,569	Varies by Type	306,965,033	446,806,515	446,806,515	353,089,497	153,482,516	$ 153,482,517		
2021	1,553,667,560	Varies by Type	(1,764,140,790)		(312,332,720)	(312,332,720)	(380,489,638)	(691,825,575)	$ (691,825,577)	
2022	622,574,842	Varies by Type	758,510,343			(135,935,501)	(135,935,501)	9,376,238	442,534,802	$ 442,534,804
Total			(668,663,995)	1,729,253,730	122,938,947	(101,840,050)	(332,941,204)	(528,966,820)	(249,290,775)	442,534,804

* *Based on a measurement date of June 30, 2022. Will be used for fiscal year ending June 30, 2023. 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, 2016 that were fully recognized before year ending June 30, 2022.*

Statement of Outflows and Inflows Arising from Current Reporting Period Fiscal Year Ended June 30, 2022*

	Total Deferred (2023-2026)	Outflow of Resources Recognized in Year Ending June 30: 2020 & Prior**	2021	2022	2023	2024	2025	2026
Difference between expected and actual experience	$ 31,973,496	$ 461,413,078	$ 167,439,404	$ 81,494,193	$ 31,973,496	$ -	$ -	$ -
Changes in assumptions	279,362,441	2,466,046,423	656,453,582	497,605,643	279,362,441	-	-	-
Net difference between projected and actual earnings on investments	31,628,935	(520,301,498)	(700,954,039)	(102,469,583)	(65,806,838)	(95,808,256)	(249,290,775)	442,534,804
Total	342,964,872	$ 2,407,158,003	122,938,947	476,630,253	245,529,099	(95,808,256)	(249,290,775)	442,534,804

	Total Deferred (2023-2026)	(Inflows) of Resources Recognized in Year Ending June 30: 2020 & Prior**	2021	2022	2023	2024	2025	2026
Difference between expected and actual experience	$ (28,674,599)	$ (281,807,425)	$ -	$ (16,396,728)	$ (16,396,728)	$ (12,277,871)	$ -	$ -
Changes in assumptions	(982,954,268)	(396,096,848)	-	(562,073,575)	(562,073,575)	(420,880,693)	-	-
Net difference between projected and actual earnings on investments	-	-	-	-	-	-	-	-
Total	(1,011,628,867)	$ (677,904,273)	-	(578,470,303)	(578,470,303)	(433,158,564)	-	-

	Total Deferred (2023-2026)	Increase (Decrease) in Pension Expense Arising from Assets and Liabilities Recognized in Year Ending June 30: 2020 & Prior**	2021	2022	2023	2024	2025	2026
Total Liabilities	$ (700,292,930)	$ 2,249,555,228	$ 823,892,986	$ 629,533	$ (267,134,366)	$ (433,158,564)	$ -	$ -
Total Assets	31,628,935	(520,301,498)	(700,954,039)	(102,469,583)	(65,806,838)	(95,808,256)	(249,290,775)	442,534,804
Total	(668,663,995)	$ 1,729,253,730	122,938,947	(101,840,050)	(332,941,204)	(528,966,820)	(249,290,775)	442,534,804

* *Based on a measurement date of June 30, 2022. Will be used for fiscal year ending June 30, 2023. 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, 2016 that were fully recognized before year ending June 30, 2022.*

Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods
Fiscal Year Ended June 30, 2022*

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	$ 579,099,836	$ 578,470,303	$ 629,533
2. Due to Assets	0	102,469,583	(102,469,583)
3. Total	$ 579,099,836	$ 680,939,886	$ (101,840,050)

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	$ 81,494,193	$ 16,396,728	$ 65,097,465
2. Assumption Changes	497,605,643	562,073,575	(64,467,932)
3. Net difference between projected and actual earnings on pension plan investments	0	102,469,583	(102,469,583)
4. Total	$ 579,099,836	$ 680,939,886	$ (101,840,050)

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	$ 31,973,496	$ 28,674,599	$ 3,298,897
2. Assumption Changes	279,362,441	982,954,268	(703,591,827)
3. Net difference between projected and actual earnings on pension plan investments	31,628,935	0	31,628,935
4. Total	$ 342,964,872	$ 1,011,628,867	$ (668,663,995)

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
2023	$ (332,941,204)
2024	(528,966,820)
2025	(249,290,775)
2026	442,534,804
2027	0
Thereafter	0
Total	$ (668,663,995)

* *Based on a measurement date of June 30, 2022. Will be used for fiscal year ending June 30, 2023. 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, 2022

Assets	
Cash and short-term investments	$ 1,061,255,469
Receivables	
Members	$ 10,649,398
Non-employer contributing entity	-
Federal, trust funds and other	7,206,887
Pending investment sales	157,904,664
Interest and dividends	61,533,285
Total Receivables	$ 237,294,234
Prepaid expenses	$ 248,928
Investments, at fair value	
Equity investments	$ 7,827,398,404
Fixed income investments	5,206,315,692
Real estate investments	2,091,471,758
Alternative investments	6,153,566,562
Total Investments	$ 21,278,752,416
Securities lending collateral	$ 197,353,020
Capital assets, at cost, net of accumulated depreciation	$ 15,259,838
Total Assets	$ 22,790,163,905
Liabilities	
Payables	
Benefits payable	$ 18,257,707
Refunds payable	7,567,132
Securities lending collateral	197,002,904
Reverse repurchase agreements	-
Payable to brokers for unsettled trades	29,639,357
Investment expenses payable	9,398,697
Administrative expenses payable	5,174,703
Total Liabilities	$ 267,040,500
Net Position Restricted for Pensions	$ 22,523,123,405

Statement of Changes in Fiduciary Net Position for Year Ended June 30, 2022

Additions	
Contributions	
Employer	$ 57,906,329
Non-employer contributing entity	2,078,152,813 [1]
Member	289,070,662
Total Contributions	$ 2,425,129,804
Investment Income	
Net Appreciation in Fair Value of Investments	$ (993,854,105)
Interest	180,085,919
Dividends	233,414,277
Securities lending	6,360,276
Gross Investment Income	$ (573,993,633)
Less investment expense	
Asset management expense	111,067,193
Securities lending expense	572,138
Net investment income	$ (685,632,964)
Total Additions	$ 1,739,496,840
Deductions	
Benefits	$ 2,879,643,912
Refunds of contributions	82,458,931
Administrative expense	22,583,852
Total Deductions	$ 2,984,686,695
Net Increase in Net Position	$ (1,245,189,855)
Net Position Restricted for Pensions	
Beginning of Year	$ 23,768,313,260
End of Year	$ 22,523,123,405

[1] *Includes a contribution of $58,138,900 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, 2022

A. Total pension liability		
1. Service cost	$	723,509,163
2. Interest on the total pension liability		3,133,079,773
3. Changes of benefit terms		0
4. Difference between expected and actual experience of the total pension liability		(45,071,327)
5. Changes of assumptions		(1,545,027,843)
6. Benefit payments, including refunds of employee contributions		(2,962,102,843)
7. Net change in total pension liability		(695,613,077)
8. Total pension liability – beginning		52,296,790,339
9. Total pension liability – ending	$	51,601,177,262
B. Plan fiduciary net position		
1. Contributions – employer & non-employer contributing entity	$	2,136,059,142
2. Contributions – employee		289,070,662
3. Net investment income		(685,632,964)
4. Benefit payments, including refunds of employee contributions		(2,962,102,843)
5. Pension plan administrative expense		(22,583,852)
6. Other		0
7. Net change in plan fiduciary net position		(1,245,189,855)
8. Plan fiduciary net position – beginning		23,768,313,260
9. Plan fiduciary net position – ending	$	22,523,123,405
C. Net pension liability	$	29,078,053,857
D. Plan fiduciary net position as a percentage of the total pension liability		43.65 %
E. Estimated covered-employee payroll	$	3,613,383,275
F. Net pension liability as a percentage of estimated covered-employee payroll		804.73 %

