State Employees' Retirement System of Illinois

Annual Actuarial Valuation
as of June 30, 2020

P: 312.456.9800 | www.grsconsulting.com

January 4, 2021

Board of Trustees
State Employees' Retirement System of Illinois
Springfield, Illinois

Re: State Employees' Retirement System of Illinois Actuarial Valuation as of June 30, 2020

Dear Board Members:

The results of the June 30, 2020, Annual Actuarial Valuation of the State Employees' Retirement System of Illinois ("SERS" or "System") are presented in this report. The purposes of the actuarial valuation are to measure the System's funding status and to determine the State's contribution rate for the fiscal year beginning July 1, 2021, and ending June 30, 2022. This report should not be relied on for any purpose other than the purposes described herein. Determinations of financial results, associated with benefits described in this report for purposes other than those identified above, may be significantly different.

Gabriel, Roeder, Smith & Company ("GRS") has prepared this report exclusively for the Trustees of the State Employees' 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 SERS only in its entirety and only with the permission of the Trustees.

The State's contribution rate has been determined under Illinois statutes, in particular under 40 ILCS Section 5/14-131. Information required by GASB Statement Nos. 67 and 68 are provided in a separate report. The System's current contribution rate determined under the statutory funding policy may not conform to the Actuarial Standards of Practice. Therefore, the Board adopted an actuarial funding policy to be used to calculate the Actuarially Determined Contribution ("ADC") under GASB Statement Nos. 67 and 68 for financial reporting purposes.

Although the 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 adherence to a funding policy, such as the Board policy used to calculate the ADC under GASB Statement Nos. 67 and 68 that funds the normal cost of the plan as well as an amortization payment that seeks to pay off any unfunded accrued liability over a closed-period of 25 years.

The contribution requirement in this report is determined using the actuarial assumptions and methods disclosed in Section E of this report. This report includes risk metrics beginning on page 16, but does not include a more robust assessment of the risks if future experience deviates from the actuarial assumptions. Additional assessment of risks was outside the scope of this assignment.

This actuarial valuation assumed the continuing ability of the plan sponsor to make the contributions necessary to fund this plan. A determination regarding whether or not the plan sponsor is actually able to do so is outside our scope of expertise and was not performed.

The findings in this report are based on data and other information through June 30, 2020. The actuarial valuation was based upon information furnished by SERS staff, concerning Retirement System benefits, financial transactions, plan provisions and active members, terminated members, retirees, and beneficiaries. We checked for internal reasonability 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 SERS staff.

This report was prepared using actuarial assumptions adopted by the Board as authorized under the Illinois Pension Code. The actuarial assumptions used for the June 30, 2020, actuarial valuation are based on a full experience review for the three-year period ended June 30, 2018. Pursuant to Public Act 99-0232, SERS is required to conduct an actuarial experience review once every three years. All actuarial assumptions used in this report are reasonable for the purposes of this actuarial valuation. Additional information about the actuarial assumptions is included in Section E of this report entitled "Actuarial Methods and Assumptions."

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. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

Public Act 100-0023, effective July 6, 2017, modified the State's funding policy beginning with fiscal year 2018, by phasing in contribution rate variances due to changes in actuarial assumptions over a five-year period. Additionally, Public Act 100-0023 created a new benefit plan option (Optional Hybrid Plan – "Tier 3") for certain current and future active members not covered by Social Security. The State's contribution requirements provided in this report are determined in accordance with Public Act 100-0023.

This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. To the best of our knowledge the information contained in this report is accurate and fairly presents the actuarial position of the SERS as of the actuarial valuation date. 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 applicable statutes.

Alex Rivera, Heidi G. Barry, and Jeffrey T. Tebeau are Members of the American Academy of Actuaries and are independent of the plan sponsor and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions herein.

Respectfully submitted,

Gabriel, Roeder, Smith & Company

Alex Rivera, FSA, EA, MAAA, FCA
Senior Consultant

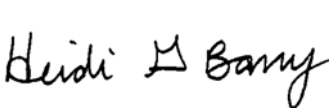

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Table of Contents

SECTION A

SUMMARY OF ACTUARIAL VALUATION RESULTS

Summary of the Actuarial Valuation Results

Introduction

The law governing the State Employees' Retirement System of Illinois ("SERS" or "System") requires the Actuary, as the technical advisor to the Board of Trustees to:

> "...make an annual valuation of the liabilities and reserves of the System, make an annual determination of the amount of contributions required from the State under this Article, and certify the results thereof to the board. (40 ILCS Section 5/14 - 138(c))."

Gabriel, Roeder, Smith & Company has been retained by the Board of Trustees to perform an actuarial valuation as of June 30, 2020. In this report, we present the results of the actuarial valuation and the appropriation requirements under Public Act 88-0593, Public Act 93-0002, Public Act 93-0839, Public Act 94-0004, Public Act 96-0043, and Public Act 100-0023 for the fiscal year ending June 30, 2022.

The actuarial valuation was completed based upon membership and financial data provided by the administrative staff of the System. The actuarial assumptions used for the June 30, 2020, actuarial valuation are based on a full experience review for the three-year period ended June 30, 2018. The cost method used to determine the benefit liabilities for statutory funding is the Projected Unit Credit Cost Method. For actuarial valuation purposes, as well as projection purposes, the actuarial value of assets is based on a five-year smoothing method.

Changes Since the Last Actuarial Valuation

Recent Legislative Changes

The following recently passed Public Acts impact SERS as follows.

Public Act ("P.A.") 100-0023, effective July 6, 2017, modified the State's funding policy and created a new tier of benefits for certain current and future active members not covered by Social Security. The State's funding policy was amended to include smoothing State contribution rate increases or decreases due to changes in actuarial assumptions, including investment return assumptions, over a five-year period in equal annual amounts beginning in fiscal year 2018. In addition, changes in actuarial or investment assumptions that increased or decreased the State contribution rate in fiscal years 2014 through 2017 are to be smoothed over a five-year period in equal annual amounts, applying only to the portion of the five-year phase-in that is applicable to fiscal years on and after 2018. The fiscal year 2018 State contribution was recertified, pursuant to P.A. 100-0023.

P.A. 100-0023 created a Hybrid ("Tier 3") plan comprised of a defined benefit plan and a defined contribution plan to serve as an optional plan in lieu of the traditional Tier 2 defined benefit plan for current and future Tier 2 active members not covered by Social Security. The Tier 3 plan is expected to be available to applicable members beginning in fiscal year 2020. The election process for current Tier 2 members will be developed by the System.

Public Act 100-0587, effective June 4, 2018, created two voluntary buyout programs (Accelerated Pension Benefit Payment Program) for eligible members beginning on the implementation date and ending on June 1, 2021. The two accelerated pension benefit payment options offered include: (1) for

vested inactive members, a payment equal to 60 percent of the present value of the member's pension benefit in lieu of receiving any pension benefit, and (2) for active Tier 1 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 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. The fiscal year 2020 State contribution rate was certified as 54.290% of payroll.

P.A. 101-0010 extended the Accelerated Pension Benefit Program from June 1, 2021, to June 1, 2024. The actuarial liability as of June 30, 2019, decreased by $241 million due to P.A. 100-0587 and $164 million due to P.A. 101-0010.

A summary of the SERS plan provisions is included in Section F of this report.

Actuarial Assumptions and Methods

The actuarial valuation results summarized in this report involve actuarial calculations that require assumptions about future events. Most of the actuarial assumptions used for the June 30, 2020, actuarial valuation are based on a full experience review for the three-year period ended June 30, 2018.

There have been no changes to the actuarial assumptions and methods since the June 30, 2019, actuarial valuation.

The actuarial valuation reflects retroactive pay increases for the period July 1, 2015, to June 30, 2019, and updated pay for plan year end June 30, 2020. This retroactive pay was included in the reported year-to-date earnings for active members causing the appearance of very large pay increases from one year to the next. While the retroactive pay is subject to pension benefits, the apparent increase in the plan year 2019 and 2020 year-to-date earnings is not expected to be representative of projected future pays. Consequently, projected pay was based on the last available pay rate for 2020. Our approach for projecting future pays is described in Section E of this report.

Under the Accelerated Pension Benefit Payment Program, 21 percent of eligible Regular formula members and 28 percent of eligible Alternative formula members are assumed to elect the "COLA Buyout" at retirement. Five percent of eligible inactive members are assumed to elect the "Total Buyout."

Pursuant to Public Act 99-0232, SERS is required to conduct an actuarial experience review once every three years. Under this schedule, an experience review for the period from July 1, 2018, through June 30, 2021, will be performed after completion of the June 30, 2021, actuarial valuation with expected implementation of the recommended assumptions beginning with the June 30, 2022, actuarial valuation.

Tier 3 Participation Assumptions for Funding Projections

As of June 30, 2020, the System has approximately 800 Tier 2 active members not covered by Social Security that may irrevocably elect the Tier 3 plan. Given the uncertainty of the election behavior and

small population size of this group, we have assumed these members would remain in Tier 2. We will review emerging experience for future Tier 3 members in subsequent actuarial valuations and if necessary, will provide recommended assumptions.

In order to determine the State's contribution rate, open-group projections through fiscal year 2045 are performed. The open group includes current and future plan members. The active member population is assumed to remain level at its current state of 62,621 members over the 25-year projection period. Currently, there are approximately 2,300 active members not covered by Social Security. As these members leave active population, they are assumed to be replaced by new entrants at the rate necessary to keep the population constant at 2,300 members. Future members of this group may elect to participate in either the Tier 2 or Tier 3 benefit plan. Given the uncertainty of Tier 3 participation, we have assumed all future members not covered by Social Security would participate in Tier 2.

Summary of the Actuarial Valuation Results

The following is a summary of the key actuarial valuation results for the current and prior plan years.

Actuarial Valuation Date:	June 30, 2020	June 30, 2019
Fiscal Year Ending:	**June 30, 2022**	**June 30, 2021**
Estimated Statutory Contributions:		
· Annual Amount[a]	$ 2,470,303,000	$ 2,377,937,000
· Percentage of Projected Capped Payroll for Fiscal Year	53.889%	52.604%
Actuarially Determined Contribution[b] (ADC):		
· Annual Amount	$ 2,976,657,067	$ 2,918,467,212
· Percentage of Projected Capped Payroll for Fiscal Year	64.935%	64.561%
Membership		
· Number of		
- Active Members	62,621	62,026
- Inactives - Eligible for Deferred Vested Benefit	3,774	3,843
- Inactives - Eligible for Return of Contributions	23,478	21,682
- Members Receiving Payments	75,355	74,589
- Members Eligible for Deferred Benefits	172	181
- Total	165,400	162,321
· Covered Payroll Provided by the System	$ 4,523,879,064	$ 4,601,378,610
· Projected Capped Payroll for Fiscal Year[c]	$ 4,584,057,550	$ 4,520,449,762
· Annualized Benefit Payments	$ 2,754,503,416	$ 2,635,943,083
Assets		
· Market Value of Assets (MVA)	$ 19,191,432,889	$ 18,478,303,106
· Actuarial Value of Assets (AVA)	$ 19,389,500,950	$ 18,429,185,637
· Return on MVA	4.47%	6.42%
· Return on AVA	5.90%	6.05%
· Ratio – AVA to MVA	101.03%	99.73%
Actuarial Information		
· Employer Normal Cost Amount	$ 622,063,879	$ 620,113,733
· Actuarial Accrued Liability (AAL)	$ 50,145,830,802	$ 48,731,439,198
· Unfunded Actuarial Accrued Liability (UAAL)	$ 30,756,329,852	$ 30,302,253,561
· Funded Ratio based on AVA	38.67%	37.82%
· UAAL as % of Covered Payroll Provided by the System	679.87%	658.55%
· Funded Ratio based on MVA	38.27%	37.92%

[a] *The estimated statutory contribution amounts for fiscal years 2021 and 2022 are based on projected capped payrolls for fiscal years 2021 and 2022, respectively, using June 30, 2020, census data.*

[b] *For fiscal years ending on and after June 30, 2017, the Board adopted a recommended policy used to develop the Actuarially Determined Contribution (ADC) as defined in GASB Statement Nos. 67 and 68. The policy adopted by the Board calculates the ADC as the Normal Cost plus a 25-year level percent of capped payroll closed-period amortization of the Unfunded Accrued Liability. As of June 30, 2020, the remaining amortization period is 20 years. The ADC is used for financial reporting purposes only.*

[c] *Based on June 30, 2020, census data.*

Appropriation Requirements under P.A. 88-0593, P.A. 93-0002, P.A. 93-0839, P.A. 94-0004, P.A. 96-0043, and P.A. 100-0023

The law governing the System under P.A. 88-0593 provides that:

For fiscal years 2011 through 2045, the minimum contribution to the System for each fiscal year shall be an amount determined to be sufficient to cause the total assets of the System to equal 90 percent of the total actuarial liabilities of the System by the end of fiscal year 2045. In making these determinations, the required contribution shall be calculated each year as a level-percentage-of-payroll over the years remaining to and including fiscal year 2045 and shall be determined under the projected unit credit actuarial cost method. For fiscal years 1997 through 2010, the minimum contribution to the System, as a percentage of the payroll, shall be increased in equal annual increments so that by fiscal year 2010, the contribution rate is at the same level as the contribution rate for fiscal years 2011 through 2045.

The above calculation provides the basis for calculating the appropriation requirements under P.A. 93-0002. For fiscal years 2005 and later, the contributions under P.A. 93-0002 start with a calculation of the contribution based upon the hypothetical asset value which assumes no infusion from the proceeds of the General Obligation Bond ("GOB") sale that were deposited July 1, 2003 (Table 4a). This contribution is then reduced by the debt service beginning in fiscal year 2005 to produce the maximum contribution. For fiscal years 2006 and 2007, the maximum contribution is equal to the contribution amounts stated in P.A. 94-0004 for each respective year. The contribution amounts stated in P.A. 94-0004 are $203,783,900 for fiscal year 2006 and $344,164,400 for fiscal year 2007. A second projection is performed to develop the P.A. 88-0593 formula rate, which includes the GOB deposit. The lower of this formula rate with the GOB assets included and the maximum contribution is the required state appropriation (Table 4b).

Pursuant to Public Act 96-0043, $723,703,100 of the total required State contribution for fiscal year 2010 will be paid from the proceeds of a GOB sale.

Pursuant to Public Act 96-0043, for the calculation of the fiscal year 2011 contribution and beyond, the value of the System's assets shall be equal to the actuarial value of the System's assets. As of June 30, 2008, the actuarial value of the System's assets shall be equal to the market value of the assets as of that date. In determining the actuarial value of the System's assets for fiscal years after June 30, 2008, any actuarial gains or losses from investment return incurred in a fiscal year shall be recognized in equal annual amounts over the five-year period following that fiscal year. Furthermore, for purposes of determining the required State contribution to the System for a particular year, the projected actuarial value of assets shall be assumed to earn a rate of return equal to the System's actuarially assumed rate of return.

Public Act ("P.A.") 100-0023, effective July 6, 2017, modified the State's funding policy to include smoothing State contribution rate increases or decreases due to changes in actuarial assumptions, including investment return assumptions, over a five-year period in equal annual amounts beginning in fiscal year 2018. In addition, changes in actuarial or investment assumptions that increased or decreased the State contribution rate in fiscal years 2014 through 2017 are to be smoothed over a five-year period in equal annual amounts, applying only to the portion of the five-year phase-in that is applicable to fiscal years on and after 2018. The development of the contribution rate phase-in schedule that applies to State contribution rates determined on and after fiscal year 2018 is provided on page 53.

Development of the Actuarial Value of Assets Based upon the Market Value of Assets

The following tables outline the reconciliation of the market value of assets and the development of the hypothetical asset value as of June 30, 2020. Also, the tables show the development of the actuarial value of assets under both the market value and the hypothetical value of assets.

1.	Market Value of Assets 6/30/2019	$ 18,478,303,106
2.	Market Value Adjustment	13,585,546
3.	Market Value of Assets 6/30/2019 - Adjusted	18,491,888,652
4.	Actual State Contribution Amount[a]	2,368,905,396
5.	Employee Contribution Amount	271,749,009
6	Benefit Payouts & Refunds	(2,747,186,862)
7.	Administrative Expenses	(17,412,562)
8.	Investment Income	823,489,256
9.	Market Value of Assets 6/30/2020	$ 19,191,432,889
10.	Expected Investment Return at 6.75%	1,244,087,644
11.	Investment Gain/(Loss) Current Year	(420,598,388)
12.	Deferred Investment Gains and (Losses) All Years	(198,068,061)
13.	Actuarial Value of Assets 6/30/2020 (9. - 12.)	$ 19,389,500,950

[a] *The fiscal year 2020 State contribution rate is 52.150% without debt service and 54.290% with debt service.*

Development of the Actuarial Value of Assets Based upon the Hypothetical Value of Assets

The hypothetical asset value assumes no infusion from the proceeds of the GOB sale that were deposited July 1, 2003.

1.	Hypothetical Value of Assets 6/30/2019	$ 17,021,677,575
2.	State Contribution Amount[a]	2,490,754,194
3.	Employee Contribution Amount	271,749,009
4.	Benefit Payouts & Refunds	(2,747,186,862)
5.	Administrative Expenses	(17,412,562)
6.	Investment Income[b]	760,822,649
7.	Hypothetical Value of Assets 6/30/2020	$ 17,780,404,003
8.	Expected Investment Return at 6.75%	1,148,893,644
9.	Investment Gain/(Loss) Current Year	(388,070,995)
10.	Deferred Investment Gains and (Losses) All Years	(185,186,244)
11.	Hypothetical Actuarial Value of Assets 6/30/2020 (7. - 10.)	$ 17,965,590,247

[a] *Represents 55.058 percent of covered payroll provided by the System for the basic contribution. This rate was determined as part of the 6/30/2018 actuarial valuation, and is based upon the hypothetical asset value which assumes no infusion from the proceeds of the GOB sale that were deposited July 1, 2003.*

[b] *Investment income assumes hypothetical value of assets earns the Fund's actual rate of return for fiscal year 2020 of 4.47 percent.*

The development of the actuarial smoothed value of assets with GOB proceeds and the hypothetical smoothed value of assets without GOB proceeds are provided in each respective historical actuarial valuation report since the GOB proceeds were deposited into the trust.

State Contribution Requirement for Fiscal Year 2022

The fiscal years ending June 30, 2021, and June 30, 2022, certified contribution requirements and projected future year required State contribution rates and amounts, assuming deferred investments gains and losses are recognized in the assets, are as follow:

Fiscal Year Ending June 30,	Base Contribution	Debt Service Contribution	Total Contribution	Assumed Payroll (billions)	Total Required Contribution	Total Required Contribution Including Debt Service
2021	**52.604%**	**2.227%**	**54.831%**	**$4.520**	**$2,377,937,000**	**$2,478,608,000**
2022	**53.889%**	**2.280%**	**56.169%**	**4.584**	**2,470,303,000**	**2,574,820,000**
2023	53.775%	2.347%	56.122%	4.654	2,502,498,000	2,611,719,000
2024	53.812%	2.478%	56.290%	4.726	2,543,129,000	2,660,238,000
2025	53.822%	2.591%	56.413%	4.800	2,583,599,000	2,707,974,000
2026	53.930%	2.614%	56.544%	4.881	2,632,455,000	2,760,051,000
2027	53.912%	2.627%	56.539%	4.966	2,677,516,000	2,807,985,000
2028	53.814%	2.699%	56.513%	5.056	2,720,956,000	2,857,424,000
2029	53.740%	2.754%	56.494%	5.155	2,770,093,000	2,912,051,000
2030	53.595%	2.860%	56.455%	5.258	2,817,883,000	2,968,254,000

Assumed projected payroll is based on census data as of June 30, 2020.

For fiscal years 2022 through 2033, the base contribution is limited by the maximum contribution determined under the assumption that the proceeds of the GOB sale were not deposited; therefore, the contribution rate is not level as a percent of pay.

Pursuant to Public Act 96-0043, the fiscal year 2022 contribution rate is calculated assuming the actuarial value of assets as of July 1, 2020, earns a rate of return equal to the System's actuarially assumed rate of return. Pursuant to Public Act 100-0023, contribution rates for fiscal years 2021 through 2025 include smoothing of contribution rate variances due to changes in actuarial assumptions.

The contributions for fiscal years 2023 and beyond, as presented above, are developed in Tables 4c and 4d in this report. In those projections, the actuarial valuations as of June 30 for years 2021 through 2024 have been projected as though an actuarial valuation in each of those years was performed. At each projected actuarial valuation, an additional 20 percent of the investment gains and losses are recognized. The market value of assets at June 30, 2020, is assumed to have a rate of return equal to the actuarial valuation interest rate going forward. Therefore, the actuarial value of assets is calculated by adjusting the market value at each respective actuarial valuation date by the remaining percentage of the investment gains and losses. The actuarial value of assets converges to market value in 2024, when all remaining investment gains and losses have been recognized. Because the deferred asset gains and losses are incorporated into the projections, the projections found in Tables 4c and 4d do not show a stable contribution rate until the impact of the five-year asset smoothing has been fully realized.

Method of Calculation for Appropriation Requirements

The results are based on the projected unit credit actuarial cost method, the data provided, and assumptions used for the June 30, 2020, actuarial valuation. In order to determine projected contribution rates and amounts, the following additional assumptions were used:

- Projected annualized payroll of $4,520,400,000 for fiscal year 2021.
- Total employer contributions of $2,377,937,000 (including no payments from the unclaimed property fund) for fiscal year 2021.
- Administrative expenses of $19,291,324 for fiscal year 2021, as provided by the System.
- New entrants whose average age is 36.04 and average pay is $51,104 (2020 dollars). These values are based on the average age and average pay of new entrants over the last 15 years.
- The active member population is assumed to remain level at 62,621 for all years of the 25-year projection.
- Current and future members not covered by Social Security are assumed to participate in Tier 2.
- Projected benefits for members hired on or after January 1, 2011, are based on the provisions established in P.A. 96-0889.

The average increase in total uncapped payroll for the 25-year projection period is approximately 2.75 percent per year. It is important to note that benefits for new hires are based on capped payroll which is ultimately projected to grow at 1.125 percent per year. All results in this actuarial valuation assume that State contributions will be made on capped pay.

To determine the contribution rates, the expected 2021 appropriation was converted to a percentage of the expected 2021 payroll. An amortization schedule was then determined on the assumption that:

- The ratio of total assets to total actuarial liabilities will be 90 percent by June 30, 2045.
- The actuarial value of assets shall be assumed to earn a rate of return equal to the System's actuarially assumed rate of return.
- The contribution rates for fiscal years 2010 through 2033 will not be uniform, but the rate for any one of these years will be the minimum of the difference between the "without-GOB" contribution and the debt service, and the underlying formula rate as determined by Public Act 88-0593.
- The contribution rate for fiscal year 2021 will be 52.604 percent based on the certification of the June 30, 2019, actuarial valuation results issued November 1, 2019.
- The contribution rates for fiscal years 2034 through 2045 will be a uniform percentage of capped payroll.

- The contribution rates for fiscal years 2021 through 2025 are reduced according to the phase-in schedule provided on page 53.

Finally, the certified FY 2022 contribution rate of 53.889 percent is applied to actual FY 2022 capped payroll.

Observations on Actuarial Funding and Statutory Funding

GASB Statements Nos. 25, 27, 67, and 68 provide guidance for retirement plans and plan sponsors on the development of an annual expense requirement to be reported in their annual financial statements. Under the prior rules established by GASB Statements Nos. 25 and 27, this expense requirement is based on the Annual Required Contribution ("ARC"). The ARC is the sum of the normal cost and amortization of the unfunded accrued liability and represents the annual employer contributions that are projected to finance benefits for current plan members over a period not to exceed 30 years.

GASB Statements Nos. 67 and 68, which replaced GASB Statements Nos. 25 and 27, no longer use the ARC. However, measuring the Statutory Contribution against a policy such as the ARC helps evaluate the funding adequacy of the current statutory funding method. Thus, the Board adopted a policy to calculate the Actuarially Determined Contribution ("ADC"). Under this policy, the ADC is calculated as the Normal Cost plus a 25-year level percent of capped payroll closed-period amortization, as of June 30, 2015, of the Unfunded Accrued Liability.

The ADC for fiscal years 2021 and 2022, as well as the statutory contribution for fiscal years 2021 and 2022, are shown below as a percentage of projected capped payroll. The ADC and statutory contribution for 2021 are based on the results of the June 30, 2019, actuarial valuation. The dollar amount of the ADC for 2021 and 2022 and the statutory contribution for 2021 and 2022 will be the product of the actual payroll for 2021 and 2022 and the percentages shown.

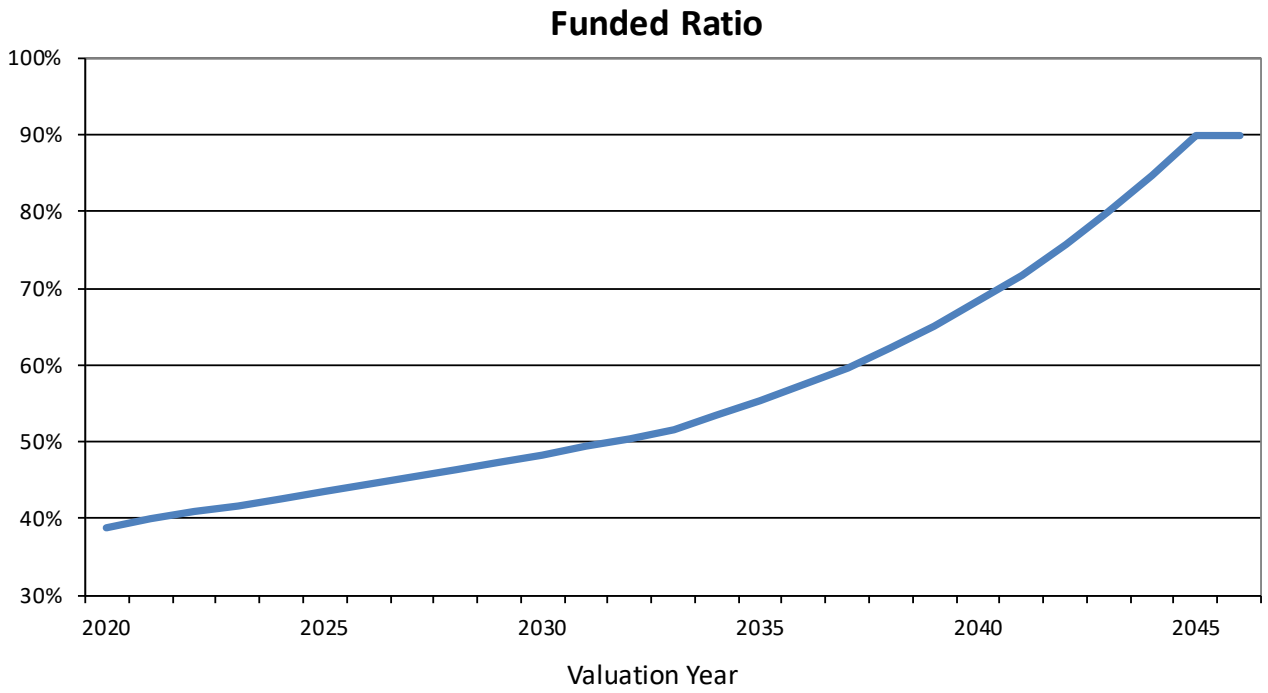
Actuarial Valuation Date:	June 30, 2020	June 30, 2019
Actuarially Determined Contributions for Fiscal Year Ending:	**June 30, 2022**	**June 30, 2021**
1. Employer normal cost	$ 622,063,879	$ 620,113,733
2. Initial Amount to amortize the unfunded liability over a 25-year closed-period, beginning July 1, 2015, as a level percentage of capped payroll	2,354,593,188	2,298,353,479
3. ADC [(1) + (2)]	$ 2,976,657,067	$ 2,918,467,212
4. Projected capped payroll for fiscal year[a]	$ 4,584,057,550	$ 4,520,449,762
5. ADC as a percentage of projected capped payroll	64.935%	64.561%
6. Estimated statutory contribution	$ 2,470,303,000	$2,377,937,000
7. Estimated statutory contribution as a percentage of projected capped payroll	53.889%	52.604%
8. Estimated statutory contribution as a percentage of ADC [(6) / (3)]	82.989%	81.479%

[a] *Projected capped payroll for each fiscal year is based on census data as of June 30, 2020.*

A key objective of the ADC is to accrue costs over the working lifetime of plan members to ensure that benefit obligations are satisfied, and intergenerational equity is promoted. Although the ADC is solely an accounting provision, in certain circumstances it could represent a reasonable annual funding target and therefore is used by some plan sponsors as their "de facto" funding requirement. Given there is no requirement that the accounting provision for pension expense must equal the annual funding requirement, some plan sponsors adopt funding policies that differ from the ADC. However, a funding policy that differs significantly from the ADC approach could result in a potential "back-loading," meaning contributions are deferred into the future. Back-loading could result in an underfunding of the System.

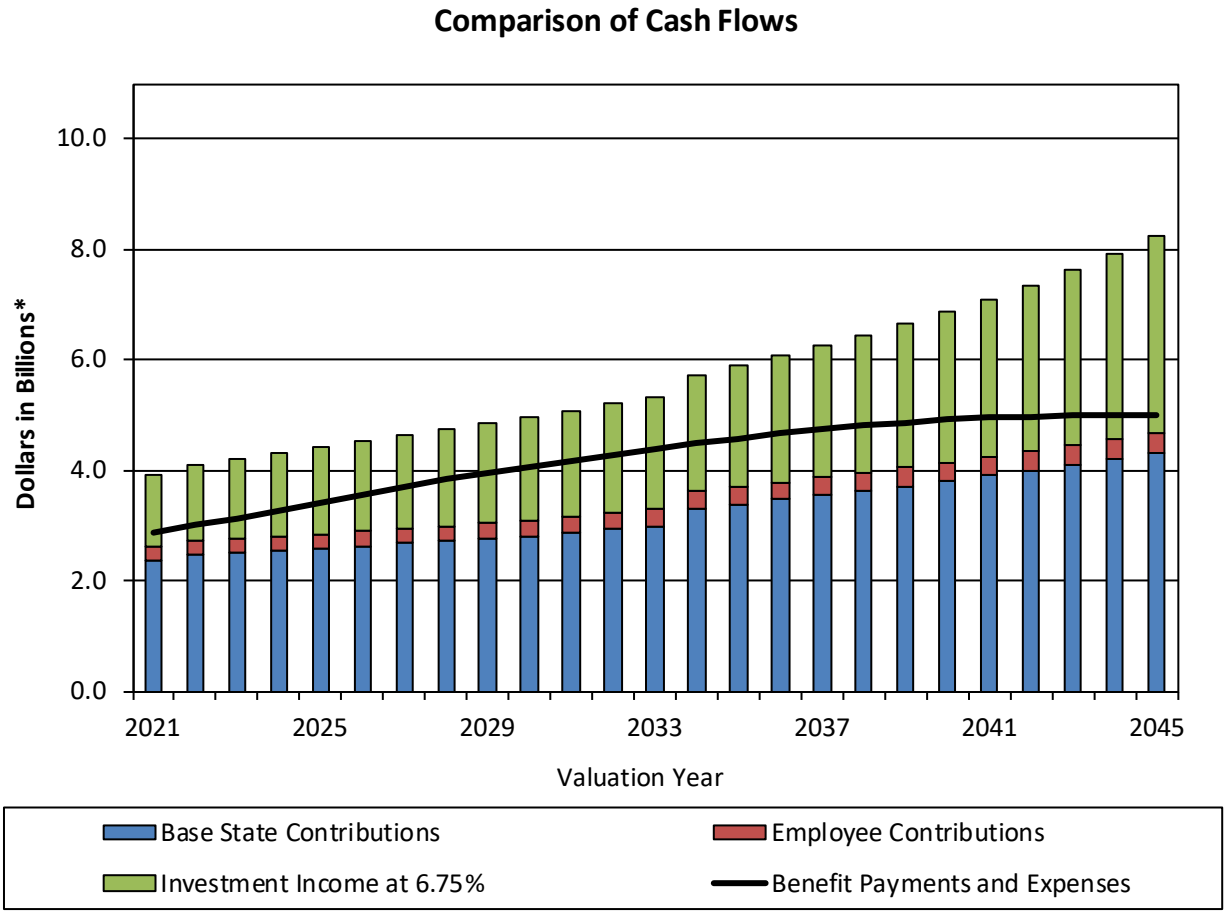
Observations on Actuarial Funding and Statutory Funding

The statutory funding policy adopted for SERS provides for level percent of pay funding that produces a funding target of 90 percent by 2045, assuming an open group projection. The following graph shows the projected funded ratio. A key observation is that the funded ratio does not grow markedly until after 2033. That is, a majority of the funding occurs between 2034 and 2045. This illustrates how significantly the current funding policy defers or back-loads contributions into the future.



Observations on Actuarial Funding and Statutory Funding

The following graph compares the projected benefits and expenses against employer contributions, employee contributions, and investment income. Benefits and expenses will continue to exceed State and employee contributions through 2045. From 2021 to 2033, the percentage of investment income needed to pay ongoing benefits increases from approximately 17.1 percent to 53.7 percent. This implies that a lower level of investment income is projected to be available for potential asset growth. After 2033, the percentage of investment income needed to pay ongoing benefits is projected to decrease from approximately 41.4 percent in 2034 to 9.3 percent in 2045, which is projected to cause assets to grow at a faster rate.



* *Future dollar amounts are based on assumed inflationary increases.*

The provisions of P.A. 96-0043 develop a theoretical value of assets that do not recognize deferred investment gains and losses in the projection of assets used to develop the statutory contribution. This policy tends to defer contributions when plan assets experience a loss.

Given that the SERS funded ratio at June 30, 2020, is only 38 percent on a market value of assets basis, and because the current statutory policy tends to back-load and defer contributions, we advise strengthening the current statutory funding policy. The Board has taken steps to strengthen the current statutory funding policy by adopting a lower assumed rate of return and more conservative assumptions. Examples of other methods to strengthen the current funding policy include:

1. Increasing the 90 percent funding target to 100 percent;
2. Reducing the projection period needed to reach the funding target;
3. Eliminating the maximum contribution cap; and
4. Changing the actuarial cost method for calculating liabilities from the Projected Unit Credit cost method to the Entry Age Normal cost method.

The statutory contribution policy could also be strengthened by changing to an ADC based funding approach with an appropriate amortization policy for each respective tiered benefit structure.

At the April 21, 2015, Board meeting, the Board adopted a policy, for purposes of financial reporting under GASB Statement Nos. 67 and 68, which provides for the annual payment of SERS' normal cost and amortizing the unfunded liability over a 25-year closed-period, beginning July 1, 2015, as a level percent of capped payroll.

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, or death). The number of active members has decreased by about 2.3 percent between 2010 and 2020, which is an average annualized decrease of about 0.21 percent. However, in 2019 and 2020 the number of active members has increased which indicates a positive growth trend.

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. Given the decrease in the number of active members over the past 10 years, if SERS expects a 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 member's long term.

Active Membership				
Fiscal Year Ending June 30,	Total	Annual Change in Membership	% Annual Change in Membership	Covered Payroll ($ in Millions)
2010	64,143			$4,119.36
2011	66,363	2,220	3.46%	4,211.19
2012	62,729	(3,634)	-5.48%	4,329.08
2013	61,545	(1,184)	-1.89%	4,236.19
2014	62,844	1,299	2.11%	4,416.15
2015	63,273	429	0.68%	4,453.68
2016	61,317	(1,956)	-3.09%	4,284.36
2017	60,612	(705)	-1.15%	4,195.78
2018	61,397	785	1.30%	4,243.74
2019	62,026	629	1.02%	4,601.38
2020	62,621	595	0.96%	4,523.88
Total Change		**(1,522)**	**-0.21%**	

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 6.75 percent on the actuarial value of assets), it is expected that:

1. The State contribution rate will be level as a percentage of payroll beginning in 2033 through 2045 (after all deferred asset gains and losses are fully recognized);
2. The unfunded liability will increase in dollar amount through 2026 before it begins to decrease;
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 percent funded ratio in 2045.

Limitations of Funded Status Measurements

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

1. The measurement is inappropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations; in other words, of transferring the obligations to an unrelated third party in an arm's length market value type transaction.
2. The measurement is dependent upon the actuarial cost method which, in combination with the plan's funding 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 percent is not synonymous with no required future contributions. If the funded status were 100 percent, 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.

Risk Associated with Measuring the Accrued Liability and Contributions

The determination of the accrued liability and the statutory contribution requires the use of actuarial 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 actuarial 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 total required employer 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 Fund'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 Fund'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 Fund's funding policy or material changes may occur in the anticipated number of covered employees, covered payroll, or other relevant contribution base;
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; and
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.