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

Last 10 Fiscal Years (which may be built prospectively)

Fiscal year ending June 30,	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
Total pension liability										
Service cost	$ 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	3,133,079,773	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	-	2,341,698	-	-	-	-	-	-	-	
Difference between expected and actual experience	(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	(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	(2,879,643,912)	(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	(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	(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	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)	$ 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	$ 2,136,059,142	$ 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	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	(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	(2,879,643,912)	(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	(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	(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	(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	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	
Plan fiduciary net position - ending (b)	$ 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)	$ 29,078,053,857	$ 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	43.65 %	45.45 %	39.05 %	40.71 %	41.27 %	42.04 %	39.57 %	42.37 %	44.39 %	
Estimated Covered-employee payroll	$ 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	804.73 %	784.13 %	840.59 %	819.02 %	792.30 %	736.81 %	739.10 %	658.70 %	618.67 %	
Single Discount Rate, Beginning of Year	6.12 %	6.49 %	6.59 %	6.65 %	7.09 %	7.01 %	7.12 %	7.09 %	7.12 %	
Single Discount Rate, End of Year	6.39 %	6.12 %	6.49 %	6.59 %	6.65 %	7.09 %	7.01 %	7.12 %	7.09 %	7.12 %
Long-Term Municipal Bond Rate	3.69 %	1.92 %	2.45 %	3.13 %	3.62 %	3.56 %	2.85 %	3.80 %	4.29 %	4.63 %
Long-Term Municipal Bond Rate Date	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	June 27, 2013

Defined benefit payroll for fiscal year ending June 30, 2022 is based on the employee contributions in the financial statements for fiscal year 2022 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 (which may be built prospectively)

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 %

Defined benefit payroll for fiscal year ending June 30, 2022 is based on the employee contributions in the financial statements for fiscal year 2022 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
2013	$ 1,549,287	$ 1,401,481	$ 147,806	$ 3,533,858	39.66 %
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 %

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 year ending June 30, 2022 is based on the employee contributions in the financial statements for fiscal year 2022 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, 2021
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	23 Years Remaining for Fiscal Year 2022
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, 2022 was determined in the funding actuarial valuation as of June 30, 2021 and the statutory contribution (upon which the actual contribution was based) for fiscal year ending June 30, 2022 was determined in the funding actuarial valuation as of June 30, 2020. The total pension liability as of June 30, 2022 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]
2013	
2014	
2015	
2016	
2017	
2018	
2019	
2020	
2021	
2022	

[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 6.39% 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 3.69%. 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 finance the benefit payments through the year 2076. As a result, the long-term expected rate of return on pension plan investments was applied to projected benefit payments through the year 2076, and the municipal bond rate was applied to all benefit payments after that date.

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 6.39%, 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 5.39%	Current Single Discount Rate Assumption 6.39%	1% Increase 7.39%
Total Pension Liability (TPL)	$ 57,784,926,373	$ 51,601,177,262	$ 46,451,854,481
Net Position Restricted for Pensions	22,523,123,405	22,523,123,405	22,523,123,405
Net Pension Liability (NPL)	$ 35,261,802,968	$ 29,078,053,857	$ 23,928,731,076

Summary of Population Statistics as of June 30, 2021

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	70,111
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	86,135
Active Plan Members	60,397
Total Plan Members	216,643

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

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)
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 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%

[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 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.

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 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) 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 ($116,740 in fiscal year 2022 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:

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

Disability rates apply during the retirement eligibility period.

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

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 2021 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 36.8 and average capped pay of $43,292 and average uncapped pay of $45,565 (2021 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 2021 dollars) of current active members with service between one and four years.

Academic

Summary of New Entrants - 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	2	$46,423	$46,423	2	$34,714	$34,714	4	$40,568	$40,568
20 - 24	74	28,716	28,716	96	30,642	30,642	170	29,804	29,804
25 - 29	308	45,082	48,422	393	42,895	44,061	701	43,856	45,977
30 - 34	427	59,409	66,698	574	51,395	56,549	1,001	54,814	60,878
35 - 39	424	53,116	61,094	475	47,854	51,967	899	50,336	56,272
40 - 44	266	52,270	62,487	300	43,204	47,122	566	47,465	54,343
45 - 49	191	43,273	49,475	212	40,229	44,675	403	41,672	46,950
50 - 54	141	45,309	54,497	151	39,231	43,161	292	42,166	48,635
55 - 59	122	44,509	52,812	130	33,093	36,664	252	38,620	44,482
60 - 64	90	33,655	44,608	79	30,968	35,193	169	32,399	40,207
65 - 69	10	23,525	25,224	2	8,223	8,223	12	20,975	22,391
Total	2,055	$49,267	$56,438	2,414	$44,026	$47,704	4,469	$46,436	$51,721

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	45	$21,401	$21,401	47	$19,229	$19,229	92	$20,291	$20,291
20 - 24	646	32,652	32,652	1,094	30,919	30,919	1,740	31,562	31,562
25 - 29	1,239	41,746	41,818	1,866	40,292	40,390	3,105	40,872	40,960
30 - 34	976	47,297	48,817	1,449	43,226	43,898	2,425	44,865	45,878
35 - 39	598	50,844	52,562	1,089	43,879	44,588	1,687	46,347	47,414
40 - 44	466	50,584	52,709	794	44,319	45,626	1,260	46,636	48,246
45 - 49	419	49,900	53,695	719	42,414	44,169	1,138	45,170	47,676
50 - 54	353	48,657	52,190	553	40,681	42,475	906	43,789	46,260
55 - 59	253	50,351	58,875	423	39,922	42,725	676	43,825	48,769
60 - 64	120	49,463	59,239	165	38,119	42,040	285	42,895	49,282
65 - 69	4	66,862	66,862	5	20,099	20,099	9	40,882	40,882
Total	5,119	$45,115	$47,021	8,204	$40,443	$41,302	13,323	$42,238	$43,500

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 2022 are $1,043,478 and actual FY 2021 RSP employer forfeitures used to reduce the certified contributions for FY 2023 are $7,175,000 (as provided by SURS). Estimated RSP expenses for FY 2023 and after are assumed to increase by 3.00%. Estimated RSP employer forfeitures used to reduce the certified contributions for FY 2024 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, 2022 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.

	Through 5/31/2020			Through 6/30/2021		
	AAI	VIB	Total	AAI	VIB	Total
Number Eligible for the buyout*	2,454	23,669	26,123	5,765	23,669	29,434
Buyout applications received	80	59	139	221	94	315
Buyout election forms sent	22	31	53	106	67	173
Buyout election forms approved	14	19	33	72	42	114
Application %	3.3%	0.2%	0.5%	3.8%	0.4%	1.1%
Approved %	0.6%	0.1%	0.1%	1.2%	0.2%	0.4%
Approved buyout amount**	$1.4	$3.0	$4.3	$6.8	$17.5	$24.3
Estimated Approved buyout (non EBA)	$1.4	$3.0	$4.3	$6.8	$ 9.1	$15.9
Estimated Liability Reduction	$2.0	$4.9	$6.9	$9.6	$15.2	$24.8

* *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:

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 3.69%; and the resulting Single Discount Rate is 6.39%.

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 54, 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 3.69% is equal to the present value of all projected benefit payments using a single equivalent discount rate of 6.39%.