Risk Associated with Measuring the Accrued Liability and Contributions

Section J of the report provides stress and sensitivity analysis which reviews some of the risk metrics listed above. Key highlights of the analysis include:

- Tables 4a, 4b, 4c and 4d in Section B of this report show projections of the funded status and statutory contribution requirements. These projections assume static asset returns of 6.75 percent per year. Scenarios 1 through 5 in Section J of this report provide projections assuming alternative static returns of 5.64 percent and 4.15 percent, and alternative dynamic returns of 6.75 percent, 5.64 percent (40th percentile) and 4.14 percent (25th percentile). The dynamic scenarios show volatile annual returns, for representative trials, based on a set of capital market assumptions. If assets earn 5.64 percent instead of 6.75 percent over the 25-year projection period, the present value of future employer contributions increases by approximately 8.4 percent. If assets earn 4.15 percent instead of 6.75 percent per year, the present value of future employer contributions increases by 17.9 percent.
- Exhibit B-9 in Section J compares the projected funded ratio, and the percentage change in assets to the percentage change in actuarial liabilities. The key observations include: (i) assets need to grow at a higher rate especially towards the end of the projection period, and (ii) contributions are somewhat backloaded. This illustrates a potential mismatch between assets and liabilities.
- Scenarios 6 and 7 in Section J show the impact to plan costs if the covered active membership changes marginally. If the number of active members increases by 1,000 members each year over the next five years, the present value of future contributions increases by 0.4 percent. If the number of active member decreases by 1000 members per year over the next five years, the present value of future contributions decreases by 0.4 percent. Consequently, based on the current statutory contribution policy, which is based on a projection of assets and liabilities at 2045, marginal changes in the covered active group is not expected to significantly impact contribution requirements on a present value basis.
- Scenarios 8 and 9 in Section J show the impact to plan costs if the wage inflation assumption of 2.75 percent is increased to 3.75 percent or alternatively decreased to 1.75 percent. Increasing the wage inflation assumption to 3.75 percent increases the present value of future contributions by 3.7 percent, whereas decreasing the wage inflation assumption to 1.75 percent decreases the present value of future contributions by 2.9 percent.

The statutory funding policy provides for a projected funded ratio target of 90 percent at plan year end 2045. Employer contributions are based on a level percentage of projected payroll. This policy spreads investment and demographic gains over the entire projection period. Consequently, statutory contributions depend primarily on the assumptions and methods used to project assets and open group liabilities. The System funded ratio is only 39 percent as of June 30, 2020. For fiscal year 2022, the statutory contribution rate is 53.9 percent of payroll and the pro forma actuarial determined contribution rate is 64.9 percent of payroll.

The statutory contribution for fiscal year 2022 shown on page 8 should be considered as the minimum contribution that complies with the funding policy governed by State statute. The timely receipt of the statutory contribution is critical to support the financial health of the System. Users of this report should be aware that contributions made at the statutorily determined amount do not necessarily guarantee benefit security.

Risk Associated with Measuring the Accrued Liability and Contributions

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:

Valuation Year	Ratio of the Market Value of Assets to Covered Payroll	Ratio of Actuarial Accrued Liability to Covered Payroll	Ratio of Unfunded Accrued Liability to Covered Payroll	Funded Ratio Market Value Basis
2016	3.51	10.62	7.11	33.04%
2017	3.94	11.13	7.19	35.40%
2018	4.12	11.29	7.18	36.44%
2019	4.02	10.59	6.57	37.95%
2020	4.24	11.08	6.84	38.27%

Valuation Year	Ratio of Actives to Retirees and Beneficiaries	Ratio of Retiree Accrued Liability to Total Accrued Liability	Approximate Duration of Actuarial Accrued Liability	Ratio of Net Cash Flow to Market Value of Assets	Ratio Benefits and Expenses to Contributions
2016	0.87	66.11%	13.0	-0.63%	1.04
2017	0.84	68.37%	12.7	-1.94%	1.16
2018	0.84	70.05%	12.5	-1.85%	1.15
2019	0.83	70.74%	12.3	-0.49%	1.04
2020	0.83	71.34%	12.3	-0.65%	1.05

Ratio of Market Value of Assets to Payroll

For funding policies that are based on actuarially determined contributions, which are expressed as a percentage of payroll, the ratio of market value of assets to payroll may provide an indicator of the sensitivity in contribution rates due to recent investment experience. However, this sensitivity indicator generally depends on the relative level of liabilities and the funded ratio of the plan.

For example, better funded plans will have lower contribution rates when compared to worst funded plans. However, investment loss will generally have a greater impact on the contribution rates of better funded plans when compared to worst funded plans.

Consequently, as assets increase and the funding ratio improves, investment experience will generally have a greater marginal impact on contribution rates, even though contribution rates may be decreasing.

Risk Associated with Measuring the Accrued Liability and Contributions

Ratio of Actuarial Accrued Liability to Payroll

The ratio of actuarial liability to payroll may indicate the maturity of a plan. For example, a closed plan comprised primarily of retired members will generally have a high ratio of liability to payroll. However, for open plans it is important to also measure the unfunded liability relative to payroll.

Ratio of Unfunded Actuarial Liability to Payroll

Plans with high unfunded liabilities relative to payroll could result in unsustainable contribution rates even though the plan is open. This may indicate the need to express contributions in terms of a dollar amount instead of as a percentage of payroll. It may also indicate the need to strengthen the funding policy, for example by amortizing unfunded liabilities on a level dollar instead of a level percentage of pay basis or by reducing the amortization period. The ratio of unfunded actuarial liability to payroll has decreased from 7.11 to 6.84 which indicates some progress towards financing the unfunded actuarial liability.

A decrease in the ratio of unfunded liability to payroll is an indicator that the System is making some progress towards funding the program; however, it could still produce an increasing unfunded liability. This is typical of systems that have backloaded funding policies. As shown in Section B Table 4d, the projected unfunded actuarial liability increases from $30.96 billion in 2021, to $31.75 billion in 2026, and then decreases to $30.75 billion in 2031. During this period, a small portion of the existing unfunded liability at 2021 is funded by 2031.

Funded Ratio

The ratio of actuarial accrued liability provides another metric of progress towards funding. The funded ratio has increased from 33.0 percent in 2016 to 38.3 percent in 2020. Consequently, the System has experienced a positive trend in the funded ratio. However, over the statutory projection period, the funded ratio increases at a very slow rate, from 40 percent in 2021, to 48 percent in 2030, to 68 percent in 2040, and to 90 percent in 2045. Consequently, most of the growth in the funded ratio occurs during the last seven years of the projection period. See Section B Table 4d for additional details on the statutory funded projections.

Ratio of Active to Retired Members

A newly established plan, that does not grant past service credits, will have a high ratio of active to retired members. As the plan matures the ratio approaches 1.0. A very mature plan may have more retired members relative to active members which produce a ratio under 1.0. Very mature plans that have not been adequately funded could produce intergenerational inequities.

The System's ratio of active to retired members is trending downward and has decreased from 0.87 in 2016 to 0.83 in 2020. However, this ratio does not consider that the System is providing a different level of benefits to Tier 1 and Tier 2 members.

Risk Associated with Measuring the Accrued Liability and Contributions

Ratio of Retiree Actuarial Accrued Liability to Total Actuarial Accrued Liability

The ratio of retiree actuarial accrued liability to total actuarial accrued liability also provides a measure of the maturity of the plan relative to the level of plan benefits that have been earned to date. This ratio has increased from 66 percent in 2016 to 71 percent for 2020. An increasing ratio could indicate a maturing plan. Some of the reasons for this trend include changes in assumptions, the relative level of Tier 1 to Tier 2 benefits, and the ratio of retired to active members.

As the program matures it is important to consider the matching of assets to liabilities to ensure intergenerational equity. For example, retiree liabilities that have not been pre-funded during the working lifetime of the retired member could produce intergenerational inequities.

Duration of Actuarial Accrued Liability

The duration of the actuarial accrued liability may be used to approximate the sensitivity of a one percentage point change in the assumed discount rate. For example, a duration of 10 indicates that the liability could increase by approximately 10 percent if the assumed discount rate was lowered by one percentage point. The duration for active member liabilities is generally higher when compared to the duration for retired members. Consequently, a lower duration generally indicates a greater proportion of retired member liability. Changes to the discount rate assumption could also cause the duration factor to change. For the System, the duration factors have decreased from 13.0 in 2016 to 12.3 in 2020, which suggests a maturing group. Other factors such as emerging experience or changes in assumptions could also impact the year-to-year change in duration.

Percentage of Net Cash Flow to Market Value of Assets, and Ratio of Benefit Payments and Expenses to Contributions

Net cash flow is defined as the difference between total contributions, and benefits and expenses made during the plan year. If benefits and expenses are greater than contributions, a portion of either investment return or principal will be used to pay benefits and expenses during the year. A negative percentage means a decrease in assets, whereas a positive ratio means an increase in assets.

For underfunded plans, it is preferable for this ratio to be positive. This would imply that investment income is maintained in the trust which helps the growth in assets. For the System, the percentage has ranged from -1.94 percent to -0.49 percent during the last five years. In 2017 about 1.94 percent of plan assets were used to pay benefits.

For sufficiently well-funded plans, it is appropriate for a portion of investment income to be used to pay benefits. In this case, a negative ratio means that assets have grown to a reasonably sufficient level and can be used to pay benefits.

The ratio of benefit payments and expenses to contributions is closely related to the percentage of net cash flows to the market value of assets. For underfunded plans it is preferable for contributions to exceed benefit payments, which implies a ratio less than 1.0. During the last five years the ratio has ranged from 1.16 to 1.04.

Additional Risk Assessment

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. At the Board's request, we conducted additional risk assessment of investment, and contribution risk through sensitivity and stress testing the investment return assumption, future active population growth and changes in the wage inflation assumption. Please see Section J for additional details.

SECTION B

FUNDING RESULTS

Table 1
Results of Actuarial Valuation as of June 30, 2020

1	Number of Members	
	a. Active	62,621
	b. Inactive:	
	i. Eligible for deferred vested pension benefits (3,347 based on SERS service alone. An additional 427 are eligible when reciprocal service is added to SERS service)	3,774
	ii. Eligible for return of contributions only	23,478
	c. Current Benefit Recipients:	
	i. Retirement annuities	61,819
	ii. Survivor annuities	11,613
	iii. Disability annuities	1,923
	d. Eligible for Deferred Benefits:	
	i. Retirement annuities	53
	ii. Survivor annuities	119
	e. Total	165,400
2	Covered Payroll Provided by System	$ 4,523,879,064
3	Annualized Benefit Payments Currently Being Made	
	a. Retirement (Includes those eligible for deferred benefits)	$2,521,718,952
	b. Survivor (Includes those eligible for deferred benefits)	178,810,596
	c. Disability	53,973,868
	d. Total	$2,754,503,416
4	Actuarial Liability—Annuitants	
	a. Current Benefit Recipients:	
	i. Retirement annuities	$ 33,353,285,578
	ii. Survivor annuities	1,856,560,352
	iii. Disability annuities	550,342,937
	b. Eligible for Deferred Benefits:	
	i. Retirement annuities	6,227,206
	ii. Survivor annuities	8,185,655
	c. Total	$ 35,774,601,728
5	Actuarial Liability—Inactive Members	
	a. Eligible for Deferred Vested Pension Benefits	$ 686,408,111
	b. Eligible for Return of Contributions Only	53,861,956
	c. Total	$ 740,270,067

Table 1 (Concluded)
Results of Actuarial Valuation as of June 30, 2020

		Normal Cost	Actuarial Liability
6	Active Members		
	a. Pension Benefits	$ 535,553,007	$ 9,284,218,535
	b. Cost-of-Living Adjustments	195,600,152	3,845,230,555
	c. Death Benefits		
	i. Occupational	$ 1,076,016	$ 9,631,826
	ii. Non-occupational	7,966,099	86,033,886
	iii. Refund	13,653,874	46,862,312
	iv. Total	$ 22,695,989	$ 142,528,024
	d. Disability		
	i. Occupational	$ 10,355,109	$ -
	ii. Non-occupational	58,678,951	-
	iii. Total	$ 69,034,060	$ -
	e. Withdrawal	35,413,554	358,981,893
	f. Expenses	19,291,324	-
	g. Total	$ 877,588,086	$ 13,630,959,007
7	Total Actuarial Liability (4 + 5 + 6)		$ 50,145,830,802
8	Market Value of Assets (MVA)		$ 19,191,432,889
9	Unfunded Actuarial Liability Based on MVA (7 – 8)		$ 30,954,397,913
10	Funded Percentage Based on MVA (8 ÷ 7)[a]		38.27%
11	Actuarial Value of Assets (AVA)		$ 19,389,500,950
12	Unfunded Actuarial Liability Based on AVA (7 – 11)		$ 30,756,329,852
13	Funded Percentage Based on AVA (11 ÷ 7) [a]		38.67%
14	Total Normal Cost	$ 877,588,086	
15	Employee Contributions	$ 255,524,207	
16	Annual Employer Normal Cost	$ 622,063,879	
	(% covered payroll provided by the System)	13.75%	

[a] *The funded status measure is appropriate for assessing the need for future contributions. The funded status is not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations.*

Table 2
Analysis of Change in Unfunded Accrued Actuarial Liability

In addition to the expected change in the unfunded accrued actuarial liability, changes in membership demographics, investment performance, plan provisions, and assumptions have affected the actuarial valuation results. The increase in the unfunded actuarial accrued liability (UAAL) of $454,076,291 was due to the following:

1	UAAL at 06/30/2019	$	30,302,253,561
2	Contributions		
	a. Contributions due (Normal Cost plus Interest on UAAL)		
	i interest on 1)	$	2,045,402,115
	ii members contributions		271,749,009
	iii employer normal cost		620,113,732
	iv interest on ii and iii		29,608,876
	v total due	$	2,966,873,732
	b. Contributions paid (Actual)		
	i member contributions	$	271,749,009
	ii state agencies		2,368,905,396
	iii interest on i and ii		87,666,864
	iv total paid	$	2,728,321,269
	c. Expected increase in UAAL	$	238,552,463
3	Expected UAAL at 06/30/2020	$	30,540,806,024
4	(Gains)/Losses		
	a. investment income	$	158,910,288
	b. salary increases		52,104,683
	c. demographic		4,508,857
	d. total	$	215,523,828
5	Plan Provision Changes	$	-
6	Assumption Changes	$	-
7	Total Change in UAAL	$	454,076,291
8	UAAL at 06/30/2020	$	30,756,329,852

Table 3
Analysis of Financial Gains and Losses in Unfunded Accrued Actuarial Liability for Fiscal Year Ended June 30, 2020

	Activity		(Gain)/Loss	% of 06/30/2019 AAL
1	Actuarial (Gain)/Loss			
	a. Retirements	$	34,318,676	0.08%
	b. In-Service Mortality		(575,193)	0.00%
	c. Retiree Mortality and Benefit Changes		(69,470,380)	-0.14%
	d. Salary Increases		52,104,683	0.11%
	e. Terminations		(47,042,729)	-0.10%
	f. Investment		158,910,288	0.33%
	g. New Entrant Liability		75,543,251	0.16%
	h. Other		11,894,722	0.02%
	i. Total Actuarial (Gain)/Loss	$	215,523,828	0.46%
2	Plan Provision Changes	$	-	0.00%
3	Assumption Changes	$	-	0.00%
4	Contribution (Excess)/Shortfall [a]	$	238,552,463	0.49%
5	Total Financial (Gain)/Loss	$	454,076,291	0.95%

[a] *Represents the increase in the Unfunded Actuarial Accrued Liability due to actual contributions being less than the Normal Cost plus interest on the beginning of year Unfunded Actuarial Accrued Liability.*

Table 4a

Baseline Projections — State Contributions Determined under Public Act 88-0593, Public Act 90-0065, Public Act 94-004, Public Act 96-0043, and Public Act 100-0023

Maximum Contribution Calculation: Without GOB Proceeds

Investment Return of 6.75% Each Year ($ in Millions)

							Annual Normal Cost				State Contribution		
Plan Year End 6/30	Number Active	Actuarial Accrued Liability	Assets	Unfunded Liability	Funded Ratio	Total Payroll	Total	Employee Cont.	Employer Normal Cost	Percent of Pay	Amount	Percent of Pay	Total Expenses
2021	62,621	$ 51,487	$ 19,090	$ 32,397	37.08%	$ 4,520	$ 878	$ 256	$ 622	13.76%	$ 2,513	55.63%	$ 2,856
2022	62,621	52,759	20,243	32,516	38.37%	4,584	869	258	611	13.33%	2,612	56.99%	3,001
2023	62,621	53,966	21,378	32,588	39.61%	4,654	860	260	600	12.90%	2,655	57.05%	3,139
2024	62,621	55,102	22,494	32,607	40.82%	4,726	851	262	588	12.45%	2,699	57.11%	3,277
2025	62,621	56,157	23,587	32,570	42.00%	4,800	839	265	575	11.97%	2,741	57.10%	3,418
2026	62,621	57,124	24,658	32,467	43.17%	4,881	827	267	559	11.45%	2,787	57.10%	3,559
2027	62,621	58,001	25,711	32,290	44.33%	4,966	814	270	544	10.94%	2,836	57.10%	3,698
2028	62,621	58,790	26,755	32,035	45.51%	5,056	804	274	530	10.49%	2,887	57.10%	3,830
2029	62,621	59,496	27,803	31,692	46.73%	5,155	797	278	519	10.07%	2,943	57.10%	3,954
2030	62,621	60,120	28,863	31,257	48.01%	5,258	792	282	510	9.70%	3,002	57.10%	4,074
2031	62,621	60,671	29,953	30,718	49.37%	5,368	788	287	502	9.35%	3,065	57.10%	4,183
2032	62,621	61,141	31,074	30,067	50.82%	5,482	785	292	493	9.00%	3,130	57.10%	4,294
2033	62,621	61,534	32,238	29,296	52.39%	5,600	783	296	487	8.69%	3,197	57.10%	4,398
2034	62,621	61,854	33,460	28,394	54.10%	5,724	783	302	481	8.41%	3,268	57.10%	4,493
2035	62,621	62,103	34,754	27,349	55.96%	5,854	783	307	476	8.13%	3,342	57.10%	4,583

Normal cost rate includes administrative expenses.
State contribution based on the requirements of Public Act 88-0593, as amended by Public Act 90-0065, Public Act 94-0004, Public Act 96-0043 and Public Act 100-0023.
Total expenses shown include benefit payments, refunds and administrative expenses.
Actuarial accrued liability and assets are measured at Plan Year End.
Total payroll is capped for members hired after December 31, 2010, as defined in Public Act 96-0889.

Table 4a (Concluded)
Baseline Projections — State Contributions Determined under Public Act 88-0593, Public Act 90-0065, Public Act 94-0004, Public Act 96-0043, and Public Act 100-0023
Maximum Contribution Calculation: Without GOB Proceeds
Investment Return of 6.75% Each Year ($ in Millions)

Plan Year End 6/30	Number Active	Actuarial Accrued Liability	Assets	Unfunded Liability	Funded Ratio	Total Payroll	Annual Normal Cost				State Contribution		Total Expenses
							Total	Employee Cont.	Employer Normal Cost	Percent of Pay	Amount	Percent of Pay	
2036	62,621	$ 62,282	$ 36,133	$ 26,149	58.01%	$ 5,986	$ 783	$ 313	$ 470	7.86%	$ 3,418	57.10%	$ 4,667
2037	62,621	62,398	37,614	24,784	60.28%	6,124	786	318	467	7.63%	3,497	57.10%	4,742
2038	62,621	62,460	39,219	23,241	62.79%	6,269	791	325	466	7.44%	3,579	57.10%	4,808
2039	62,621	62,473	40,968	21,506	65.58%	6,419	798	331	467	7.28%	3,665	57.10%	4,865
2040	62,621	62,451	42,887	19,565	68.67%	6,576	809	338	471	7.17%	3,754	57.10%	4,911
2041	62,621	62,405	45,002	17,403	72.11%	6,739	822	345	478	7.09%	3,848	57.10%	4,947
2042	62,621	62,345	47,339	15,005	75.93%	6,908	839	352	486	7.04%	3,945	57.10%	4,974
2043	62,621	62,279	49,926	12,354	80.16%	7,082	857	360	497	7.02%	4,044	57.10%	4,993
2044	62,621	62,218	52,787	9,431	84.84%	7,260	877	368	509	7.02%	4,145	57.10%	5,005
2045	62,621	62,166	55,947	6,219	90.00%	7,439	898	376	522	7.02%	4,247	57.10%	5,013

Normal cost rate includes administrative expenses.
State contribution based on the requirements of Public Act 88-0593, as amended by Public Act 90-0065, Public Act 94-0004, Public Act 96-0043 and Public Act 100-0023.
Total expenses shown include benefit payments, refunds and administrative expenses.
Actuarial accrued liability and assets are measured at Plan Year End.
Total payroll is capped for members hired after December 31, 2010, as defined in Public Act 96-0889.

Table 4b
Baseline Projections — State Contributions Determined under Public Act 88-0593, Public Act 90-0065, Public Act 93-0002, Public Act 94-0004, Public Act 96-0043, and Public Act 100-0023
Investment Return of 6.75% Each Year ($ in Millions)

							Annual Normal Cost				Required State Contribution						
Plan Year End 6/30	Number Active	Actuarial Accrued Liability	Assets	Unfunded Liability	Funded Ratio	Total Payroll	Total	Employee Cont.	Employer Normal Cost	Percent of Pay	(a) Without GOB Cont.	(b) Debt Service	(c)=(a)-(b) Maximum Cont.	(d) Formula Rate With GOB	Minimum of (c) and (d) Required Cont.	Minimum of (c) and (d) Percent of Pay	Total Expenses
2021	62,621	$ 51,487	$ 20,468	$ 31,018	39.75%	$ 4,520	$ 878	$ 256	$ 622	13.76%	$ 2,513	$ 135	$ 2,378	$ 2,534	$ 2,378	52.60%	$ 2,856
2022	62,621	52,759	21,568	31,191	40.88%	4,584	869	258	611	13.33%	2,612	142	2,470	2,632	2,470	53.89%	3,001
2023	62,621	53,966	22,639	31,327	41.95%	4,654	860	260	600	12.90%	2,655	148	2,506	2,675	2,506	53.86%	3,139
2024	62,621	55,102	23,676	31,425	42.97%	4,726	851	262	588	12.45%	2,699	159	2,540	2,719	2,540	53.74%	3,277
2025	62,621	56,157	24,674	31,483	43.94%	4,800	839	265	575	11.97%	2,741	169	2,572	2,761	2,572	53.58%	3,418
2026	62,621	57,124	25,639	31,485	44.88%	4,881	827	267	559	11.45%	2,787	173	2,614	2,808	2,614	53.54%	3,559
2027	62,621	58,001	26,575	31,426	45.82%	4,966	814	270	544	10.94%	2,836	177	2,658	2,857	2,658	53.53%	3,698
2028	62,621	58,790	27,486	31,304	46.75%	5,056	804	274	530	10.49%	2,887	185	2,701	2,908	2,701	53.43%	3,830
2029	62,621	59,496	28,384	31,111	47.71%	5,155	797	278	519	10.07%	2,943	193	2,750	2,965	2,750	53.35%	3,954
2030	62,621	60,120	29,272	30,848	48.69%	5,258	792	282	510	9.70%	3,002	204	2,798	3,024	2,798	53.21%	4,074
2031	62,621	60,671	30,168	30,503	49.72%	5,368	788	287	502	9.35%	3,065	215	2,850	3,088	2,850	53.09%	4,183
2032	62,621	61,141	31,076	30,065	50.83%	5,482	785	292	493	9.00%	3,130	220	2,910	3,153	2,910	53.09%	4,294
2033	62,621	61,534	32,014	29,520	52.03%	5,600	783	296	487	8.69%	3,197	219	2,978	3,221	2,978	53.19%	4,398
2034	62,621	61,854	33,246	28,608	53.75%	5,724	783	302	481	8.41%	3,268	-	N/A	3,293	3,293	57.52%	4,493
2035	62,621	62,103	34,552	27,551	55.64%	5,854	783	307	476	8.13%	3,342	-	N/A	3,367	3,367	57.52%	4,583

Normal cost rate includes administrative expenses.
State contribution based on the requirements of Public Act 88-0593, as amended by Public Act 90-0065, Public Act 93-0002, Public Act 94-0004, Public Act 96-0043 and Public Act 100-0023.
Total expenses shown include benefit payments, refunds and administrative expenses.
Actuarial accrued liability and assets are measured at Plan Year End.
Total payroll is capped for members hired after December 31, 2010, as defined in Public Act 96-0889.

Table 4b (Concluded)
Baseline Projections — State Contributions Determined under Public Act 88-0593, Public Act 90-0065, Public Act 93-0002, Public Act 94-0004, Public Act 96-0043, and Public Act 100-0023
Investment Return of 6.75% Each Year ($ in Millions)

							Annual Normal Cost				Required State Contribution					
											(a)	(b)	(c)=(a)-(b)	(d)	Minimum of (c) and (d)	
Plan Year End 6/30	Number Active	Actuarial Accrued Liability	Assets	Unfunded Liability	Funded Ratio	Total Payroll	Total	Employee Cont.	Employer Normal Cost	Percent of Pay	Without GOB Cont.	Debt Service	Maximum Cont.	Formula Rate With GOB	Required Cont.	Percent of Pay	Total Expenses
2036	62,621	$ 62,282	$ 35,942	$ 26,340	57.71%	$ 5,986	$ 783	$ 313	$ 470	7.86%	$ 3,418	$ -	N/A	$ 3,443	$ 3,443	57.52%	$ 4,667
2037	62,621	62,398	37,438	24,961	60.00%	6,124	786	318	467	7.63%	3,497	-	N/A	3,523	3,523	57.52%	4,742
2038	62,621	62,460	39,058	23,402	62.53%	6,269	791	325	466	7.44%	3,579	-	N/A	3,606	3,606	57.52%	4,808
2039	62,621	62,473	40,824	21,650	65.35%	6,419	798	331	467	7.28%	3,665	-	N/A	3,692	3,692	57.52%	4,865
2040	62,621	62,451	42,762	19,690	68.47%	6,576	809	338	471	7.17%	3,754	-	N/A	3,782	3,782	57.52%	4,911
2041	62,621	62,405	44,898	17,507	71.95%	6,739	822	345	478	7.09%	3,848	-	N/A	3,876	3,876	57.52%	4,947
2042	62,621	62,345	47,259	15,086	75.80%	6,908	839	352	486	7.04%	3,945	-	N/A	3,974	3,974	57.52%	4,974
2043	62,621	62,279	49,870	12,409	80.08%	7,082	857	360	497	7.02%	4,044	-	N/A	4,074	4,074	57.52%	4,993
2044	62,621	62,218	52,759	9,459	84.80%	7,260	877	368	509	7.02%	4,145	-	N/A	4,176	4,176	57.52%	5,005
2045	62,621	62,166	55,950	6,216	90.00%	7,439	898	376	522	7.02%	4,247	-	N/A	4,279	4,279	57.52%	5,013

Normal cost rate includes administrative expenses.
State contribution based on the requirements of Public Act 88-0593, as amended by Public Act 90-0065, Public Act 93-0002, Public Act 94-0004, Public Act 96-0043 and Public Act 100-0023.
Total expenses shown include benefit payments, refunds and administrative expenses.
Actuarial accrued liability and assets are measured at Plan Year End.
Total payroll is capped for members hired after December 31, 2010, as defined in Public Act 96-0889.

Table 4c
Baseline Projections — State Contributions Determined under Public Act 88-0593, Public Act 90-0065, Public Act 94-0004, Public Act 96-0043, and Public Act 100-0023
Maximum Contribution Calculation: Without GOB Proceeds
Investment Return of 6.75% Each Year ($ in Millions)

Plan Year End 6/30	Number Active	Actuarial Accrued Liability	Assets	Unfunded Liability	Funded Ratio	Total Payroll	Annual Normal Cost				State Contribution		Total Expenses
							Total	Employee Cont.	Employer Normal Cost	Percent of Pay	Amount	Percent of Pay	
2021	62,621	$ 51,487	$ 19,142	$ 32,345	37.18%	$ 4,520	$ 878	$ 256	$ 622	13.76%	$ 2,513	55.63%	$ 2,856
2022	62,621	52,759	20,206	32,553	38.30%	4,584	869	258	611	13.33%	2,612	56.99%	3,001
2023	62,621	53,966	21,226	32,740	39.33%	4,654	860	260	600	12.90%	2,651	56.96%	3,139
2024	62,621	55,102	22,253	32,849	40.39%	4,726	851	262	588	12.45%	2,702	57.18%	3,277
2025	62,621	56,157	23,341	32,816	41.56%	4,800	839	265	575	11.97%	2,753	57.34%	3,418
2026	62,621	57,124	24,415	32,709	42.74%	4,881	827	267	559	11.45%	2,806	57.48%	3,559
2027	62,621	58,001	25,472	32,529	43.92%	4,966	814	270	544	10.94%	2,855	57.48%	3,698
2028	62,621	58,790	26,520	32,270	45.11%	5,056	804	274	530	10.49%	2,906	57.48%	3,830
2029	62,621	59,496	27,572	31,923	46.34%	5,155	797	278	519	10.07%	2,963	57.48%	3,954
2030	62,621	60,120	28,638	31,482	47.63%	5,258	792	282	510	9.70%	3,022	57.48%	4,074
2031	62,621	60,671	29,734	30,937	49.01%	5,368	788	287	502	9.35%	3,086	57.48%	4,183
2032	62,621	61,141	30,862	30,280	50.48%	5,482	785	292	493	9.00%	3,151	57.48%	4,294
2033	62,621	61,534	32,033	29,500	52.06%	5,600	783	296	487	8.69%	3,219	57.48%	4,398
2034	62,621	61,854	33,265	28,589	53.78%	5,724	783	302	481	8.41%	3,318	57.48%	4,493
2035	62,621	62,103	34,569	27,534	55.66%	5,854	783	307	476	8.13%	3,393	57.48%	4,583

Normal cost rate includes administrative expenses.
State contribution based on the requirements of Public Act 88-0593, as amended by Public Act 90-0065, Public Act 94-0004, Public Act 96-0043 and Public Act 100-0023.
Total expenses shown include benefit payments, refunds and administrative expenses.
Actuarial accrued liability and assets are measured at Plan Year End.
Total payroll is capped for members hired after December 31, 2010, as defined in Public Act 96-0889.

Table 4c (Concluded)
Baseline Projections — State Contributions Determined under Public Act 88-0593, Public Act 90-0065, Public Act 94-0004, Public Act 96-0043, and Public Act 100-0023
Maximum Contribution Calculation: Without GOB Proceeds
Investment Return of 6.75% Each Year ($ in Millions)

Plan Year End 6/30	Number Active	Actuarial Accrued Liability	Assets	Unfunded Liability	Funded Ratio	Total Payroll	Annual Normal Cost				State Contribution		Total Expenses
							Total	Employee Cont.	Employer Normal Cost	Percent of Pay	Amount	Percent of Pay	
2036	62,621	$ 62,282	$ 35,959	$ 26,323	57.74%	$ 5,986	$ 783	$ 313	$ 470	7.86%	$ 3,441	57.48%	$ 4,667
2037	62,621	62,398	37,453	24,945	60.02%	6,124	786	318	467	7.63%	3,520	57.48%	4,742
2038	62,621	62,460	39,072	23,388	62.56%	6,269	791	325	466	7.44%	3,603	57.48%	4,808
2039	62,621	62,473	40,836	21,637	65.37%	6,419	798	331	467	7.28%	3,690	57.48%	4,865
2040	62,621	62,451	42,772	19,679	68.49%	6,576	809	338	471	7.17%	3,780	57.48%	4,911
2041	62,621	62,405	44,907	17,498	71.96%	6,739	822	345	478	7.09%	3,874	57.48%	4,947
2042	62,621	62,345	47,266	15,079	75.81%	6,908	839	352	486	7.04%	3,971	57.48%	4,974
2043	62,621	62,279	49,875	12,404	80.08%	7,082	857	360	497	7.02%	4,071	57.48%	4,993
2044	62,621	62,218	52,761	9,456	84.80%	7,260	877	368	509	7.02%	4,173	57.48%	5,005
2045	62,621	62,166	55,950	6,216	90.00%	7,439	898	376	522	7.02%	4,276	57.48%	5,013

Normal cost rate includes administrative expenses.
State contribution based on the requirements of Public Act 88-0593, as amended by Public Act 90-0065, Public Act 94-0004, Public Act 96-0043 and Public Act 100-0023.
Total expenses shown include benefit payments, refunds and administrative expenses.
Actuarial accrued liability and assets are measured at Plan Year End.
Total payroll is capped for members hired after December 31, 2010, as defined in Public Act 96-0889.

Table 4d
Baseline Projections — State Contributions Determined under Public Act 88-0593, Public Act 90-0065, Public Act 93-0002, Public Act 94-0004, Public Act 96-0043, and Public Act 100-0023
Investment Return of 6.75% Each Year
Phase-In of Deferred Investment Gains and Losses Recognized in the Projected Actuarial Value of Assets ($ in Millions)

							Annual Normal Cost				Required State Contribution						
											(a)	(b)	(c)=(a)-(b)	(d)	Minimum of (c) and (d)		
Plan Year End 6/30	Number Active	Actuarial Accrued Liability	Assets	Unfunded Liability	Funded Ratio	Total Payroll	Total	Employee Cont.	Employer Normal Cost	Percent of Pay	Without GOB Cont.	Debt Service	Maximum Cont.	Formula Rate With GOB	Required Cont.	Percent of Pay	Total Expenses
2021	62,621	$ 51,487	$ 20,527	$ 30,959	39.87%	$ 4,520	$ 878	$ 256	$ 622	13.76%	$ 2,513	$ 135	$ 2,378	$ 2,534	$ 2,378	52.60%	$ 2,856
2022	62,621	52,759	21,530	31,229	40.81%	4,584	869	258	611	13.33%	2,612	142	2,470	2,632	2,470	53.89%	3,001
2023	62,621	53,966	22,478	31,488	41.65%	4,654	860	260	600	12.90%	2,651	148	2,502	2,669	2,502	53.78%	3,139
2024	62,621	55,102	23,418	31,684	42.50%	4,726	851	262	588	12.45%	2,702	159	2,543	2,722	2,543	53.81%	3,277
2025	62,621	56,157	24,410	31,747	43.47%	4,800	839	265	575	11.97%	2,753	169	2,584	2,774	2,584	53.82%	3,418
2026	62,621	57,124	25,377	31,747	44.42%	4,881	827	267	559	11.45%	2,806	173	2,632	2,829	2,632	53.93%	3,559
2027	62,621	58,001	26,316	31,685	45.37%	4,966	814	270	544	10.94%	2,855	177	2,678	2,878	2,678	53.91%	3,698
2028	62,621	58,790	27,229	31,561	46.32%	5,056	804	274	530	10.49%	2,906	185	2,721	2,930	2,721	53.81%	3,830
2029	62,621	59,496	28,130	31,365	47.28%	5,155	797	278	519	10.07%	2,963	193	2,770	2,987	2,770	53.74%	3,954
2030	62,621	60,120	29,022	31,098	48.27%	5,258	792	282	510	9.70%	3,022	204	2,818	3,047	2,818	53.60%	4,074
2031	62,621	60,671	29,922	30,749	49.32%	5,368	788	287	502	9.35%	3,086	215	2,871	3,111	2,871	53.48%	4,183
2032	62,621	61,141	30,836	30,306	50.43%	5,482	785	292	493	9.00%	3,151	220	2,932	3,177	2,932	53.48%	4,294
2033	62,621	61,534	31,779	29,754	51.65%	5,600	783	296	487	8.69%	3,219	219	3,000	3,246	3,000	53.57%	4,398
2034	62,621	61,854	33,022	28,832	53.39%	5,724	783	302	481	8.41%	3,318	$ -	N/A	3,318	3,318	57.96%	4,493
2035	62,621	62,103	34,339	27,764	55.29%	5,854	783	307	476	8.13%	3,393	-	N/A	3,393	3,393	57.96%	4,583

Normal cost rate includes administrative expenses.
State contribution based on the requirements of Public Act 88-0593, as amended by Public Act 90-0065, Public Act 93-0002, Public Act 94-0004, Public Act 96-0043 and Public Act 100-0023.
Total expenses shown include benefit payments, refunds and administrative expenses.
Actuarial accrued liability and assets are measured at Plan Year End.
Total payroll is capped for members hired after December 31, 2010, as defined in Public Act 96-0889.

Table 4d (Concluded)
Baseline Projections — State Contributions Determined under Public Act 88-0593, Public Act 90-0065, Public Act 93-0002, Public Act 94-0004, Public Act 96-0043, and Public Act 100-0023
Investment Return of 6.75% Each Year
Phase-In of Deferred Investment Gains and Losses Recognized in the Projected Actuarial Value of Assets ($ in Millions)

							Annual Normal Cost				Required State Contribution					
									Employer		(a)	(b)	(c)=(a)-(b)	(d)	Minimum of (c) and (d)	
Plan Year End 6/30	Number Active	Actuarial Accrued Liability	Assets	Unfunded Liability	Funded Ratio	Total Payroll	Total	Employee Cont.	Normal Cost	Percent of Pay	Without GOB Cont.	Debt Service	Maximum Cont.	Formula Rate With GOB	Required Cont.	Percent of Pay	Total Expenses
2036	62,621	$ 62,282	$ 35,742	$ 26,540	57.39%	$ 5,986	$ 783	$ 313	$ 470	7.86%	$ 3,469	$ -	N/A	$ 3,469	$ 3,469	57.96%	$ 4,667
2037	62,621	62,398	37,251	25,147	59.70%	6,124	786	318	467	7.63%	3,549	-	N/A	3,549	3,549	57.96%	4,742
2038	62,621	62,460	38,887	23,572	62.26%	6,269	791	325	466	7.44%	3,633	-	N/A	3,633	3,633	57.96%	4,808
2039	62,621	62,473	40,671	21,802	65.10%	6,419	798	331	467	7.28%	3,720	-	N/A	3,720	3,720	57.96%	4,865
2040	62,621	62,451	42,628	19,823	68.26%	6,576	809	338	471	7.17%	3,811	-	N/A	3,811	3,811	57.96%	4,911
2041	62,621	62,405	44,786	17,619	71.77%	6,739	822	345	478	7.09%	3,906	-	N/A	3,906	3,906	57.96%	4,947
2042	62,621	62,345	47,170	15,174	75.66%	6,908	839	352	486	7.04%	4,004	-	N/A	4,004	4,004	57.96%	4,974
2043	62,621	62,279	49,808	12,471	79.97%	7,082	857	360	497	7.02%	4,105	-	N/A	4,105	4,105	57.96%	4,993
2044	62,621	62,218	52,725	9,493	84.74%	7,260	877	368	509	7.02%	4,207	-	N/A	4,207	4,207	57.96%	5,005
2045	62,621	62,166	55,948	6,219	90.00%	7,439	898	376	522	7.02%	4,311	-	N/A	4,311	4,311	57.96%	5,013

Normal cost rate includes administrative expenses.
State contribution based on the requirements of Public Act 88-0593, as amended by Public Act 90-0065, Public Act 93-0002, Public Act 94-0004, Public Act 96-0043 and Public Act 100-0023.
Total expenses shown include benefit payments, refunds and administrative expenses.
Actuarial accrued liability and assets are measured at Plan Year End.
Total payroll is capped for members hired after December 31, 2010, as defined in Public Act 96-0889.