Exhibit 3

Single Discount Rate Development
Projection of Contributions Ending June 30 for 2022 to 2081

Year Ending June 30,	Projected Contributions from Current Employees	Projected Service Cost and Expense Contributions	Projected UAL Contributions	Projected Total Contributions
2022	$ 277,897,428	$ 407,588,517	$ 1,665,871,049	$ 2,351,356,994
2023	261,421,919	381,428,199	1,695,168,193	2,338,018,310
2024	246,161,511	356,596,444	1,724,946,429	2,327,704,384
2025	232,608,953	333,018,177	1,728,792,777	2,294,419,907
2026	220,315,487	311,161,892	1,732,427,620	2,263,904,998
2027	208,918,124	290,818,322	1,726,631,308	2,226,367,755
2028	198,172,181	271,698,021	1,783,912,002	2,253,782,204
2029	187,767,994	253,458,705	1,842,153,180	2,283,379,879
2030	177,750,073	235,729,078	1,901,384,392	2,314,863,543
2031	167,930,151	218,588,223	1,960,862,488	2,347,380,862
2032	158,483,470	201,884,802	2,021,690,412	2,382,058,684
2033	149,505,329	185,934,760	2,084,763,096	2,420,203,184
2034	140,868,711	170,878,450	2,148,762,479	2,460,509,639
2035	132,383,115	156,563,574	2,213,399,956	2,502,346,645
2036	124,007,681	142,861,097	2,278,306,849	2,545,175,627
2037	115,701,189	129,724,827	2,344,253,866	2,589,679,882
2038	107,631,096	117,070,396	2,411,319,771	2,636,021,263
2039	100,020,422	105,092,292	2,479,528,317	2,684,641,031
2040	92,791,906	94,052,275	2,548,993,077	2,735,837,257
2041	86,272,058	83,914,392	2,620,427,588	2,790,614,038
2042	80,266,967	75,040,872	2,692,641,569	2,847,949,409
2043	74,736,625	67,167,335	2,765,900,754	2,907,804,713
2044	69,464,957	60,238,794	2,839,727,585	2,969,431,336
2045	64,442,960	53,992,383	2,914,460,267	3,032,895,610
2046	59,654,212	48,365,491	415,077,273	523,096,976
2047	54,960,115	43,299,525	414,300,759	512,560,399
2048	50,292,499	38,659,942	413,500,975	502,453,416
2049	45,702,408	34,367,250	412,665,237	492,734,896
2050	41,170,956	30,398,775	411,940,734	483,510,465
2051	36,630,960	26,733,323	411,262,810	474,627,093
2052	32,204,536	23,295,259	410,618,631	466,118,426
2053	27,875,168	20,138,930	410,136,908	458,151,005
2054	23,813,671	17,170,498	409,809,247	450,793,416
2055	20,013,704	14,496,079	409,821,706	444,331,490
2056	16,492,343	12,070,175	410,131,885	438,694,404
2057	13,268,901	9,880,792	410,661,855	433,811,548
2058	10,364,964	7,915,649	411,364,383	429,644,995
2059	7,836,929	6,170,014	412,229,653	426,236,596
2060	5,700,446	4,674,681	413,238,083	423,613,210
2061	4,023,271	3,404,003	414,469,139	421,896,413
2062	2,806,497	2,394,171	416,013,225	421,213,893
2063	1,928,433	1,666,337	417,661,293	421,256,063
2064	1,321,190	1,139,436	419,385,011	421,845,637
2065	892,991	779,343	421,223,456	422,895,791
2066	601,644	524,861	423,171,736	424,298,242
2067	407,354	352,044	425,212,298	425,971,695
2068	271,321	238,045	427,386,236	427,895,602
2069	179,520	157,926	429,688,778	430,026,225
2070	116,990	103,972	432,124,074	432,345,036
2071	74,679	67,512	434,713,002	434,855,193
2072	47,384	42,762	437,474,634	437,564,780
2073	29,945	26,646	440,435,868	440,492,459
2074	18,010	16,608	443,629,853	443,664,472
2075	10,175	9,599	447,090,944	447,110,719
2076	5,380	5,070	450,852,560	450,863,010
2077	2,759	2,597	454,951,812	454,957,167
2078	1,130	1,296	459,415,901	459,418,327
2079	450	489	464,269,262	464,270,200
2080	156	201	469,528,784	469,529,141
2081	30	68	475,201,983	475,202,080

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 2022 to 2081

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)
2022	$ 23,768,313,260	$ 2,351,356,994	$ 3,045,763,801	$ 23,371,000	$ 1,521,979,818	$ 24,572,515,272
2023	24,572,515,272	2,338,018,310	3,112,813,168	22,501,974	1,571,709,265	25,346,927,706
2024	25,346,927,706	2,327,704,384	3,209,695,524	21,605,247	1,618,645,723	26,061,977,043
2025	26,061,977,043	2,294,419,907	3,308,526,032	20,746,486	1,660,925,257	26,688,049,689
2026	26,688,049,689	2,263,904,998	3,401,499,363	19,964,110	1,697,694,819	27,228,186,033
2027	27,228,186,033	2,226,367,755	3,490,468,255	19,225,692	1,728,780,576	27,673,640,417
2028	27,673,640,417	2,253,782,204	3,576,642,214	18,503,814	1,755,878,582	28,088,155,176
2029	28,088,155,176	2,283,379,879	3,657,849,593	17,787,770	1,781,194,036	28,477,091,728
2030	28,477,091,728	2,314,863,543	3,741,161,332	17,079,608	1,804,839,669	28,838,554,000
2031	28,838,554,000	2,347,380,862	3,822,758,763	16,374,590	1,826,787,276	29,173,588,786
2032	29,173,588,786	2,382,058,684	3,901,240,795	15,670,039	1,847,185,850	29,485,922,486
2033	29,485,922,486	2,420,203,184	3,969,419,435	14,974,055	1,866,549,060	29,788,281,240
2034	29,788,281,240	2,460,509,639	4,029,656,788	14,294,980	1,885,586,545	30,090,425,655
2035	30,090,425,655	2,502,346,645	4,084,581,331	13,621,010	1,904,828,842	30,399,398,800
2036	30,399,398,800	2,545,175,627	4,132,363,551	12,941,062	1,924,775,401	30,724,045,215
2037	30,724,045,215	2,589,679,882	4,095,760,222	12,251,327	1,948,493,981	31,154,207,529
2038	31,154,207,529	2,636,021,263	4,126,918,333	11,557,699	1,976,962,407	31,628,715,166
2039	31,628,715,166	2,684,641,031	4,146,533,883	10,876,562	2,008,754,990	32,164,700,741
2040	32,164,700,741	2,735,837,257	4,157,950,924	10,218,244	2,044,887,582	32,777,256,413
2041	32,777,256,413	2,790,614,038	4,156,777,067	9,594,838	2,086,513,412	33,488,011,958
2042	33,488,011,958	2,847,949,409	4,143,023,364	9,018,922	2,135,004,969	34,318,924,049
2043	34,318,924,049	2,907,804,713	4,118,443,391	8,480,840	2,191,732,414	35,291,536,945
2044	35,291,536,945	2,969,431,336	4,084,141,514	7,970,868	2,258,037,162	36,426,893,061
2045	36,426,893,061	3,032,895,610	4,040,607,076	7,478,219	2,335,273,784	37,746,977,159
2046	37,746,977,159	523,096,976	3,991,008,148	7,002,489	2,342,396,684	36,614,460,183
2047	36,614,460,183	512,560,399	3,935,039,824	6,536,507	2,270,251,275	35,455,695,526
2048	35,455,695,526	502,453,416	3,875,574,223	6,068,908	2,196,525,431	34,273,031,242
2049	34,273,031,242	492,734,896	3,813,265,520	5,598,058	2,121,349,589	33,068,252,149
2050	33,068,252,149	483,510,465	3,749,459,626	5,125,774	2,044,800,028	31,841,977,242
2051	31,841,977,242	474,627,093	3,684,997,227	4,646,886	1,966,885,360	30,593,845,581
2052	30,593,845,581	466,118,426	3,620,260,183	4,163,141	1,887,570,931	29,323,111,613
2053	29,323,111,613	458,151,005	3,555,776,779	3,680,540	1,806,796,515	28,028,601,814
2054	28,028,601,814	450,793,416	3,490,435,244	3,207,895	1,724,523,309	26,710,275,401
2055	26,710,275,401	444,331,490	3,424,469,156	2,756,473	1,640,749,974	25,368,131,235
2056	25,368,131,235	438,694,404	3,357,286,286	2,327,609	1,555,493,071	24,002,704,814
2057	24,002,704,814	433,811,548	3,287,413,303	1,924,390	1,468,832,180	22,616,010,850
2058	22,616,010,850	429,644,995	3,214,039,536	1,550,262	1,380,922,866	21,210,988,914
2059	21,210,988,914	426,236,596	3,136,446,965	1,211,452	1,291,980,309	19,791,547,402
2060	19,791,547,402	423,613,210	3,052,774,861	914,482	1,202,318,727	18,363,789,995
2061	18,363,789,995	421,896,413	2,962,947,091	666,660	1,112,340,950	16,934,413,607
2062	16,934,413,607	421,213,893	2,867,118,185	475,276	1,022,481,185	15,510,515,225
2063	15,510,515,225	421,256,063	2,764,840,694	334,545	933,205,331	14,099,801,379
2064	14,099,801,379	421,845,637	2,656,566,127	233,104	844,994,563	12,709,842,348
2065	12,709,842,348	422,895,791	2,543,585,717	161,309	758,297,174	11,347,288,288
2066	11,347,288,288	424,298,242	2,426,763,821	110,595	673,514,587	10,018,226,700
2067	10,018,226,700	425,971,695	2,306,572,117	75,840	591,024,964	8,728,575,402
2068	8,728,575,402	427,895,602	2,184,374,669	51,841	511,168,837	7,483,213,332
2069	7,483,213,332	430,026,225	2,060,948,598	35,001	434,237,195	6,286,493,153
2070	6,286,493,153	432,345,036	1,936,784,755	23,404	360,496,729	5,142,526,760
2071	5,142,526,760	434,855,193	1,812,526,601	15,384	290,194,282	4,055,034,249
2072	4,055,034,249	437,564,780	1,688,722,269	9,962	223,554,416	3,027,421,214
2073	3,027,421,214	440,492,459	1,565,962,479	6,419	160,780,220	2,062,724,995
2074	2,062,724,995	443,664,472	1,444,905,508	4,051	102,048,924	1,163,528,833
2075	1,163,528,833	447,110,719	1,326,211,934	2,424	47,508,280	331,933,474
2076	331,933,474	450,863,010	1,210,536,966	1,362	0	0
2077	0	454,957,167	1,098,532,247	725	0	0
2078	0	459,418,327	990,834,118	354	0	0
2079	0	464,270,200	888,029,579	146	0	0
2080	0	469,529,141	790,637,775	57	0	0
2081	0	475,202,080	699,098,961	18	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 2022 to 2121