SECTION C

FUND ASSETS

Table 5
Statement of Fiduciary Net Position
for Years Ended June 30, 2020, and 2019

	2020	2019
Assets		
Cash	$ 284,998,900	$ 211,289,280
Receivables:		
Contributions:		
Participants	$ 16,433,064	$ 34,265,932
Employing state agencies	264,075,077	242,634,706
Other accounts	6,759,380	16,358,140
	$ 287,267,521	$ 293,258,778
Investments - held in the Illinois State Board of Investment Commingled Fund at fair value	$ 18,631,676,511	$ 18,025,048,500
Securities lending collateral with State Treasurer	54,881,000	43,142,000
Capital Assets, net of accumulated depreciation	$ 12,081,146	$ 10,710,395
Total Assets	$ 19,270,905,078	$ 18,583,448,953
Liabilities		
Benefits payable	$ 8,094,146	$ 18,183,074
Refunds payable	1,901,332	2,620,460
Administrative expenses payable	1,788,184	2,268,254
Participants' deferred service credit accounts	1,095,555	792,174
Due to State of Illinois	11,711,972	24,554,339
Securities lending collateral with State Treasurer	54,881,000	43,142,000
Total Liabilities	$ 79,472,189	$ 91,560,301
Net assets held in trust for pension benefits	$ 19,191,432,889	$ 18,491,888,652

Assets were updated subsequent to the delivery of the actuarial valuation report which was presented to the Board on October 27, 2020. The updates did not significantly impact the certified contribution rate which was approved by the Board on October 27, 2020. The asset updates include:

i. increasing investments from $18,631,676,511 to $18,637,515,974,

The preceding changes increased the market value of assets at June 30, 2020, from $19,191,432,889 to $19,197,272,352.

Table 6
Statement of Changes in Fiduciary Net Position
for Years Ended June 30, 2020, and 2019

	2020	2019
Additions:		
Contributions:		
Participants	$ 271,749,009	$ 275,675,175
Employing state agencies and appropriations	2,368,905,396	2,274,925,279
Total Contributions revenue	$ 2,640,654,405	$ 2,550,600,454
Investments income:		
Net investments income	$ 181,617,045	$ 268,044,834
Interest earned on cash balances	2,861,245	4,517,885
Net appreciation in fair value of investments	639,010,966	845,866,191
Total Investments income	$ 823,489,256	$ 1,118,428,910
Total Additions	$ 3,464,143,661	$ 3,669,029,364
Deductions:		
Benefits:		
Retirement annuities	$ 2,492,176,294	$ 2,368,679,904
Survivors' annuities	160,955,392	153,161,557
Disability benefits	62,947,464	62,214,438
Lump-sum benefits	11,741,683	17,250,694
Total Benefits	$ 2,727,820,833	$ 2,601,306,593
Refunds	19,366,029	24,133,508
Administrative	17,412,562	14,978,852
Total Deductions	$ 2,764,599,424	$ 2,640,418,953
Net increase	$ 699,544,237	$ 1,028,610,411
Net assets held in trust for pension benefits:		
Beginning of year	$ 18,491,888,652	$ 17,463,278,241
End of year	$ 19,191,432,889	$ 18,491,888,652

Assets were updated subsequent to the delivery of the actuarial valuation report which was presented to the Board on October 27, 2020. The updates did not significantly impact the certified contribution rate which was approved by the Board on October 27, 2020. The asset updates include:

i. increasing net investment income from $181,617,045 to $181,617,046,
ii. increasing net appreciation in fair value of investments from $639,010,966 to $644,850,428,

The preceding changes increased the market value of assets at June 30, 2020, from $19,191,432,889 to $19,197,272,352.

Table 7
Development of the Actuarial Value of Assets — Actual Assets

Year Ending June 30	2020	2021	2022	2023	2024
Beginning of Year:					
(1) Market Value of Assets	$ 18,478,303,106				
(1a) Market Value Adjustment	13,585,546				
(1b) Market Value of Assets - Adjusted	18,491,888,652				
(2) Actuarial Value of Assets	18,429,185,637				
End of Year:					
(3) Market Value of Assets	19,191,432,889				
(4) Contributions and Disbursements					
(4a) Actual State Contribution Amount	2,368,905,396				
(4b) Employee Contribution Amount	271,749,009				
(4c) Benefit Payouts & Refunds	(2,747,186,862)				
(4d) Administrative Expenses	(17,412,562)				
(4e) Net of Contributions and Disbursements	(123,945,019)				
(5) Total Investment Income =(3)-(1b)-(4e)	823,489,256				
(6) Projected Rate of Return	6.75%				
(7) Projected Investment Income =(1b)x(6)+([1+(6)]^.5-1)x(4e)	1,244,087,644				
(8) Investment Income in Excess of Projected Income	(420,598,388)				
(9) Excess Investment Income Recognized This Year (5-year recognition)					
(9a) From This Year	$ (84,119,678)				
(9b) From One Year Ago	(20,088,527)	$ (84,119,678)			
(9c) From Two Years Ago	22,214,688	(20,088,527)	$ (84,119,678)		
(9d) From Three Years Ago	154,246,855	22,214,688	(20,088,527)	$ (84,119,678)	
(9e) From Four Years Ago	(245,666,196)	154,246,856	22,214,687	(20,088,528)	$ (84,119,676)
(9f) Total Recognized Investment Gain	(173,412,858)	72,253,339	(81,993,518)	(104,208,206)	(84,119,676)
(10) Change in Actuarial Value of Assets =(1a)+(4e)+(7)+(9f)	$ 960,315,313				
End of Year:					
(3) Market Value of Assets	**$ 19,191,432,889**				
(11) Actuarial Value of Assets =(2)+(10)	**$ 19,389,500,950**				

Table 8
Development of the Actuarial Value of Assets — Hypothetical Assets

Year Ending June 30	2020	2021	2022	2023	2024
Beginning of Year:					
(1) Hypothetical Value of Assets	$ 17,021,677,575				
(2) Hypothetical Actuarial Value of Assets	16,975,980,095				
End of Year:					
(3) Hypothetical Value of Assets	17,780,404,003				
(4) Contributions and Disbursements					
(4a) State Contribution Amount [a]	2,490,754,194				
(4b) Employee Contribution Amount	271,749,009				
(4c) Benefit Payouts & Refunds	(2,747,186,862)				
(4d) Administrative Expenses	(17,412,562)				
(4e) Net of Contributions and Disbursements	(2,096,221)				
(5) Total Investment Income[b]					
=(3)-(1)-(4e)	760,822,649				
(6) Projected Rate of Return	6.75%				
(7) Projected Investment Income					
=(1)x(6)+([1+(6)]^.5-1)x(4e)	1,148,893,644				
(8) Investment Income in					
Excess of Projected Income	(388,070,995)				
(9) Excess Investment Income Recognized					
This Year (5-year recognition)					
(9a) From This Year	$ (77,614,199)				
(9b) From One Year Ago	(18,546,162)	$ (77,614,199)			
(9c) From Two Years Ago	20,321,657	(18,546,162)	$ (77,614,199)		
(9d) From Three Years Ago	140,265,721	20,321,657	(18,546,162)	$ (77,614,199)	
(9e) From Four Years Ago	(221,614,288)	140,265,722	20,321,658	(18,546,161)	$ (77,614,199)
(9f) Total Recognized Investment Gain	(157,187,271)	64,427,018	(75,838,703)	(96,160,360)	(77,614,199)
(10) Change in Hypothetical Actuarial Value of Assets					
=(4e)+(7)+(9f)	$ 989,610,152				
End of Year:					
(3) Hypothetical Market Value of Assets	**$ 17,780,404,003**				
(11) Hypothetical Actuarial Value of Assets					
=(2)+(10)	**$ 17,965,590,247**				

[a] *Represents 55.058 percent of covered payroll provided by the System for the basic contribution. This rate was determined as part of the June 30, 2018 actuarial valuation, and is based upon the hypothetical asset value which assumes no infusion from the proceeds of the GOB sale that were deposited July 1, 2003.*

[b] *Investment income assumes hypothetical value of assets earns the Fund's actual rate of return for fiscal year 2020 of 4.47 percent.*

SECTION D

PARTICIPANT DATA

Table 9
Active Age and Service Distribution as of June 30, 2020

Age Group	Years of Service									Total	Percentage of Total
	0-1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Up		
Under 20	78	16								**94**	
20-24	474	985	13	1						**1,473**	**2%**
25-29	367	3,378	809	17						**4,571**	**7%**
30-34	295	3,035	2,631	555	5					**6,521**	**11%**
35-39	277	2,423	2,366	1,467	430	28				**6,991**	**11%**
40-44	289	1,987	1,721	1,228	1,500	962	19			**7,706**	**12%**
45-49	318	1,704	1,500	1,002	1,336	2,370	732	41		**9,003**	**14%**
50-54	431	1,549	1,333	932	1,191	1,888	1,451	788	35	**9,598**	**15%**
55-59	378	1,279	1,091	833	1,100	1,283	1,050	931	330	**8,275**	**13%**
60-64	217	671	817	632	764	829	489	483	473	**5,375**	**9%**
65-69	102	208	348	319	316	288	168	169	210	**2,128**	**4%**
70 & Over	62	79	100	125	144	125	69	67	115	**886**	**2%**
Total	**3,288**	**17,314**	**12,729**	**7,111**	**6,786**	**7,773**	**3,978**	**2,479**	**1,163**	**62,621**	**100%**
Percentage of Total	**5%**	**28%**	**20%**	**11%**	**11%**	**13%**	**6%**	**4%**	**2%**	**100%**	

Table 10
Retirees and Beneficiaries by Type of Benefit Being Paid as of June 30, 2020

Type of Benefit Being Paid	Count	Monthly Payment	Annual Payment	Average Annual Payment
Retirement Annuity	61,819	$ 210,113,999.99	$ 2,521,367,999.88	$ 40,786.30
Survivors	10,529	13,402,475.46	160,829,705.52	15,274.93
Widows	25	32,801.07	393,612.84	15,744.51
Occupational Death	51	70,022.63	840,271.56	16,475.91
QILDRO	983	1,316,875.39	15,802,504.68	16,075.79
Reversionary Annuity	25	55,796.76	669,561.12	26,782.44
Non-Occupational Disability	945	2,087,134.38	25,045,612.56	26,503.29
Occupational Disability	574	1,892,510.42	22,710,125.04	39,564.68
Temporary Disability	296	245,054.24	2,940,650.88	9,934.63
Total Temporary Disability - Occupational	108	273,123.28	3,277,479.36	30,347.03
Eligible for Deferred Retirement Annuity	53	29,246.04	350,952.48	6,621.74
Eligible for Deferred Survivor Annuity	119	22,911.69	274,940.28	2,310.42
Total	**75,527**	**$ 229,541,951.35**	**$ 2,754,503,416.20**	**$ 36,470.45**

SECTION E

ACTUARIAL METHODS AND ASSUMPTIONS

Actuarial Methods and Assumptions (Most Adopted Effective with the June 30, 2019, Actuarial Valuation)

Actuarial Cost Method as Mandated by 40 ILCS 5/14-131, Adopted June 30, 1989

The projected unit credit normal cost method is used. Under this method, the projected pension at retirement age is first calculated and the present value at the individual member's current or attained age is determined. The normal cost for the member for the current year is equal to the actuarial present value divided by the member's projected service at retirement. The normal cost for the plan for the year is the sum of the individual normal costs.

The actuarial liability at any point in time is the present value of the projected pensions at that time less the present value of future normal costs.

For ancillary benefits for active members, in particular death and survivor benefits, termination benefits and the postretirement increases, the same procedure as outlined above is followed.

Estimated annual administrative expenses are added to the normal cost.

For actuarial valuation purposes, as well as projection purposes, an actuarial value of assets is used.

Most Actuarial Assumptions Adopted June 30, 2019

Actuarial assumptions are set by the Board of Trustees. The actuarial assumptions used for the June 30, 2020, actuarial valuation are based on a full experience review for the three-year period ended June 30, 2018. All actuarial assumptions are expectations of future experience, not market measures.

Mortality

Mortality assumptions for general employees and retirees covered under the Regular Benefit Formula are shown in the following table.

General Employees and Retirees	Proposed Mortality Table	Male Set Back Years	Female Set Back Years	Male Scaling Factor	Female Scaling Factor
Pre-retirement	Pub-2010 General Employee, sex distinct	2	1	89%	95%
Post-retirement	Pub-2010 General Healthy Retiree sex distinct	0	-1	111%	111%

Mortality assumptions for Public Safety employees and retirees covered under the Alternative Benefit Formula are shown in the following table.

Actuarial Methods and Assumptions (Most Adopted Effective with the June 30, 2019, Actuarial Valuation)

Public Safety Employees and Retirees	Proposed Mortality Table	Male Set Back Years	Female Set Back Years	Male Scaling Factor	Female Scaling Factor
Pre-retirement	Pub-2010 Public Safety Employee, sex distinct	0	0	96%	108%
Post-retirement	Pub-2010 Public Safety Healthy Retiree, sex distinct	0	0	110%	105%

Future mortality improvements are reflected by projecting the base mortality tables forward from the year 2010 using the fully generational MP-2018 projection scale. This assumption provides a margin for future mortality improvements.

Interest

6.75 percent per year, compounded annually, net of investment expenses.

General Inflation

2.25 percent per year, compounded annually.

This assumption serves as the basis for the determination of Tier Two annual increases that are equal to the lesser of 3.0 percent or one-half of the annual increase in the consumer price index-u during the preceding 12-month calendar year and are not compounded.

Marriage Assumption

85.0 percent of active male participants and 65.0 percent of active female participants are assumed to be married. Actual marital status at benefit commencement is used for retirees.

Social Security Offset for Survivor Benefits

No offset assumption for male surviving spouses because it is assumed their own PIA is as great as their spouses' PIA. Sixty percent of married male members are assumed to have a dual income household. For the dual income household, it is assumed the offset at age 60 is 45.0 percent of the original survivor benefit. It is assumed the offset at age 62 is 10.0 percent of the original survivor benefit. Furthermore, it is assumed that 50 percent of retirees on or after July 1, 2009, will elect to remove the offset provision. In exchange for the removal, the member's retirement annuity is reduced by 3.825 percent monthly as mandated by Statutes.

Termination

Illustrative rates of withdrawal from the plan are as follows for Tier One members:

Service Based Withdrawal				
	Regular Formula Employees		Alternate Formula Employees	
Service (Beginning of Year)	Males	Females	Males	Females
0	0.2400	0.2200	0.0525	0.0700
1	0.0900	0.0900	0.0425	0.0700
2	0.0750	0.0650	0.0425	0.0650
3	0.0650	0.0550	0.0425	0.0600
4	0.0600	0.0450	0.0425	0.0600
5	0.0460	0.0450	0.0300	0.0500
6	0.0450	0.0400	0.0300	0.0400
7	0.0400	0.0400	0.0300	0.0300
8	0.0300	0.0350	0.0200	0.0200
9	0.0300	0.0350	0.0200	0.0200
10	0.0300	0.0300	0.0150	0.0200
11	0.0250	0.0300	0.0150	0.0175
12	0.0250	0.0250	0.0150	0.0175
13	0.0250	0.0250	0.0150	0.0175
14	0.0200	0.0250	0.0150	0.0175
15	0.0200	0.0250	0.0150	0.0175
16	0.0200	0.0200	0.0150	0.0150
17	0.0200	0.0200	0.0150	0.0150
18	0.0200	0.0200	0.0150	0.0150
19	0.0200	0.0200	0.0125	0.0125
20	0.0200	0.0150	0.0125	0.0125
21	0.0200	0.0150	0.0125	0.0125
22	0.0200	0.0150	0.0125	0.0125
23	0.0200	0.0150	0.0125	0.0125
24	0.0150	0.0150	0.0100	0.0100
25	0.0150	0.0100	0.0100	0.0100
26	0.0150	0.0100	0.0100	0.0100
27	0.0150	0.0100	0.0100	0.0100
28	0.0150	0.0100	0.0100	0.0100
29	0.0150	0.0100	0.0100	0.0100
30+	0.0150	0.0100	0.0100	0.0100

It is assumed that terminated employees will not be rehired. The rates apply only to employees who have not fulfilled the service requirement necessary for retirement at any given age.

Disability

Because members who receive disability benefits typically spend less than one year on disability, they are considered active members. Therefore, a load of 1.65 percent of pay on the normal cost is applied to reflect the near-term cash flow. This assumption is based on 110 percent of the most recent disability benefit payment information as a percent of payroll and will be updated at each actuarial valuation date as experience emerges.

Salary Increases

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

Age	Annual Increase
25	7.17%
30	5.70%
35	4.80%
40	4.47%
45	4.08%
50	3.76%
55	3.55%
60	3.35%
65	2.97%
70	2.75%

The underlying salary increase assumption is based on a wage inflation assumption of 2.75 percent per year, comprised of 2.25 percent for general inflation plus 0.50 percent for productivity increases. The rates shown above include wage inflation plus an age-based component for merit, promotion and longevity.

415(b) and 401(a)(17) Limits

No explicit assumption is made with respect to these items.

Accelerated Pension Benefit Payment Program Election Assumption

In accordance with Public Act 100-0587 and Public Act 101-0010,

- Eligible Tier 1 active members may elect the "COLA Buyout", through June 1, 2024, in which the member receives reduced and delayed COLA benefits at retirement and an accelerated pension benefit payment.
- Eligible inactive Tier 1 and Tier 2 members may elect the "Total Buyout", through May 31, 2024, in which the member receives an accelerated pension benefit payment in lieu of an annuity at retirement.