Year Ending June 30,	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 3.69% (vf)	Present Value of All Benefit Payments using Single Discount Rate (SDR) of 6.39%
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v^((a)-.5)	(g)=(e)*vf ^((a)-.5)	(h)=((c)/(1+SDR)^(a-.5)
2022	$ 23,768,313,260	$ 3,045,763,801	$ 3,045,763,801	$ 0	$ 2,951,354,766	$ 0	$ 2,952,924,093
2023	24,572,515,272	3,112,813,168	3,112,813,168	0	2,832,230,813	0	2,836,751,169
2024	25,346,927,706	3,209,695,524	3,209,695,524	0	2,742,141,220	0	2,749,439,382
2025	26,061,977,043	3,308,526,032	3,308,526,032	0	2,654,061,174	0	2,663,955,670
2026	26,688,049,689	3,401,499,363	3,401,499,363	0	2,562,106,386	0	2,574,393,656
2027	27,228,186,033	3,490,468,255	3,490,468,255	0	2,468,657,554	0	2,483,135,279
2028	27,673,640,417	3,576,642,214	3,576,642,214	0	2,375,215,658	0	2,391,686,822
2029	28,088,155,176	3,657,849,593	3,657,849,593	0	2,280,887,081	0	2,299,147,221
2030	28,477,091,728	3,741,161,332	3,741,161,332	0	2,190,457,195	0	2,210,342,119
2031	28,838,554,000	3,822,758,763	3,822,758,763	0	2,101,626,900	0	2,122,961,314
2032	29,173,588,786	3,901,240,795	3,901,240,795	0	2,013,872,054	0	2,036,479,626
2033	29,485,922,486	3,969,419,435	3,969,419,435	0	1,924,006,356	0	1,947,674,729
2034	29,788,281,240	4,029,656,788	4,029,656,788	0	1,833,994,213	0	1,858,530,193
2035	30,090,425,655	4,084,581,331	4,084,581,331	0	1,745,532,113	0	1,770,766,249
2036	30,399,398,800	4,132,363,551	4,132,363,551	0	1,658,170,596	0	1,683,931,166
2037	30,724,045,215	4,095,760,222	4,095,760,222	0	1,543,176,508	0	1,568,817,631
2038	31,154,207,529	4,126,918,333	4,126,918,333	0	1,460,015,097	0	1,485,853,315
2039	31,628,715,166	4,146,533,883	4,146,533,883	0	1,377,422,213	0	1,403,289,922
2040	32,164,700,741	4,157,950,924	4,157,950,924	0	1,296,915,304	0	1,322,676,604
2041	32,777,256,413	4,156,777,067	4,156,777,067	0	1,217,417,056	0	1,242,919,985
2042	33,488,011,958	4,143,023,364	4,143,023,364	0	1,139,332,335	0	1,164,436,862
2043	34,318,924,049	4,118,443,391	4,118,443,391	0	1,063,448,673	0	1,088,037,312
2044	35,291,536,945	4,084,141,514	4,084,141,514	0	990,226,642	0	1,014,199,973
2045	36,426,893,061	4,040,607,076	4,040,607,076	0	919,879,282	0	943,151,713
2046	37,746,977,159	3,991,008,148	3,991,008,148	0	853,133,948	0	875,648,236
2047	36,614,460,183	3,935,039,824	3,935,039,824	0	789,830,924	0	811,536,990
2048	35,455,695,526	3,875,574,223	3,875,574,223	0	730,417,976	0	751,289,591
2049	34,273,031,242	3,813,265,520	3,813,265,520	0	674,812,056	0	694,833,077
2050	33,068,252,149	3,749,459,626	3,749,459,626	0	623,024,119	0	642,191,044
2051	31,841,977,242	3,684,997,227	3,684,997,227	0	574,941,604	0	593,259,708
2052	30,593,845,581	3,620,260,183	3,620,260,183	0	530,367,309	0	547,847,390
2053	29,323,111,613	3,555,776,779	3,555,776,779	0	489,127,234	0	505,785,561
2054	28,028,601,814	3,490,435,244	3,490,435,244	0	450,834,697	0	466,684,791
2055	26,710,275,401	3,424,469,156	3,424,469,156	0	415,318,616	0	430,377,389
2056	25,368,131,235	3,357,286,286	3,357,286,286	0	382,319,904	0	396,603,634
2057	24,002,704,814	3,287,413,303	3,287,413,303	0	351,514,490	0	365,035,201
2058	22,616,010,850	3,214,039,536	3,214,039,536	0	322,693,733	0	335,462,344
2059	21,210,988,914	3,136,446,965	3,136,446,965	0	295,683,886	0	307,710,727
2060	19,791,547,402	3,052,774,861	3,052,774,861	0	270,230,819	0	281,521,514
2061	18,363,789,995	2,962,947,091	2,962,947,091	0	246,271,633	0	256,834,189
2062	16,934,413,607	2,867,118,185	2,867,118,185	0	223,762,075	0	233,607,434
2063	15,510,515,225	2,764,840,694	2,764,840,694	0	202,610,240	0	211,749,942
2064	14,099,801,379	2,656,566,127	2,656,566,127	0	182,794,153	0	191,243,174
2065	12,709,842,348	2,543,585,717	2,543,585,717	0	164,338,167	0	172,117,019
2066	11,347,288,288	2,426,763,821	2,426,763,821	0	147,221,069	0	154,353,711
2067	10,018,226,700	2,306,572,117	2,306,572,117	0	131,389,265	0	137,901,416
2068	8,728,575,402	2,184,374,669	2,184,374,669	0	116,834,302	0	122,755,496
2069	7,483,213,332	2,060,948,598	2,060,948,598	0	103,504,872	0	108,866,209
2070	6,286,493,153	1,936,784,755	1,936,784,755	0	91,332,507	0	96,165,528
2071	5,142,526,760	1,812,526,601	1,812,526,601	0	80,256,239	0	84,593,029