With respect to the COLA Buyout, 21 percent of Regular Formula members and 28 percent of Alternative Formula members are assumed to elect the COLA Buyout. The election percentages are based on experience through March 2019, as provided by SERS. With respect to the Total Buyout, 5 percent are assumed to elect the Total Buyout. The election percentages apply until the end of each Buyout Program; i.e., June 1, 2024, for the COLA Buyout and May 31, 2024, for the Total Buyout.

Actuarial Methods and Assumptions
(Most Adopted Effective with the June 30, 2019, Actuarial Valuation)

Population Projection

For purposes of determining annual appropriation as a percent of total covered payroll, the size of the active group is assumed to remain level at the number of actives as of the actuarial valuation date. New entrants are assumed to enter with an average age and an average pay as disclosed below. New entrants are assumed to have the same demographic profile as new entrants in the 15 years prior to the actuarial valuation date. The average increase in uncapped payroll for the projection period is 2.75 percent per year. New entrants not covered by Social Security are assumed to participate in the Tier 2 defined benefit plan.

New Entrant Benefit Groups												
Age Group	New Entrants Eligible for Regular Formula Benefits who are Covered by Social Security		New Entrants Eligible for Regular Formula Benefits who are not Covered by Social Security		New Entrants in Positions Formerly Eligible for Alternate Formula Benefits who are Covered by Social Security and are now Eligible for Regular Formula Benefits		New Entrants Eligible for Alternate Formula Benefits who are Covered by Social Security		New Entrants in Positions Formerly Eligible for Alternate Formula Benefits who are not Covered by Social Security and are now Eligible for Regular Formula Benefits		New Entrants Eligible for Alternate Formula Benefits who are not Covered by Social Security		Total	
	No.	Salary	No.	Salary	No.	Salary	No.	Salary	No.	Salary	No.	Salary	No.	Salary
Under 20	120	$ 3,844,229			88	$ 3,881,212	18	$ 844,145					226	$ 8,569,586
20-24	2,584	100,053,020	18	$ 845,154	1,862	86,078,774	368	18,404,138	335	$ 21,299,697	2	$ 58,560	5,169	226,739,343
25-29	4,638	209,928,547	31	1,737,224	2,135	103,593,558	465	24,967,229	478	31,716,538	5	133,412	7,752	372,076,508
30-34	4,031	200,703,098	24	1,463,310	1,186	61,106,679	345	20,381,533	206	14,111,020			5,792	297,765,640
35-39	3,579	186,294,804	6	320,893	767	41,790,471	290	17,268,357	72	5,023,278	1	44,437	4,715	250,742,240
40-44	3,318	176,887,112	8	526,406	621	36,034,578	219	13,615,090	35	2,431,583			4,201	229,494,769
45-49	2,951	160,008,801	7	475,260	457	26,734,896	192	12,149,800	10	763,951	1	40,770	3,618	200,173,478
50-54	2,440	134,609,049	11	780,931	286	17,333,924	116	7,442,857	10	760,003			2,863	160,926,764
55-59	1,571	84,592,475	8	590,619	154	8,928,064	58	3,414,940	12	966,464			1,803	98,492,562
60-64	544	28,668,281			49	2,998,671	18	1,178,814	3	197,520			614	33,043,286
65-69	46	2,548,221			5	262,780	1	56,464					52	2,867,465
70 & Over														
Total	25,822	$ 1,288,137,637	113	$ 6,739,797	7,610	$ 388,743,607	2,090	$ 119,723,367	1,161	$ 77,270,054	9	$ 277,179	36,805	$ 1,880,891,641
Avg. Salary		$ 49,885		$ 59,644		$ 51,083		$ 57,284		$ 66,555		$ 30,798		$ 51,104
Avg. Age		37.83		34.60		31.68		34.13		28.42		29.03		36.04
Percent Male		42%		88%		70%		68%		89%		100%		51%

Retirement – Tier 1

Employees are assumed to retire in accordance with the rates shown below. The rates apply only to employees who have fulfilled the service requirement necessary for retirement at any given age.

Retirement Rates for Regular Formula Employees		
Age	Males	Females
50	15.00%	27.50%
51	25.00%	27.50%
52	25.00%	35.00%
53	25.00%	27.50%
54	25.00%	22.50%
55	25.00%	25.00%
56	18.00%	24.00%
57	18.00%	19.00%
58	18.00%	19.00%
59	18.00%	19.00%
60	13.00%	17.00%
61	12.00%	13.50%
62	20.00%	23.00%
63	17.50%	19.00%
64	17.50%	20.00%
65	25.00%	25.00%
66	25.00%	29.00%
67	25.00%	27.00%
68	25.00%	27.00%
69	25.00%	22.00%
70	25.00%	22.00%
71	20.00%	22.00%
72	20.00%	22.00%
73	20.00%	22.00%
74	20.00%	22.00%
75	100.00%	100.00%

Early Retirement Rates for Regular Formula Employees		
Age	Males	Females
55	3.50%	2.00%
56	3.50%	3.00%
57	5.00%	4.00%
58	6.00%	5.00%
59	6.50%	6.00%

Actuarial Methods and Assumptions (Most Adopted Effective with the June 30, 2019, Actuarial Valuation)

Retirement Rates for Alternate Formula Employees				
	Eligible for Alternate Formula Benefits Only		Eligible for Regular Formula Benefits Only	
Age	Males	Females	Males	Females
50	65.00%	42.50%	N/A	N/A
51	50.00%	30.00%	N/A	N/A
52	40.00%	25.00%	N/A	N/A
53	40.00%	25.00%	N/A	N/A
54	35.00%	25.00%	N/A	N/A
55	42.00%	45.00%	N/A	N/A
56	30.00%	30.00%	N/A	N/A
57	30.00%	30.00%	N/A	N/A
58	30.00%	30.00%	N/A	N/A
59	30.00%	20.00%	N/A	N/A
60	30.00%	30.00%	4.00%	5.00%
61	30.00%	25.00%	4.00%	5.00%
62	30.00%	40.00%	10.00%	18.00%
63	35.00%	30.00%	11.00%	18.00%
64	35.00%	40.00%	12.00%	15.00%
65	35.00%	50.00%	14.00%	25.00%
66	35.00%	50.00%	20.00%	15.00%
67	35.00%	50.00%	20.00%	20.00%
68	35.00%	50.00%	20.00%	30.00%
69	45.00%	50.00%	20.00%	30.00%
70	50.00%	50.00%	20.00%	30.00%
71	50.00%	50.00%	20.00%	30.00%
72	100.00%	100.00%	100.00%	100.00%

Assets

Assets available for benefits are determined as described on page 52. The asset valuation method is prescribed by statute, and does not appear to allow a corridor; therefore, a corridor has not been established.

Expenses

As estimated and advised by SERS staff, based on current expenses and are expected to increase in relation to the projected capped payroll.

Spouse's Age

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

Children

It is assumed that married members have 2.2 children, one year apart in age.

The age of the youngest child of a deceased employee at his date of death is assumed to be as follows:

Age at Death of Employee	Age of Youngest Child	Age at Death of Employee	Age of Youngest Child
20	2	40	6
25	3	45	8
30	4	50	10
35	5	55	12
		60	14

Overtime and Shift Differentials

Reported earnings include base pay alone. It is assumed that overtime and shift differentials will increase total payroll by 3.5 percent over reported earnings.

Load for Inactive Members Eligible for Deferred Vested Pension Benefits

Load of 11 percent for Regular Formula members and 9 percent for Alternative Formula members. The load reflects a liability attributable to inactive members eligible for deferred vested pension benefits for potential increases in final average salary due to participation in a reciprocal system after termination.

Unused Sick Leave and Optional Service Purchases

Current and future active member's service is increased 4.5 months to account for increases of service at retirement due to converting unused sick leave and vacation days and purchasing applicable optional service.

Missing Data

If year-to-date earnings were not available, then the monthly pay rate is used. If both year-to-date earnings and the monthly pay rate are not available, the annual rate of pay is assumed to be the rate of pay for the population as a whole on the actuarial valuation date. For members with less than a year of service, the annual rate of pay is based on the greater of year-to-date earnings or annualized pay rate. If a birth date was not available, the member was assumed to be age 35.

Actuarial Methods and Assumptions (Most Adopted Effective with the June 30, 2019, Actuarial Valuation)

Development of Valuation Pay

Year-to-date earnings for the Fiscal Year Ending June 20, 2020 (which includes retroactive pay for many active members) is considered in the final average compensation calculation for members who are expected to retire within the next eight years when projecting future benefits.

Otherwise, the pay in which future compensation is projected is based on the Valuation Pay defined as follows:

- For members with less than a year of service or reinstated to active status from a non-active status during the year, Valuation Pay is based on the monthly pay rate.
- For members in active status both at the beginning and end of the year Valuation Pay is the lesser of:
    1. Last year's annual pay increased by the greater of the change in monthly pay rate or the wage inflation assumption of 2.75%.
    2. Reported year-to-date earnings.

Decrement Timing

All decrements are assumed to occur mid-year.

Decrement Relativity

Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.

Decrement Operation

Disability and turnover decrements do not operate after a member reaches retirement eligibility.

Eligibility Testing

Eligibility for benefits is determined based upon the age nearest birthday and service on the date the decrement is assumed to occur.

Actuarial Methods and Assumptions (Most Adopted Effective with the June 30, 2019, Actuarial Valuation)

Assumptions as a Result of Public Act 96-0889 Adopted June 30, 2016

Members hired after December 31, 2010, are assumed to make contributions on salary up to the final average compensation cap in a given year until this plan provision or administrative procedure is clarified.

State contributions, expressed as a percentage of pay, are calculated based upon capped pay.

Members hired after December 31, 2010, eligible for the regular formula benefits will retire according to the following age-based retirement rates:

Retirement Rates for Regular Formula Employees - Tier 2 Members			
Age	Employees Eligible For Normal Retirement	Age	Employees Eligible For Early Retirement
67	50.00%	62	30.00%
68	35.00%	63	15.00%
69	35.00%	64	15.00%
70	35.00%	65	15.00%
71	20.00%	66	15.00%
72	20.00%		
73	20.00%		
74	20.00%		
75	100.00%		

Members hired after December 31, 2010, eligible for the alternate formula benefits will retire according to the following age-based retirement rates:

Retirement Rates for Alternate Formula Employees		
Age	Males	Females
60	50.00%	50.00%
61	30.00%	25.00%
62	30.00%	40.00%
63	35.00%	30.00%
64	35.00%	40.00%
65	35.00%	50.00%
66	35.00%	50.00%
67	35.00%	50.00%
68	35.00%	50.00%
69	45.00%	50.00%
70	50.00%	50.00%
71	50.00%	50.00%
72	100.00%	100.00%

Actuarial Methods and Assumptions (Most Adopted Effective with the June 30, 2019, Actuarial Valuation)

Illustrative rates of withdrawal from the plan are as follows for members hired after December 31, 2010:

Service Based Withdrawal				
Service (Beginning of Year)	Regular Formula Employees		Alternate Formula Employees	
	Males	Females	Males	Females
0	0.3000	0.2700	0.0800	0.1100
1	0.1650	0.1600	0.0700	0.0800
2	0.0700	0.0900	0.0575	0.0700
3	0.0700	0.0800	0.0550	0.0600
4	0.0650	0.0750	0.0325	0.0500
5	0.0550	0.0650	0.0300	0.0500
6	0.0500	0.0600	0.0300	0.0500
7	0.0500	0.0500	0.0300	0.0325
8	0.0300	0.0350	0.0200	0.0200
9	0.0300	0.0350	0.0200	0.0200
10	0.0300	0.0300	0.0150	0.0200
11	0.0250	0.0300	0.0150	0.0175
12	0.0250	0.0250	0.0150	0.0175
13	0.0250	0.0250	0.0150	0.0175
14	0.0200	0.0250	0.0150	0.0175
15	0.0200	0.0250	0.0150	0.0175
16	0.0200	0.0200	0.0150	0.0150
17	0.0200	0.0200	0.0150	0.0150
18	0.0200	0.0200	0.0150	0.0150
19	0.0200	0.0200	0.0125	0.0125
20	0.0200	0.0150	0.0125	0.0125
21	0.0200	0.0150	0.0125	0.0125
22	0.0200	0.0150	0.0125	0.0125
23	0.0200	0.0150	0.0125	0.0125
24	0.0150	0.0150	0.0100	0.0100
25	0.0150	0.0100	0.0100	0.0100
26	0.0150	0.0100	0.0100	0.0100
27	0.0150	0.0100	0.0100	0.0100
28	0.0150	0.0100	0.0100	0.0100
29	0.0150	0.0100	0.0100	0.0100
30+	0.0150	0.0100	0.0100	0.0100

Projection Methodology and Appropriation Requirements Under P.A. 93-0002, P.A. 94-0004, P.A. 96-0043 and P.A. 100-0023

State Contributions under P.A. 93-0002

In general, for each year during the life of the GOB program, the state contributions to the System are to be calculated as follows:

a Calculation of the contribution maximum

a. A projection of contributions will be made from the actuarial valuation date to June 30, 2045. Such projection will be based on hypothetical asset values determined using the following assumptions:

i) That the System had received no portion of the general obligation bond proceeds in excess of the scheduled contributions for the remainder of fiscal 2003 and for the entirety of 2004,

ii) That hypothetical state contributions had been made each fiscal year from 2005 through the actuarial valuation date, based on the funding process in place prior to P.A. 93-0002 (without regard to prior state minimum requirements),

iii) That the actual amounts of member contributions and the actual cash outflows (benefit payments, refunds and administrative expenses) for each year prior to the actuarial valuation date were realized, and

iv) That the hypothetical fund earned returns in each prior fiscal year equal to the rate of total return actually earned by the retirement fund in that year.

b. The hypothetical asset values developed in a., above, will not exceed the actual assets of the fund.

c. A projection of maximum contributions for each year of the GOB program will be performed each year, by reducing the contributions produced in a., above, by the respective amount of debt service allocated to the System for each year.

b Calculation of the contribution with GOB proceeds

a. The basic projection of state contributions from the actuarial valuation date through June 30, 2045, will be made, taking into account all assets of the System, including the GOB proceeds.

b. State contribution rates (expressed as a percentage of covered pay), in the pattern required by the funding sections of the statutes, are calculated.

c. In those projections, the dollars of state contributions which are added to assets each year during the GOB program are limited by the contribution maximum. Because the bonds are to be liquidated by the end of fiscal 2033, there is no contribution maximum thereafter.

State Contributions under P.A. 94-0004

The following is an excerpt from the Illinois Compiled statutes 40 ILCS 5/14-108.3 (f)-(g):

> (f) The System shall determine the amount of the increase in the present value of future benefits resulting from the granting of early retirement incentives under this Section and shall report that amount to the Governor and the Commission on Government Forecasting and Accountability on or after the effective date of this amendatory Act of the 93rd General Assembly and on or before November 15, 2004. Beginning with State fiscal year 2008, the increase reported under this subsection (f) shall be included in the calculation of the required State contribution under Section 14-131.
>
> (g) In addition to the contributions otherwise required under this Article, the State shall appropriate and pay to the System an amount equal to $70,000,000 in State fiscal years 2004 and 2005.

State Contributions under P.A. 96-0043

The following is an excerpt from the Illinois Compiled statutes 40 ILCS 5/14-131:

> (g) For purposes of determining the required State contribution to the System, the value of the System's assets shall be equal to the actuarial value of the System's assets, which shall be calculated as follows:
>
> > As of June 30, 2008, the actuarial value of the System's assets shall be equal to the market value of the assets as of that date. In determining the actuarial value of the System's assets for fiscal years after June 30, 2008, any actuarial gains or losses from investment return incurred in a fiscal year shall be recognized in equal annual amounts over the five-year period following that fiscal year.
>
> (h) For purposes of determining the required State contribution to the System for a particular year, the actuarial value of assets shall be assumed to earn a rate of return equal to the System's actuarially assumed rate of return.

Projection Methodology and Appropriation Requirements Under P.A. 93-0002, P.A. 94-0004, P.A. 96-0043 and P.A. 100-0023

State Contributions under P.A. 100-0023

Public Act ("P.A.") 100-0023, effective July 6, 2017, modified the State's funding policy to include smoothing State contribution rate increases or decreases due to changes in actuarial assumptions, including investment return assumptions, over a five-year period in equal annual amounts beginning in fiscal year 2018. In addition, changes in actuarial or investment assumptions that increased or decreased the State contribution rate in fiscal years 2014 through 2017 are to be smoothed over a five-year period in equal annual amounts, applying only to the portion of the five-year phase-in that is applicable to fiscal years on and after 2018.

Following the preceding legislation, we have calculated the required contribution and the results are shown in the summary section of this report.

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, 2014, actuarial valuation, there were changes to the economic and demographic assumptions.
2. Beginning with the June 30, 2016, actuarial valuation, there were changes to the economic and demographic assumptions.
3. Beginning with the June 30, 2018, actuarial valuation, there were changes to the economic assumptions.
4. Beginning with the June 30, 2019, actuarial valuation, there were changes to the economic and demographic assumptions.

Valuation Year Ending June 30,	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Applicable Fiscal Year Ending June 30,	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
						$ in Millions After Impact of GOB Proceeds				
Contribution Before Assumption Change										
(1) Contribution Dollar	$ 1,822.047	$ -	$ 2,018.671	$ -	$ 2,291.303	$ 2,393.439	$ -			
(2) Contribution Rate	38.830%	0.000%	45.027%	0.000%	52.026%	53.337%	0.000%			
Contribution After Assumption Change										
(3) Contribution Dollar	$ 2,044.868	$ -	$ 2,327.633	$ -	$ 2,302.720	$ 2,377.901	$ -			
(4) Contribution Rate	43.880%	0.000%	52.095%	0.000%	52.411%	53.263%	0.000%			
(5) Assumption Change Impact as a Percentage of Capped Payroll [(4) - (2)]	5.050%	0.000%	7.068%	0.000%	0.385%	-0.074%	0.000%			
(6) Assumption Change Impact Recognized This Year (5-year Recognition)										
(6a) From This Year	1.010%	0.000%	1.414%	0.000%	0.077%	-0.015%	0.000%			
(6b) From One Year Ago	0.000%	1.010%	0.000%	1.414%	0.000%	0.077%	-0.015%	0.000%		
(6c) From Two Years Ago	0.000%	0.000%	1.010%	0.000%	1.414%	0.000%	0.077%	-0.015%	0.000%	
(6d) From Three Years Ago	0.000%	0.000%	0.000%	1.010%	0.000%	1.414%	0.000%	0.077%	-0.015%	0.000%
(6e) From Four Years Ago	0.000%	0.000%	0.000%	0.000%	1.010%	0.000%	1.412%	0.000%	0.077%	-0.014%
(6f) Total Recognized Assumption Change Impact	1.010%	1.010%	2.424%	2.424%	2.501%	1.476%	1.474%	0.062%	0.062%	-0.014%

SECTION F

SUMMARY OF PLAN PROVISIONS

Summary of Plan Provisions
(as of June 30, 2020)

Purpose

The State Employees' Retirement System of Illinois, a State Agency, provides an orderly means whereby aged or disabled employees may be retired from active service without prejudice or hardship and enables the employees to accumulate reserves for old age, disability, death and termination of employment.

Administration

Responsibility for the operation of the System and the direction of its policies is vested in a Board of Trustees of seven members. The administration of the detailed affairs of the System is the responsibility of the Executive Secretary who is appointed by the Board of Trustees. Administrative policies and procedures are designed to ensure an accurate accounting of funds of the System and prompt payment of claims for benefits within the applicable statute.

Membership

All persons entering State service on or after January 1, 1984, become members upon completion of six months of continuous service except that, beginning July 1, 1991, employees in police positions become members on their first day of employment. Persons entering State service from January 1, 1972 to January 1, 1984, became members on their first day of employment. Excluded from membership are: any employee whose position is subject to membership under another State-supported system, any person who becomes an employee after June 30, 1979, as a public service employment program participant under the federal CETA program or any enrollee of the Young Adult Conservation Corps. Prior to January 1, 1984, emergency and temporary employees were excluded from membership. Persons appointed by the Governor with the advice and consent of the Senate may elect to become members of the System. Other exceptions are identified in State law.

Membership Service

Membership service includes all service rendered while a member of the System for which credit is allowable. Persons entering service on or after January 1, 1984, or after July 1, 1982, in the case of emergency or temporary employees, may also receive membership service credit for periods of employment prior to membership by making contributions for such periods.

Member Contributions

Members are required to contribute a percentage of salary as their share of meeting the cost of the various benefits. Contribution rates are as shown below:

- Members covered by Social Security – 4.0 percent of Salary.
- Members not covered by Social Security – 8.0 percent of Salary.
- Members covered by Social Security who are serving in a position in which service toward the Alternative Retirement Annuity may be earned – 8.5 percent of Salary.
- Members not covered by Social Security who are serving in a position in which service toward the Alternative Retirement Annuity may be earned – 12.5 percent of Salary.

Members covered by Social Security also pay the current Social Security tax rate.

Credit for regular interest each fiscal year on a member's individual contribution account is computed on the accumulated balance in the account at the beginning of each fiscal year.

Retirement Pension

Qualification of Member

Upon termination of State service, a member is eligible for a pension at age 60 with at least eight years of pension credit or at any age with 35 or more years of credit.

General formula members are eligible for a retirement annuity if the sum of the member's age plus years (and whole months) of pension credit equals or exceeds 85. General formula members between ages 55 and 60 with at least 25 years of pension credit are eligible for a retirement annuity reduced by one-half of 1 percent for each month the member is under age 60. Certain positions in the Department of Corrections were placed under the general formula effective July 1, 2005.

Members serving in a position in which service toward the Alternative Retirement Annuity may be earned are eligible to receive the alternative retirement annuity at age 50 with at least 25 years of pension credit or at age 55 with at least 20 years of pension credit in such a position. Security employees of the Department of Human Services were placed under the alternative formula effective

January 1, 2001. Certain members of the Department of Transportation and the Toll Highway Authority were placed under the alternative formula effective August 1, 2001.

Amount of Pension

The pension is based on the member's final average compensation and the number of years of pension credit that has been established.

Final Average Compensation is the average of the highest 48 consecutive months in the last 10 years. All employees whose benefit is calculated under the alternative formula will have their benefit based on the greater of (i) the salary rate in effect on their last day of service, provided the last day salary does not exceed 115 percent of the average monthly compensation received by the member for the last 24 months of service, or (ii) the average monthly compensation for the last 48 months prior to retirement.

The general formula for members retiring on or after January 1, 1998, (regardless of termination date) is as follows:

- 1.67 percent of final average salary per year of credited service for members covered by Social Security.
- 2.20 percent of final average salary per year of credited service for members not covered by Social Security.

The alternative formula for members retiring on or after January 1, 2001 (regardless of termination date) is as follows:

- 2.50 percent of final average salary per year of credited service for members covered by Social Security.
- 3.00 percent of final average salary per year of credited service for members not covered by Social Security.

The maximum pension payable is 75 percent of final average compensation for general formula members and 80 percent of final average compensation for alternative formula members.

Optional Forms of Payment

Reversionary Annuity—A member may elect to receive a smaller pension during his lifetime in order to provide a spouse or a designated dependent with a lifetime income. That payment would be in addition to any other benefit payable by the System.

Level Income—A member who contributes to Social Security as a State employee may elect to have his pension payments increased before Social Security Normal Retirement Age and reduced thereafter. To be eligible for this election the member must have established eligibility for a Social Security pension.

Annual Increases in Pension

Postretirement increases of 3.0 percent of the current pension (i.e., increases are compounded) are granted to members effective each January 1 occurring on or after the first anniversary of the pension.

Survivors Annuity

Qualification of Survivor

If death occurs while in State employment, the member must have established at least 18 months of pension credit. If death occurs after termination of State service and the member was not receiving a retirement pension, the member must have established at least eight years of pension credit.

An eligible spouse qualifies at age 50 or at any age if there is, in the care of the spouse, any unmarried children of the member under age 18 (age 22 if full-time student); unmarried children under age 18 (age 22 if full-time student) qualify if no spouse survives; dependent parents at age 50 qualify if neither an eligible spouse nor children survive the member.

Amount of Payment

If the member's death occurs before retirement, the named beneficiary receives a lump sum refund of all of the member's pension contributions plus interest, excluding contributions for widows and survivors benefits. A single lump sum payment of $1,000 is also made immediately to the survivor beneficiary of the member.

An eligible spouse receives a monthly annuity equal to 30 percent of the member's final average compensation subject to a maximum of $400. If children of the member are under the care of the spouse, the annuity is increased for each child, subject to a monthly maximum of $600 or 80 percent of final average compensation. If only eligible children survive, the monthly annuity may not exceed the lesser of $600 or 80 percent of final average compensation. The maximum combined monthly payment to parents may not exceed $400. If the member's death occurs after retirement or after termination of State employment but before the member receives a pension, the monthly benefit is further limited to 80 percent of the pension received or earned by the member. Monthly benefits payable to survivors of a member who was covered by Social Security as a State employee are reduced by one-half of the Social Security benefits for which the survivors are eligible. For benefits granted on or after January 1, 1992, the reduction may not exceed 50 percent of the amount of survivor's annuity otherwise payable. If death of the member occurs on or after January 1, 1984, the minimum total survivor's annuity benefit payable (before any reduction for Social Security benefits) is equal to 50 percent of the member's earned pension without regard to the member's age at death. Any member who retires on or after July 1, 2009, will have the option at the time of retirement to remove the offset provision. In exchange for the removal, SERS will reduce the member's retirement annuity by 3.825 percent.

Duration of Payment

The monthly annuity payable to a spouse continues for his/her lifetime without regard to remarriage. The monthly annuity to children terminates upon death, marriage or attainment of age 18 (age 22 if

full-time student). However, the monthly annuity will continue for a child who, at age 18, is physically or mentally disabled and unable to accept gainful employment.

Annual Increases in Annuity

If the member's death occurs before retirement, increases of 3.0 percent of the current annuity are granted to survivors effective each January 1 occurring on or after the first anniversary of the annuity (i.e., increases are compounded). If the member's death occurs after retirement, the initial 3.0 percent increase applies on the January 1 on or after the survivor annuity begins.

Widow's Annuity Option

The widow of a male member who was a participant in the System prior to July 19, 1961, may have the option of taking a Widow's Annuity rather than the Survivor's Annuity.

Qualification of Widow

An eligible widow receives a Widow's Annuity if she is age 50 or over or has in her care any of the member's unmarried children under age 18. If she is not age 50 and has no such children in her care, she becomes eligible at age 50.

Amount of Payment

The Widow's Annuity consists of a lump sum payment of $500, plus a monthly annuity equal to 50 percent of the pension earned or received by the member at the date of death. If the widow has in her care eligible children of the member, the monthly annuity is increased because of each child, subject to a maximum payment equal to 66-2/3 percent of the earned pension. Monthly benefits payable to a widow of a member who was covered by Social Security as a State employee are reduced by one-half of the amount of benefits she is entitled to as a widow from Social Security (reduced by one-half of the amount of benefits she is entitled to based on her own Primary Insurance Amount). For benefits granted on or after January 1, 1992, the reduction may not exceed 50 percent of the amount of widow's annuity otherwise payable. Any member who retires on or after July 1, 2009, will have the option at the time of retirement to remove the offset provision. In exchange for the removal, SERS will reduce the member's retirement annuity by 3.825 percent.

Duration of Payment

The monthly payment to the widow continues for her lifetime whether or not she remarries. If the amount of benefit was increased because of eligible children, it is adjusted downward as these children's benefits are terminated (death, marriage or attainment of age 18 or 22).

Annual Increases in Annuity

If the member's death occurs before retirement, increases of 3.0 percent of the current annuity are granted to widows effective each January 1 occurring on or after the first anniversary of the annuity (i.e., increases are compounded). If the member's death occurs after retirement, the initial 3.0 percent increase applies on the January 1 on or after the widow's annuity begins.

Occupational Death Benefit

Qualification of Survivors

If a member's death results from an injury on the job or a job-related cause, the spouse may be eligible for an Occupational Death benefit. If only unmarried children under age 18 (age 22 if full-time student) survive, they would be eligible for the benefit. If neither a spouse nor eligible children survive, a dependent father or mother would be eligible.

Amount and Duration of Payment

The nominated beneficiary receives a lump sum payment consisting of all contributions made by the member plus interest credited to his account.

A surviving spouse is entitled to a monthly benefit equal to 50 percent of the member's final average compensation. The benefit is payable for the remaining lifetime of the spouse without regard to remarriage. If children under age 18 (age 22 if full-time student) also survive, the annuity is increased by 15 percent of such average because of each child, subject to a maximum of 75 percent. If there is no spouse, or if the spouse dies before all children have attained age 18 (age 22 if full-time student), each child receives a monthly allowance of 15 percent of final average compensation.

The combined payment to children may not exceed 50 percent of the member's final average compensation. Payments to or on account of children terminate upon their death, marriage or attainment of age 18 (age 22 if full-time student).

If there is no spouse or eligible children, a benefit of 25 percent of final average compensation is payable to each surviving dependent parent for life.

Annual Increases in Annuity

Increases of 3.0 percent of the current annuity are granted effective each January 1 occurring on or after the first anniversary of the annuity (i.e., increases are compounded).

Reductions

The monthly benefit is reduced by any payments awarded under the Workmen's Compensation or Occupational Diseases Acts.

Other Death Benefits

If the survivor beneficiaries of the member do not qualify for any of the previously described death benefits, one of the following benefits is payable to the nominated beneficiary on file with the System at the date of death.

Before Retirement

If the member's death occurred while in State service the benefit consists of: (1) a refund of all contributions plus interest credited to the member's account; and (2) a payment equal to one month's

salary for each full year of pension credit not to exceed six month's salary. The minimum payment is equal to one month's salary.

If the member had terminated State service but not yet qualified for a pension, the benefit consists of a refund of all of the member's contributions to the System plus the interest credited to the member's account.

After Retirement

The benefit consists of a lump sum payment equal to the excess of contributions plus interest credited to the member's account over the total amount of pension payments made to the member. The minimum payment is $500.00.

Non-Occupational Disability Benefits

Qualification and Amount of Payment

Available to any member who has established at least one and one-half years of creditable service and who has been granted a disability leave of absence by his employing agency. The benefit is 50 percent of the member's final average compensation plus a credit to the member's account of service and contributions. It begins on the 31st day of absence from service on account of disability.

If the member has Social Security coverage as a State employee, the benefit payable by the System is reduced by the amount of any disability payment to which he is entitled under Social Security.

Duration of Payment

The member is eligible for the monthly benefit until the occurrence of any of the following events: (1) disability ceases; (2) resumption of gainful employment; (3) payments are made for a period of time equal to one-half of the service credit established as of the date disability began; or (4) attainment of age 65 if the benefit commences prior to age 60, or payment for 5 years if benefit commences after age 60.

If termination of the benefit is due to the member receiving benefits for a period of time equal to one-half of the service credit established at the date of disability, he shall be eligible for a retirement annuity if he has attained age 55 and has 15 years of service, or if he has attained age 50 and has 20 years of service.

Annual Increases in Annuity

A one-time increase of 7.0 percent of the original annuity is granted to members on the January 1 following the fourth anniversary of the annuity. Increases of 3.0 percent of the current annuity are then granted to members each January 1 following the 7.0 percent increase (i.e., the 3.0 percent increases are compounded).

Occupational Disability Benefit

Qualification and Amount of Payment

Provided for any member who becomes disabled as the direct result of injury or diseases arising out of and in the course of State employment.

The benefit is 75 percent of final average compensation plus a credit to the member's account of service and contributions. The cash benefit is reduced by any payment received under the Workmen's Compensation or Occupational Diseases Acts.

Duration of Payment

Monthly benefits are payable until the occurrence of any of the following events: (1) disability ceases; (2) resumption of gainful employment; or (3) attainment of age 65 if the benefit commences prior to age 60, or payment for five years if the benefit commences after age 60.

If termination of the benefit is due to the member having attained age 65 or having received benefits for five years after age 60, the member is entitled to a retirement pension based upon service credit established as of that date.

Annual Increases in Annuity

A one-time increase of 7.0 percent of the original annuity is granted to members on the January 1 following the fourth anniversary of the annuity. Increases of 3.0 percent of the current annuity are then granted to members each January 1 following the 7.0 percent increase (i.e., the 3.0 percent increases are compounded).

Temporary Disability Benefit

A member who is initially denied Workers' Compensation benefits and is appealing the denial may receive payment at the non-occupational rate, 50 percent of pay, providing all eligibility requirements for the non-occupational benefit are met, until the determination is made.

Separation Benefits

Upon termination of State employment by resignation, discharge, dismissal or layoff, a member may obtain a refund of the contributions made to the System. By accepting a refund, a member forfeits all accrued rights and benefits in the System for himself and his beneficiaries.

Provisions Applicable to Members Hired after December 31, 2010, as a result of Public Act 96-0889 ("Tier 2")

Final Average Compensation

Based on last eight years of service and may not exceed $106,800, as automatically increased by the lesser of 3 percent or one-half of the annual increase in the consumer price index-u during the preceding 12-month calendar year.

Retirement Eligibility – All Members Except State policemen, fire fighters in the fire protection service of a department or security employees of the Department of Corrections or the Department of Juvenile Justice

Normal retirement – 67 years old with 10 years of service.

Early Retirement – 62 years old with 10 years of service with a 6.0 percent per year reduction in benefit for each year age is under 67.

Retirement Eligibility – State policemen, fire fighters in the fire protection service of a department or security employees of the Department of Corrections or the Department of Juvenile Justice

Normal retirement – 60 years old with 20 years of service.

Annual Increases in Annuity

Annual increases begin at the later of the first anniversary of retirement or age 67. The annual increases are equal to the lesser of 3.0 percent or one-half of the annual increase in the consumer price index-u during the preceding 12-month calendar year and are not compounded.

Survivor Benefits

Benefit equal to 66.67 percent of the earned retirement benefit at death. Survivor benefits are increased by the lesser of 3.0 percent or one-half of the annual increase in the consumer price index-u during the preceding 12-month calendar year and are not compounded.

Miscellaneous

State policeman, a fire fighter in the fire protection service of a department or a security employee of the Department of Corrections or the Department of Juvenile are still eligible for Alternate formula benefits as defined in Section 14-110 of the Illinois Pension Code.

Salary and COLA Development for Members Hired on or After January 1, 2011

Year Ending	CPI-U	1/2 CPI-U	COLA	Maximum Annual Pensionable Earnings
2011			3.00%	$106,800.00
2012	3.90%	1.95%	1.95%	$108,882.60
2013	2.00%	1.00%	1.00%	$109,971.43
2014	1.20%	0.60%	0.60%	$110,631.26
2015	1.70%	0.85%	0.85%	$111,571.63
2016	0.00%	0.00%	0.00%	$111,571.63
2017	1.50%	0.75%	0.75%	$112,408.42
2018	2.20%	1.10%	1.10%	$113,644.91
2019	2.30%	1.15%	1.15%	$114,951.83
2020	1.70%	0.85%	0.85%	$115,928.92

Provisions Applicable to Certain Current and Future Members not covered by Social Security, as a result of Public Act 100-0023 ("Tier 3")

Defined Benefit Provisions

Final Average Compensation

Based on last 10 years of service and may not exceed the federal Social Security Wage Base, currently $137,700 for calendar year 2020.

Retirement Eligibility

The greater of Normal Retirement Age under Social Security or age 67 years old with 10 years of service.

Benefit Formula

The member's benefit is equal to 1.25 percent for each year of service.

Annual Increases in Annuity

Annual increases begin on the first anniversary of retirement. The annual increases are equal to the one-half of the annual increase in the consumer price index-w during the preceding 12-month calendar year and are not compounded.

Survivor Benefits

Benefit equal to 66.67 percent of the earned retirement benefit at death. Survivor benefits are increased by one-half of the annual increase in the consumer price index-w during the preceding 12-month calendar year and are not compounded.

Member Contributions

Members contribute the lesser of 6.2 percent of pensionable compensation and the total normal cost rate for the Tier 3 plan.

Defined Contribution Provisions

Plan consists of employee and employer contributions and investment income earned on such contributions.

Administrative fees will be deducted as a uniform percentage of each participating member's employee contributions.

Employer Contributions

Employer contributions are at a rate between 2.0 percent and 6.0 percent of salary.

Employer contributions vest immediately.

Member Contributions

Member contribution rate equals 4.0 percent of salary.

Provisions Applicable to the Accelerated Pension Benefit Payment Program, as a result of Public Act 100-0587 and Public Act 101-0010

Vested Inactive Accelerated Pension Benefit Payment Option – Tiers 1 and 2

Eligibility requirements for an accelerated pension benefit payment:

- Member must have terminated service;
- Member must have enough service credit to qualify for a retirement annuity; and
- Member cannot have received a retirement annuity.

Members who elect this option will forfeit all rights to future benefit payments, but retain access to state retiree healthcare. The payment will equal 60 percent of the present value of the retirement benefits which the member is entitled to at the date they elect this payment, including automatic annual increases (AAI), survivor benefits and disability benefits. The System will calculate the present value of the benefit using actuarial factors.

Members forfeit all service credit for all purposes under the Illinois Pension Code, including benefits provided under the Illinois Reciprocal Act. However, the years of service credit may be considered when determining eligibility for retiree healthcare benefits and the member's share of retiree healthcare premiums.

This election is irrevocable and any member who elects this option and later returns to service will be eligible for a benefit based solely on future service and will not have the option to repay the amount received under this program to reestablish the previous service credit.

Accelerated Pension Benefit Payment at Retirement Option – Tier 1 Only

Eligibility requirements for this payment option:

- Member must have terminated service;
- Member must be eligible for a retirement annuity; and
- Member cannot have received a retirement annuity.