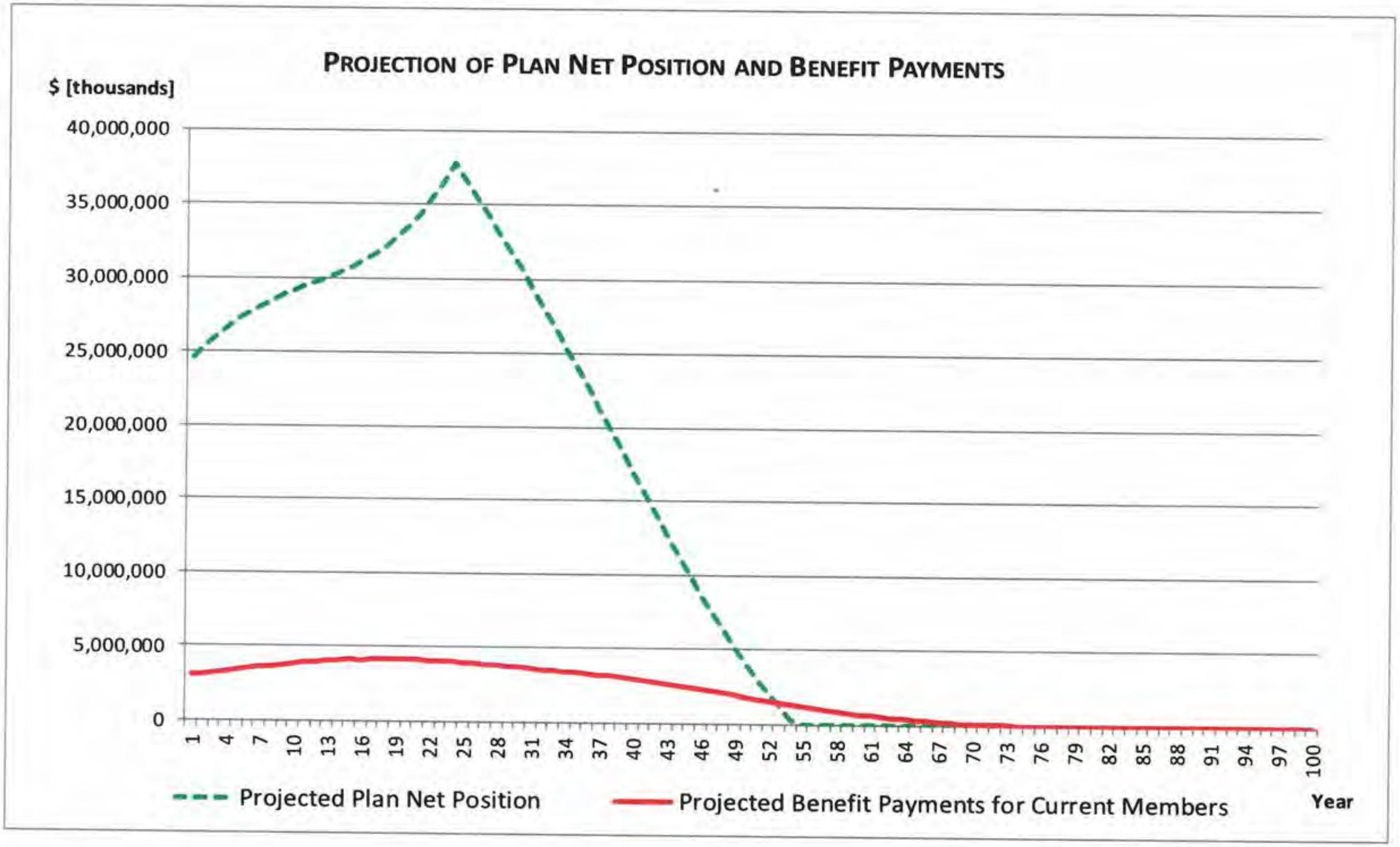
The projections in this report are strictly for the purpose of determining the GASB single discount rate and are different from a funding projection for the ongoing plan.

Exhibit 3

Single Discount Rate Development
Present Values of Projected Benefits Ending June 30 for 2022 to 2121 (Concluded)

Year Ending June 30,	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 3.69% (vf)	Present Value of All Benefit Payments using Single Discount Rate (SDR) of 6.39%
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v^((a)-.5)	(g)=(e)*vf ^((a)-.5)	(h)=((c)/(1+SDR)^(a-.5)
2072	$ 4,055,034,249	$ 1,688,722,269	$ 1,688,722,269	$ 0	$ 70,210,657	$ 0	$ 74,083,338
2073	3,027,421,214	1,565,962,479	1,565,962,479	0	61,133,119	0	64,573,718
2074	2,062,724,995	1,444,905,508	1,444,905,508	0	52,964,520	0	56,004,898
2075	1,163,528,833	1,326,211,934	1,326,211,934	0	45,646,651	0	48,318,297
2076	331,933,474	1,210,536,966	342,551,486	867,985,481	11,070,627	120,462,758	41,456,141
2077	0	1,098,532,247	0	1,098,532,247	0	147,033,494	35,361,913
2078	0	990,834,118	0	990,834,118	0	127,899,116	29,980,303
2079	0	888,029,579	0	888,029,579	0	110,549,593	25,256,585
2080	0	790,637,775	0	790,637,775	0	94,922,770	21,136,685
2081	0	699,098,961	0	699,098,961	0	80,945,857	17,567,505
2082	0	613,752,780	0	613,752,780	0	68,535,024	14,496,963
2083	0	534,833,511	0	534,833,511	0	57,597,128	11,874,472
2084	0	462,469,260	0	462,469,260	0	48,031,729	9,651,408
2085	0	396,684,018	0	396,684,018	0	39,733,166	7,781,524
2086	0	337,404,065	0	337,404,065	0	32,592,818	6,221,318
2087	0	284,466,596	0	284,466,596	0	26,501,228	4,930,324
2088	0	237,630,714	0	237,630,714	0	21,350,125	3,871,318
2089	0	196,589,799	0	196,589,799	0	17,034,208	3,010,436
2090	0	160,984,178	0	160,984,178	0	13,452,633	2,317,201
2091	0	130,414,928	0	130,414,928	0	10,510,286	1,764,493
2092	0	104,456,703	0	104,456,703	0	8,118,703	1,328,438
2093	0	82,668,266	0	82,668,266	0	6,196,583	988,225
2094	0	64,602,687	0	64,602,687	0	4,670,111	725,905
2095	0	49,817,543	0	49,817,543	0	3,473,138	526,167
2096	0	37,883,424	0	37,883,424	0	2,547,136	376,099
2097	0	28,391,216	0	28,391,216	0	1,840,984	264,941
2098	0	20,958,699	0	20,958,699	0	1,310,670	183,841
2099	0	15,235,129	0	15,235,129	0	918,837	125,613
2100	0	10,904,472	0	10,904,472	0	634,249	84,510
2101	0	7,687,725	0	7,687,725	0	431,237	56,003
2102	0	5,343,941	0	5,343,941	0	289,097	36,592
2103	0	3,669,702	0	3,669,702	0	191,459	23,619
2104	0	2,497,421	0	2,497,421	0	125,661	15,109
2105	0	1,692,612	0	1,692,612	0	82,135	9,625
2106	0	1,150,204	0	1,150,204	0	53,828	6,148
2107	0	790,440	0	790,440	0	35,675	3,972
2108	0	554,539	0	554,539	0	24,138	2,619
2109	0	400,409	0	400,409	0	16,808	1,778
2110	0	298,812	0	298,812	0	12,097	1,247
2111	0	230,143	0	230,143	0	8,986	903
2112	0	181,764	0	181,764	0	6,844	670
2113	0	145,935	0	145,935	0	5,300	506
2114	0	117,993	0	117,993	0	4,132	384
2115	0	95,200	0	95,200	0	3,215	291
2116	0	76,063	0	76,063	0	2,478	219
2117	0	59,812	0	59,812	0	1,879	162
2118	0	46,073	0	46,073	0	1,396	117
2119	0	34,632	0	34,632	0	1,012	83
2120	0	25,327	0	25,327	0	714	57
2121	0	0	0	0	0	0	0
				Totals	$ 55,027,738,599	$ 1,048,160,433	$ 56,075,899,032

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, 2021, and ending June 30, 2022.

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.

Exhibit 3

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 9, 2022
Re:	Actuarial Valuation Report as of June 30, 2022 GASB 67 and 68 Report as of June 30, 2022

At the December 9, 2022 Administration Committee meeting, Gabriel Roeder Smith & Company (GRS) will present the Actuarial Valuation report and the GASB 67/68 report as of June 30, 2022 for the State Universities Retirement System.

Recommendation

- **SURS staff and Gabriel Roeder Smith & Company jointly recommend that the Actuarial Valuation Report and GASB 67/68 Report as of June 30, 2022 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 9, 2022
Re:	State Contribution for Fiscal Year 2024

Overview

The proposed State contribution for Fiscal Year 2024 will be certified at $2,133,335,000.

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 2024 is $2,203,828,000 (includes $94,172,000 projected Retirement Savings Plan (RSP) State contribution).[1] The contribution is 40.42% of the $5.2 billion assumed pensionable payroll for Fiscal Year 2024.[2]

The Statutory contribution is increased by the projected excess benefit arrangement (EBA) contribution required. For Fiscal Year 2024 the EBA amount is projected to be $17,300,000. The estimated trust, federal, and other funds is projected to be $65,500,000 for Fiscal Year 2024. 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	**$2,203,828,000**
Less projected trust, federal and other funds	**65,500,000**
Less projected contributions from earnings that exceed Governor's salary	**4,993,000**
Net State contribution (including EBA) to be certified	**$2,133,335,000**

Recommendation

Based on the recommendation of Gabriel Roeder Smith & Company, the amount of $2,133,335,000 should be certified for Fiscal Year 2024 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, 2022.

P: 312.456.9800 | www.grsconsulting.com

December 2, 2022

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, 2022 Actuarial Valuation

Dear Members of the Board:

At your request, we have reviewed the report issued by Cheiron dated December 1, 2022 – 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, 2022 actuarial valuation of SURS prepared by Gabriel, Roeder, Smith & Company ("GRS").

Assessment of Actuarial Assumptions and Methods Used in the 2022 Valuation

This report issued by the State Actuary, Cheiron, indicates that "**In summary, we believe that the assumptions and methods used in the June 30, 2022 Actuarial Valuation, which are used to determine the required Fiscal Year 2024 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.**"

Proposed Certification of the Required State Contribution

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.

State Mandated Funding Method

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, 2022 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. In addition, we encourage Cheiron, in their role as the State Actuary, to also address this issue directly with the State of Illinois.

Conformance to Statutory Funding Changes of Public Act 100-0023

In this section, 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, 2022 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."

Conformance to Statutory Funding Changes of Public Act 100-0587

Cheiron describes the provisions from Public Act 100-0587 (accelerated pension benefit payment option). They do not note any recommendations in this section. Regarding the assumption used in the June 30, 2022 actuarial valuation of no participants electing the accelerated pension benefit payment option they state, "We believe this approach is reasonable."

Assessment of Actuarial Assumptions Used in the 2022 Valuation

Cheiron states, "We have reviewed all the actuarial assumptions used in the draft June 30, 2022 Actuarial Valuation and conclude that the recommended assumptions are reasonable in general, based on the evidence provided to us."

Recommended Changes for Future Valuations

Recommendation #3 is "We recommend that future stress testing include the impact to the required State contribution of potential reductions in the discount rate."

The following information was included on page 17 of the final June 30, 2022 actuarial valuation report and, therefore, addresses this recommendation:

"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."

Recommendations #4 and #5 relate to Actuarial Standard of Practice (ASOP) No. 51, Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions.

Recommendation #4 Cheiron notes "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."

Recommendation #5 Cheiron notes "We recommend that for each identified risk the actuary provide an assessment, preferably quantitative, that considers the specific circumstances of this plan."

Recommendation #6 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, 2022 actuarial valuation, in addition to inflation sensitivity projections.

GRS will consider the recommendations from Cheiron and make changes to the 2023 actuarial valuation report, as appropriate.

GASB Statement Nos. 67 and 68

Cheiron indicates, "We find that the assumptions and methods used to prepare the 2022 SURS GASB 67 and 68 schedules are reasonable based on the evidence provided to us."

Sincerely,

Gabriel, Roeder, Smith & Company

Brian B. Murphy

Brian B. Murphy, FSA, EA, FCA, MAAA, PhD
Senior Consultant

Amy Williams

Amy Williams, ASA, FCA, MAAA
Senior Consultant

BBM/AW:rl

cc: Suzanne Mayer, SURS
Tara Myers, SURS
Kristen Brundirks, GRS
Kevin Noelke, GRS

Exhibit 6

To:	Administration Committee
From:	Tara R. Myers
Date:	December 9, 2022
Re:	Fiscal Year 2022 State Actuary Preliminary Report

At the December 9, 2022 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 2024 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 included in the Board materials. After completing the review of the State Actuary's report and the GRS response, a SURS response will be submitted to the Illinois Office of the Auditor General and Cheiron prior to the close of business on December 13, 2022 as requested.

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, 2022 Actuarial Valuation be received as presented.**

To: Administration Committee
From: Ellen Hung, CFA and Tara Myers, CPA
Date: November 23, 2022
Re: Fiscal Year 2024 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 remain 6.50% for Fiscal Year 2024.

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, 2022.

	SURS Historical Return	Credited SURS ERI
5 Year	7.5%	6.4%
10 Year	8.3%	6.7%
15 Year	6.1%	7.2%
20 Year	7.5%	7.5%
25 Year	7.0%	7.9%
30 Year	8.1%	7.9%
40 Year	9.6%	7.9%
Post 1971	8.4%	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 2022. The updated assumptions were used to calculate 20-year portfolio expected return projections for the portfolio allocations as of December 2021 and the Long-Term Policy Targets. These portfolios were projected to return 6.5% and 6.9%, 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 30 years, the ERI Credited Rate has been reasonably stable, remaining unchanged 18 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 2021.

Table 1
Undistributed Investment Income Reserve

As of June 30,	Account Balance ($'s in billions)	As a % of liabilities
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.

2015	11.288	28.6%

Current Period Analysis – Fiscal Year Ending June 30, 2022
Based upon the factors and guidelines set forth above, the analysis for the current rate-setting period indicates the following:

Past Investment Performance – Weak portfolio performance in FY 2022 affected the comparison of longer-term performance. SURS portfolio is slightly above the credited ERI for the short-term and fairly close in the longer-term time periods (30+ years). However, the portfolio slightly lags the credited ERI for the 15- and 25-year time periods. Past performance would support an **ERI equal to** 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 slightly higher than the current actuarial assumption (6.50%). Expected Investment Performance would support an **ERI equal to** the current actuarial assumption of 6.50%.

The **undistributed investment earnings account** balance is smaller than in 2021, but still greater than 30% of net liabilities, therefore no change in the ERI would be warranted.

Conclusion and Recommendation
Based on the statutory factors considered, Staff is recommending the Effective Rate of Interest remain at 6.5% for Fiscal Year 2024. Table 2, shown on the following page, provides a recent history of the ERI rates previously approved along with the recommendation for Fiscal Year 2024.

SURS staff recommends that the Effective Rate of Interest to be used for all purposes, other than the Rule 2 (money purchase) calculation, remain at 6.50% for Fiscal Year 2024.

Table 1
Undistributed Investment Income Reserve

As of June 30,	Account Balance ($'s in billions)	As a % of liabilities
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
2024 (Proposed)	6.5%	
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: 12/09/2022
Re: Project Velocity Update

The SURS Information Technology Department is once again pleased to come 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 built upon modern technology and design principles.

Presenting today will be myself, Jefferey Saiger, CTO, and Erica Oropeza, lead project manager from our implementation partner, Linea Solutions.

To summarize, we are still on track with regards to progress, resourcing, and budgetary considerations. While we have officially tapped into the contingency budget to address data conversion complexities, we are still under our overall projected budget-to-date. Going through Val1 has been an important learning experience; it has been our first real test of the projects impact on the overall organization. We've been able to compare our assumptions of organizational performance against the actuality testing provided.

Thank you for your continuing support of Project Velocity.

Exhibit 10

S·U·R·S
STATE UNIVERSITIES RETIREMENT SYSTEM

LINEASOLUTIONS

SURS Project Velocity

Pension Administration System (PAS) Replacement

November 2022

Agenda

- Overall Project Status
  - Budget
  - Updates
- Validation Testing Cycle #1
- Next Steps & Looking Ahead

Overall Project Status

¼

Complete

Project Status

Scope	Schedule	Budget	Quality
GREEN	GREEN	GREEN	GREEN

- Overall, the project remains on track in all four measures.
- We continue to watch and mitigate our core risk:

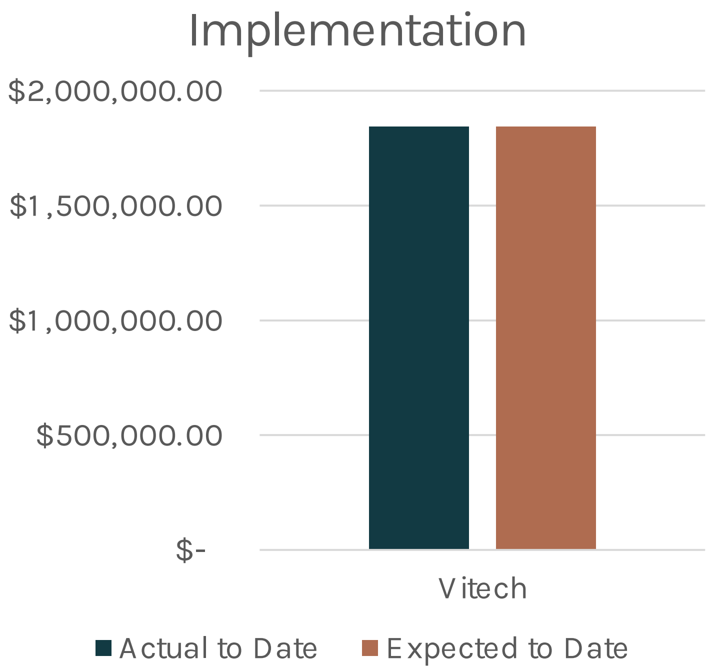
  Resource Allocation

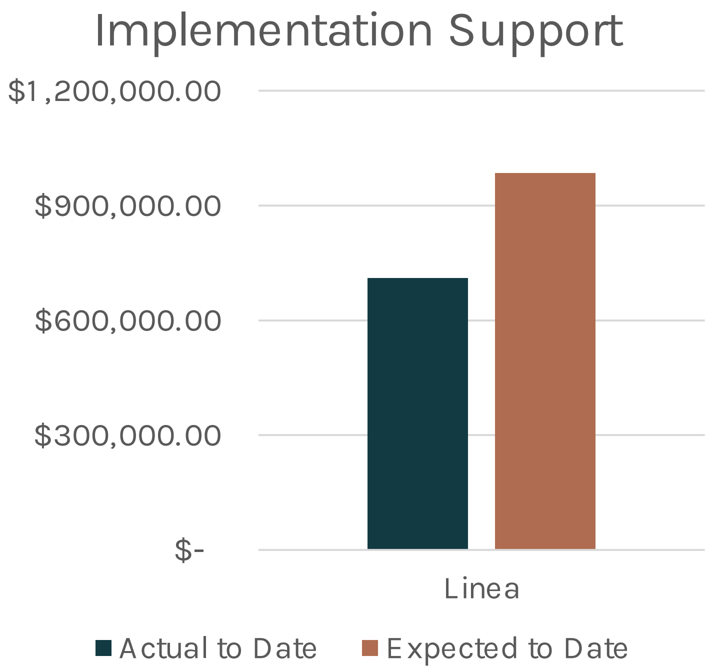
- Our current concern is completing Validation Testing Cycle #1 while balancing the resource needs of other priority projects, such as completing the W4RP tax form updates.

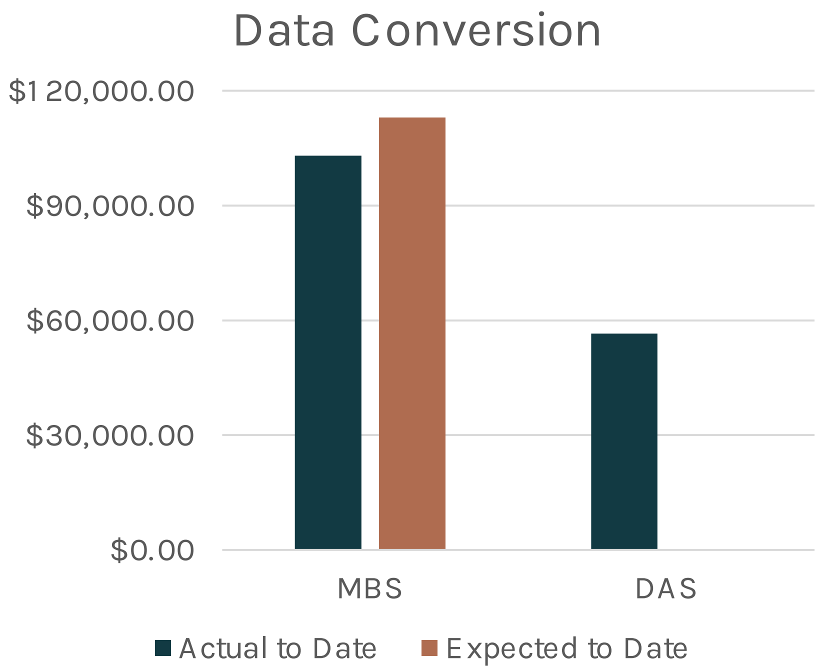
LEGEND
GREEN – ON TRACK
YELLOW – AT RISK
RED – Significant issues, WILL MISS DEADLINE

FY2023 Budget

Billed as of November 28, 2022





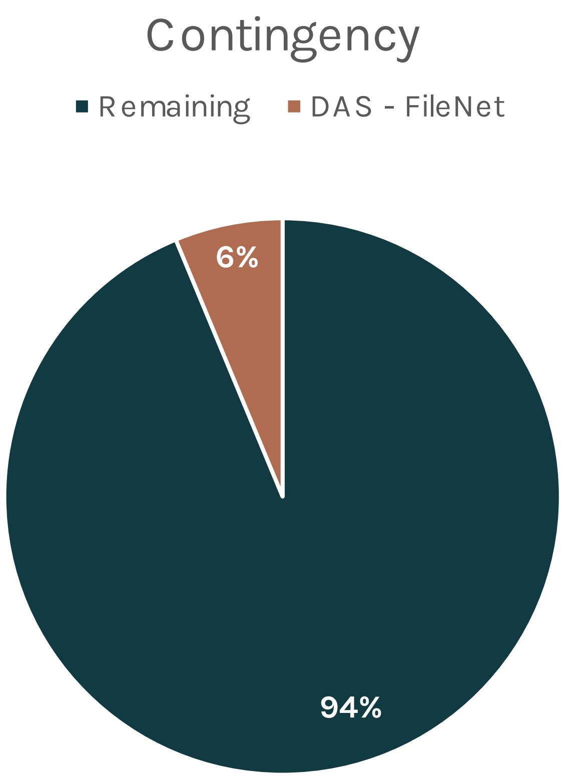


Contingency Budget

We are currently under budget, despite the change orders for MBS to bring on DAS to help with FileNet imaging conversion.

Contingency is used for work that is considered out of original scope.

Due to complexity of SURS data, an additional change order from MBS is expected.



Fiscal Year	Contingency - Planned Burndown
2022	$600,710
2023	$559,585
2024	$569,459
2025	$270,246
2026	$0 (Parallel Testing)
Total	$2,000,000

Work Completed

Data Conversion Focus

Data mapping for service credit purchase (SCP)
Imaging / FileNet conversion proof of concept

Implementation Focus

Preparing for Validation Testing Cycle 1 (VAL1)

VAL1 Preparation Focus

Reviewing all 218 tests from Verification Testing Cycles

Preparing data warehouse for tests

Confirming scope of functionality delivered by Vitech

Developing detailed testing schedule

Training SURS testers on VAL1 process

Having Vitech and Linea provide onsite support

Exhibit 10

Validation Testing Cycle 1

Exhibit 10

VAL1 Configuration

Foundation

- Epic A: Agreements & Payroll Processing
  - Employer Account
  - Earnings & Contribution Rates
  - Payroll Processing
- Epic I: Member World & General CRM
  - Person Account: Member, Beneficiary, Alt Payee
    - Address & Communication Channels

Basics & Support

- Epic B: Member Enrollment
  - Plan Election
  - Defined Benefit Setup
  - Interest Accruals
- Epic J: Imaging Integration
  - Image Configuration
  - Kofax Integration
  - Image Workflow Processing

Pension Benefit Setup

- Epic C: Pension Setup
  - Plan Setup & Work History
  - Service Credit Calculations
  - FAE with Reciprocity
- Epic J: RSP & DCP Setup
- Epic K: Service Credit Purchase (SCP)
  - Eligibility & Calculations

Risk Analysis: Validation Testing & SURS Resourcing

Assumed Risk

- SMEs may not be available during Validation Testing.
- Testing takes longer than expected.

Assumed Impact

- Validation Testing is not thorough.
- Critical/high priority issues are not captured to be fixed.

Expected Mitigation

- Collaboration with MSR Managers to balance workloads.
- SME calendars blocked and planning around other projects.
- Working on detailed testing schedule and assignments.

Realized Risk

- Time is limited for some SURS staff.
- Some tests take longer than expected.
- Need more time to review Solution Configuration Documents.

Realized Impact

- SURS staff feel overwhelmed by competing priorities.
- SURS staff feel anxious that they might not test thoroughly enough.

Actual Mitigation

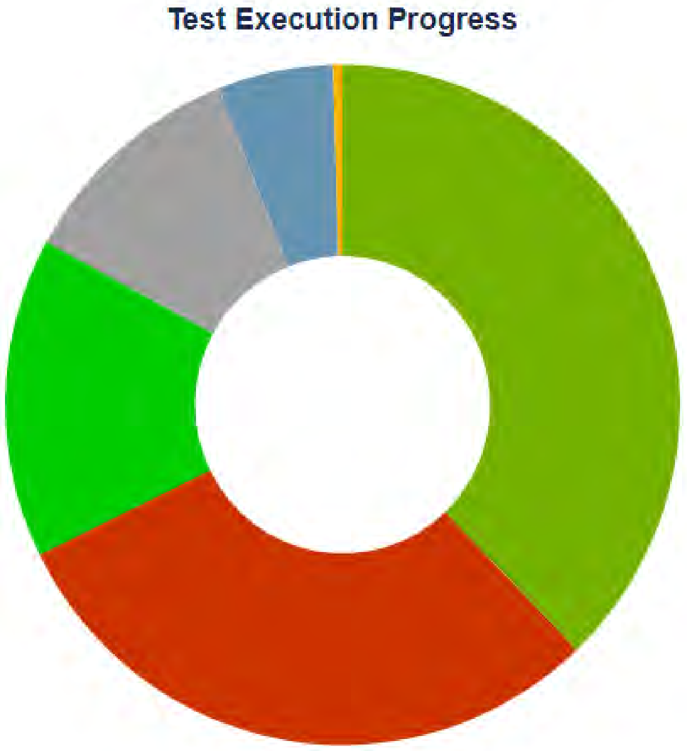
- Communication with managers to address staff concerns.
- Continued support from SURS project team, Linea, and Vitech.
- Slow down pace of concurrent sprint meetings.

Exhibit 10

Testing Progress as of 11/28

Execution Status

BLOCKED	12
DEFERRED	0
FAIL	65
FAIL (ARTIFACT)	0
FAIL (DATA)	0
PASS	82
PASS (OTHER)	33
UNEXECUTED	24
WIP	1



Testing schedule was front-loaded to complete as much of the initial testing and SCD reviews before Thanksgiving.

As of 11/28, SURS staff:

- Executed 89% of tests (194 / 218)
- Passed 59% of executed tests (115 / 194)
- Completed 75% of initial SCD reviews (6 / 8)

Exhibit 10

Testing Progress as of 11/28

Two Dimensional Filter Statistics: VAL1 Client reproted Incidents/Issues/Improvements

Issue Type	0 - Critical	1 - High	2 - Medium	3 - Low	T:
Improvement	0	9	21	8	**38**
Incident	1	49	88	51	**189**
Issue	0	13	9	5	**27**
Total Unique Issues:	**1**	**71**	**118**	**64**	**254**

Grouped by: Priority Showing **3** of **3** statistics.

Two Dimensional Filter Statistics: VAL1 - Open Issues/ Improvements - Epic & Priority

Epic Link	1 - High	2 - Medium	3 - Low	T:
A2. Employer, Roster Setup & Other Org	1	0	0	**1**
A4. Core Admin Payroll & Payment Processing	3	1	1	**5**
B1. Plan Election and Enrollment	0	2	0	**2**
B4. Employer Payment Processing	2	0	0	**2**
C1. Plan Setup, PWH Setup	1	2	1	**4**
C2. Reciprocal Svc Setup & Vesting Service Calculations	1	0	0	**1**
D1. Retirement Setup	0	6	2	**8**
I2. Address & Communication Channels Setup & Maintenance	0	0	1	**1**
J1. Image Configuration	0	1	0	**1**
J4. DC (457(b)) Setup & Maintenance	1	2	1	**4**
J6. Image Workflow Processing	0	3	0	**3**
K1. SCP Setup	0	3	1	**4**
K2. SCP Eligibility	0	1	0	**1**
K3. SCP Calculations (Principal and Interest)	13	8	6	**27**
K4. SCP Cost Statement Generation and Invoicing (FM and EWF)	0	1	0	**1**
Total Unique Issues:	**22**	**30**	**13**	**65**

Summary

Project Status

- We are still on track with regards to progress, resourcing, and budgetary considerations.
- While we have officially tapped into the contingency budget to address data conversion complexities, we are still under our overall projected budget-to-date.

VAL1 Testing

- Going through Val1 has been an important learning experience.
- It has been our first real test of the project's impact on the overall organization. We've been able to compare our assumptions of organizational performance against the actuality testing provided.

Next Steps & Looking Ahead

- Goal: Complete VAL1 by Friday, December 16

VAL1 Exit Criteria

- High and Critical issues are fixed or there is an agreed upon plan to address them.
- Solution configuration documents are approved.

Winter & Spring 2023

- Retirement Calculations & Estimates
- Retirement Claims Process
- Disability Claims Process
- Employer Digital Self-Service

S·U·R·S
STATE UNIVERSITIES RETIREMENT SYSTEM

LINEASOLUTIONS

Questions?