At retirement, Tier 1 members could elect to forfeit the Tier 1, 3 percent compounded AAI and instead receive 1.5 percent non-compounded AAIs, beginning the January 1st following the 1st anniversary of retirement or the 67th birthdate, whichever is later. Survivors of members that elect this option will also receive 1.5 percent non-compounded AAIs beginning on the January 1st following the anniversary of the start of the survivor annuity.

Members who elect to forego the Tier 1 AAIs will receive a lump sum payment equal to 70 percent of the difference in the present value of the Tier 1 AAI and the 1.5 percent non-compounded AAI, as calculated by the System. In the calculation, the System will use current actuarial assumptions and all relevant member information. Buyout payments are subject to applicable withholding and taxation provisions and must be transferred to a qualified retirement plan authorized by the IRS.

Accelerated Pension Benefit Program expires June 1, 2024, or if earlier, the date funds are no longer available. The State finances the program by issuing bonds up to certain limits. Lump sum payments will be made directly from the bond proceeds.

SECTION G

GLOSSARY OF TERMS

Glossary of Terms

Actuarial Accrued Liability ("AAL")	The difference between the Actuarial Present Value of Future Benefits, and the Actuarial Present Value of Future Normal Costs.
Actuarial Assumptions	Assumptions about future plan experience that affect costs or liabilities, such as: mortality, withdrawal, disablement and retirement; future increases in salary; future rates of investment earnings; future investment and administrative expenses; characteristics of members not specified in the data, such as marital status; characteristics of future members; future elections made by members; and other items.
Actuarial Cost Method	A procedure for allocating the Actuarial Present Value of Future Benefits between the Actuarial Present Value of future Normal Costs and the Actuarial Accrued Liability.
Actuarial Equivalent	Of equal Actuarial Present Value, determined as of a given date and based on a given set of Actuarial Assumptions.
Actuarial Present Value ("APV")	The amount of funds required to provide a payment or series of payments in the future. It is determined by discounting the future payments with an assumed interest rate and with the assumed probability each payment will be made.
Actuarial Present Value of Future Benefits ("APVFB")	The Actuarial Present Value of amounts which are expected to be paid at various future times to active members, retired members, beneficiaries receiving benefits and inactive, nonretired members entitled to either a refund or a future retirement benefit. Expressed another way, it is the value that would have to be invested on the actuarial valuation date so that the amount invested plus investment earnings would provide sufficient assets to pay all projected benefits and expenses when due.
Actuarial Valuation	The determination, as of an actuarial valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets and related Actuarial Present Values for a plan. An Actuarial Valuation for a governmental retirement system typically also includes calculations of items needed for compliance with GASB No. 67, such as the Funded Ratio and the Actuarially Determined Contribution ("ADC").
Actuarial Value of Assets	The value of the assets as of a given date, used by the actuary for actuarial valuation purposes. This may be the market or fair value of plan assets or a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded ratio, or contribution requirement.

Glossary of Terms

Actuarially Determined Contribution ("ADC")	The employer's periodic required contributions, expressed as a dollar amount or a percentage of covered plan compensation. The ADC consists of the Employer Normal Cost and Amortization Payment.
Amortization Method	A method for determining the Amortization Payment. The most common methods used are level dollar and level percentage of payroll. Under the Level Dollar method, the Amortization Payment is one of a stream of payments, all equal, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the Amortization payment is one of a stream of increasing payments, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the stream of payments increases at the rate at which total covered payroll of all active members is assumed to increase.
Amortization Payment	That portion of the plan contribution or ADC which is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.
Amortization Period	The period used in calculating the Amortization Payment.
Closed Amortization Period	A specific number of years that is reduced by one each year, and declines to zero with the passage of time. For example, if the amortization period is initially set at 30 years, it is 29 years at the end of one year, 28 years at the end of two years, etc.
Employer Normal Cost	The portion of the Normal Cost to be paid by the employer. This is equal to the Normal Cost less expected member contributions.
Equivalent Single Amortization Period	For plans that do not establish separate amortization bases (separate components of the UAAL), this is the same as the Amortization Period. For plans that do establish separate amortization bases, this is the period over which the UAAL would be amortized if all amortization bases were combined upon the current UAAL payment.
Experience Gain/Loss	A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions, during the period between two actuarial valuations. To the extent that actual experience differs from that assumed, Unfunded Actuarial Accrued Liabilities emerge which may be larger or smaller than projected. Gains are due to favorable experience; e.g., the assets earn more than projected, salaries do not increase as fast as assumed, members retire later than assumed, etc. Favorable experience means actual results produce actuarial liabilities not as large as projected by the actuarial assumptions. On the other hand, losses are the result of unfavorable experience; i.e., actual results that produce Unfunded Actuarial Accrued Liabilities which are larger than projected.

Glossary of Terms

Funded Ratio	The ratio of the Actuarial Value of Assets to the Actuarial Accrued Liability.
GASB	Governmental Accounting Standards Board.
GASB No. 67 and GASB No. 68	These are the governmental accounting standards that set the accounting rules for public retirement systems and the employers that sponsor or contribute to them. Statement No. 68, which replaced Statement No. 27 effective with the fiscal year ending June 30, 2015, sets the accounting rules for the employers that sponsor or contribute to public retirement systems. Statement No. 67, which replaced Statement No. 25 effective with fiscal year ending June 30, 2014, sets the rules for the systems themselves.
Normal Cost	The annual cost assigned, under the Actuarial Cost Method, to the current plan year.
Open Amortization Period	An open amortization period is one which is used to determine the Amortization Payment but which does not change over time. In other words, if the initial period is set as 30 years, the same 30-year period is used in determining the Amortization Period each year. In theory, if an Open Amortization Period is used to amortize the Unfunded Actuarial Accrued Liability, the UAAL will never completely disappear, but will become smaller each year, either as a dollar amount or in relation to covered payroll.
Unfunded Actuarial Accrued Liability	The difference between the Actuarial Accrued Liability and Actuarial Value of Assets.
Valuation Date	The date as of which the Actuarial Present Value of Future Benefits are determined. The benefits expected to be paid in the future are discounted to this date.

SECTION H

ADDITIONAL PROJECTION DETAILS

Table 11
Additional Projection Details — Actuarial Accrued Liability
($ in Millions)

Valuation Date June 30,	Current Inactives		Actives (Including Disabilities)			Grand Totals		
	Retirees & Beneficiaries	Deferreds	Tier 1	Current Tier 2	Future Tier 2	Current Retirees, Beneficiaries & Deferreds	Actives	Total
2020	$ 35,224.26	$ 740.27	$ 13,613.24	$ 568.06	$ -	$ 35,964.53	$ 14,181.30	$ 50,145.83
2021	34,832.99	775.39	15,163.90	714.51	-	35,608.38	15,878.41	51,486.79
2022	34,382.80	803.31	16,684.69	874.05	14.18	35,186.10	17,572.91	52,759.01
2023	33,873.65	828.79	18,172.29	1,048.43	42.66	34,702.44	19,263.38	53,965.82
2024	33,305.71	851.90	19,617.41	1,239.13	87.49	34,157.61	20,944.02	55,101.63
2025	32,679.27	872.34	21,008.14	1,446.81	150.28	33,551.61	22,605.22	56,156.83
2026	31,994.93	889.84	22,334.38	1,672.68	232.58	32,884.78	24,239.64	57,124.41
2027	31,253.71	904.28	23,588.43	1,918.05	336.48	32,157.98	25,842.96	58,000.94
2028	30,456.99	915.92	24,768.71	2,183.95	464.05	31,372.90	27,416.71	58,789.61
2029	29,606.62	924.70	25,874.13	2,470.33	619.79	30,531.32	28,964.25	59,495.57
2030	28,704.96	930.36	26,901.45	2,776.40	806.86	29,635.31	30,484.71	60,120.03
2031	27,754.84	940.38	27,846.65	3,101.64	1,027.77	28,695.23	31,976.07	60,671.30
2032	26,759.68	947.72	28,703.01	3,445.96	1,284.92	27,707.40	33,433.89	61,141.29
2033	25,723.40	952.50	29,467.72	3,809.57	1,580.59	26,675.90	34,857.88	61,533.78
2034	24,650.38	954.80	30,139.34	4,192.54	1,917.10	25,605.18	36,248.99	61,854.17
2035	23,545.52	954.56	30,711.25	4,594.46	2,297.18	24,500.09	37,602.89	62,102.97
2036	22,414.24	951.78	31,176.72	5,015.27	2,723.81	23,366.02	38,915.80	62,281.82
2037	21,262.35	946.59	31,535.23	5,454.20	3,199.96	22,208.94	40,189.39	62,398.33
2038	20,095.99	938.85	31,787.33	5,908.82	3,728.53	21,034.84	41,424.68	62,459.51
2039	18,921.57	928.45	31,934.04	6,376.40	4,312.84	19,850.02	42,623.28	62,473.30
2040	17,745.66	915.43	31,978.10	6,856.09	4,956.15	18,661.09	43,790.34	62,451.43
2041	16,574.90	899.90	31,922.62	7,347.92	5,659.74	17,474.80	44,930.28	62,405.08
2042	15,415.87	882.01	31,772.10	7,850.42	6,424.13	16,297.87	46,046.64	62,344.51
2043	14,275.00	861.79	31,531.11	8,360.85	7,250.58	15,136.78	47,142.54	62,279.33
2044	13,158.50	839.32	31,203.55	8,876.24	8,140.31	13,997.82	48,220.09	62,217.91
2045	12,072.25	814.76	30,792.95	9,391.73	9,094.47	12,887.00	49,279.15	62,166.16

Table 12
Additional Projection Details — Present Value of Future Benefits
($ in Millions)

Valuation Date June 30,	Current Inactives		Actives (Including Disabilities)			Grand Totals		
	Retirees & Beneficiaries	Deferreds	Tier 1	Current Tier 2	Future Tier 2	Current Retirees, Beneficiaries & Deferreds	Actives	Total
2020	$ 35,224.26	$ 740.27	$ 18,908.21	$ 3,063.54	$ -	$ 35,964.53	$ 21,971.75	$ 57,936.28
2021	34,832.99	775.39	20,066.67	3,221.18	275.45	35,608.38	23,563.31	59,171.69
2022	34,382.80	803.31	21,202.02	3,390.36	587.72	35,186.10	25,180.10	60,366.21
2023	33,873.65	828.79	22,311.31	3,571.54	936.85	34,702.44	26,819.70	61,522.14
2024	33,305.71	851.90	23,387.92	3,765.59	1,321.88	34,157.61	28,475.39	62,633.00
2025	32,679.27	872.34	24,423.90	3,972.65	1,731.53	33,551.61	30,128.08	63,679.69
2026	31,994.93	889.84	25,412.20	4,193.34	2,171.46	32,884.78	31,777.00	64,661.78
2027	31,253.71	904.28	26,347.39	4,428.49	2,638.42	32,157.98	33,414.29	65,572.28
2028	30,456.99	915.92	27,227.30	4,678.84	3,123.43	31,372.90	35,029.57	66,402.47
2029	29,606.62	924.70	28,049.59	4,944.10	3,642.20	30,531.32	36,635.89	67,167.21
2030	28,704.96	930.36	28,810.79	5,223.26	4,187.72	29,635.31	38,221.77	67,857.08
2031	27,754.84	940.38	29,506.93	5,515.39	4,767.47	28,695.23	39,789.79	68,485.02
2032	26,759.68	947.72	30,133.03	5,820.16	5,382.12	27,707.40	41,335.30	69,042.70
2033	25,723.40	952.50	30,686.35	6,137.51	6,030.18	26,675.90	42,854.03	69,529.94
2034	24,650.38	954.80	31,164.87	6,467.24	6,720.11	25,605.18	44,352.22	69,957.41
2035	23,545.52	954.56	31,563.69	6,808.88	7,457.96	24,500.09	45,830.53	70,330.61
2036	22,414.24	951.78	31,878.02	7,162.12	8,240.10	23,366.02	47,280.24	70,646.26
2037	21,262.35	946.59	32,106.42	7,526.18	9,065.19	22,208.94	48,697.79	70,906.73
2038	20,095.99	938.85	32,248.05	7,899.28	9,940.36	21,034.84	50,087.69	71,122.53
2039	18,921.57	928.45	32,302.66	8,279.53	10,864.41	19,850.02	51,446.60	71,296.62
2040	17,745.66	915.43	32,270.96	8,666.16	11,836.97	18,661.09	52,774.09	71,435.18
2041	16,574.90	899.90	32,154.11	9,058.74	12,867.66	17,474.80	54,080.52	71,555.32
2042	15,415.87	882.01	31,954.16	9,455.75	13,954.32	16,297.87	55,364.22	71,662.09
2043	14,275.00	861.79	31,673.38	9,854.90	15,098.57	15,136.78	56,626.85	71,763.64
2044	13,158.50	839.32	31,313.96	10,253.66	16,301.86	13,997.82	57,869.49	71,867.31
2045	12,072.25	814.76	30,877.99	10,648.19	17,566.87	12,887.00	59,093.04	71,980.04

Table 13
Additional Projection Details — Benefit Payments Including Administrative Expenses and Disability Payments
($ in Millions)

Valuation Date June 30,	Current Inactives		Actives (Including Disabilities)			Grand Totals		
	Retirees & Beneficiaries	Deferreds	Tier 1	Current Tier 2	Future Tier 2	Current Retirees, Beneficiaries & Deferreds	Actives	Total
2020	$ 2,679.94	$ 14.37	$ 114.05	$ 47.57	$ 0.00	$ 2,694.30	$ 161.62	$ 2,855.93
2021	2,711.40	23.64	212.11	46.70	7.18	2,735.04	265.99	3,001.03
2022	2,739.05	27.82	311.51	46.13	14.42	2,766.87	372.07	3,138.93
2023	2,762.70	31.78	415.60	45.52	21.32	2,794.47	482.45	3,276.92
2024	2,782.21	35.87	525.27	45.60	28.79	2,818.08	599.66	3,417.74
2025	2,797.32	40.05	639.09	45.95	36.46	2,837.37	721.49	3,558.86
2026	2,807.67	44.16	755.07	46.36	44.33	2,851.84	845.76	3,697.60
2027	2,812.96	47.81	869.67	47.01	52.53	2,860.77	969.21	3,829.98
2028	2,812.83	51.33	982.92	48.94	58.24	2,864.16	1,090.10	3,954.26
2029	2,806.92	54.94	1,095.77	52.82	63.90	2,861.86	1,212.49	4,074.35
2030	2,794.91	51.08	1,208.47	58.49	69.68	2,845.99	1,336.65	4,182.63
2031	2,776.44	54.34	1,321.74	65.35	75.92	2,830.78	1,463.01	4,293.79
2032	2,751.22	57.29	1,433.08	73.09	82.86	2,808.51	1,589.02	4,397.53
2033	2,719.08	60.00	1,541.63	81.83	90.43	2,779.08	1,713.89	4,492.97
2034	2,679.79	62.61	1,650.03	91.86	98.80	2,742.40	1,840.68	4,583.09
2035	2,633.19	65.06	1,757.86	102.94	108.18	2,698.24	1,968.98	4,667.23
2036	2,579.23	67.20	1,861.56	115.55	118.47	2,646.43	2,095.58	4,742.00
2037	2,517.97	69.33	1,960.47	130.58	129.81	2,587.31	2,220.85	4,808.16
2038	2,449.57	71.40	2,053.95	148.04	142.33	2,520.98	2,344.32	4,865.29
2039	2,374.29	73.26	2,141.05	166.70	156.07	2,447.55	2,463.81	4,911.36
2040	2,292.49	74.84	2,221.39	186.21	172.29	2,367.32	2,579.89	4,947.21
2041	2,204.65	76.11	2,294.20	207.57	191.72	2,280.76	2,693.48	4,974.24
2042	2,111.34	77.19	2,359.35	231.42	213.91	2,188.54	2,804.69	4,993.23
2043	2,013.22	78.04	2,417.13	257.88	239.02	2,091.27	2,914.03	5,005.30
2044	1,911.01	78.61	2,467.75	288.04	267.18	1,989.62	3,022.96	5,012.58
2045	1,805.49	78.95	2,511.07	322.95	298.55	1,884.44	3,132.57	5,017.01

Table 14
Additional Projection Details — Active Population, Covered Payroll, Employee Contributions and Normal Costs
($ in Millions)

Valuation Date	Tier 1 Active Members				Current Tier 2 Active Members				Future Tier 2 Active Members			
June 30,	Population	Covered Payroll	Employee Contributions	Normal Cost	Population	Covered Payroll	Employee Contributions	Normal Cost	Population	Covered Payroll	Employee Contributions	Normal Cost
2020	35,579	$ 2,945.03	$ 168.43	$ 725.52	27,042	$ 1,575.42	$ 87.09	$ 152.20	-	$ 0.00	$ 0.00	$ 0.00
2021	32,292	2,768.38	158.73	693.36	24,924	1,531.12	85.43	154.43	5,405	284.57	13.39	20.90
2022	29,403	2,607.46	149.47	661.29	23,460	1,512.35	84.93	157.82	9,758	533.83	25.43	41.06
2023	26,696	2,447.52	140.08	627.07	22,242	1,501.43	84.85	161.60	13,683	777.01	37.34	61.92
2024	24,118	2,283.73	130.08	589.69	21,163	1,494.24	85.00	165.65	17,340	1,022.29	49.55	83.85
2025	21,726	2,125.17	120.44	550.24	20,218	1,491.32	85.37	170.04	20,677	1,264.75	61.63	106.30
2026	19,471	1,966.82	110.69	509.69	19,380	1,491.54	85.89	174.57	23,771	1,508.10	73.87	129.71
2027	17,354	1,810.21	101.08	470.97	18,607	1,492.65	86.49	179.06	26,660	1,753.37	86.16	154.02
2028	15,466	1,665.75	92.46	434.65	17,886	1,494.48	87.14	183.43	29,269	1,994.39	98.08	178.66
2029	13,716	1,524.49	84.08	399.69	17,166	1,493.65	87.68	187.67	31,740	2,239.60	110.19	204.47
2030	12,122	1,390.75	76.40	365.80	16,475	1,492.06	88.19	191.90	34,023	2,485.24	122.20	230.78
2031	10,641	1,259.22	68.73	331.33	15,839	1,490.43	88.57	195.97	36,141	2,732.33	134.32	257.65
2032	9,288	1,132.21	61.16	298.02	15,218	1,486.05	88.76	199.88	38,115	2,981.76	146.55	285.08
2033	8,066	1,012.92	54.24	266.51	14,626	1,480.46	88.84	203.61	39,928	3,230.95	158.65	312.87
2034	6,954	899.43	47.63	234.52	14,043	1,471.72	88.66	206.96	41,624	3,482.92	170.91	341.42
2035	5,911	785.85	40.83	201.97	13,478	1,460.74	88.31	210.07	43,232	3,739.77	183.53	371.03
2036	4,971	678.74	34.42	171.75	12,931	1,447.39	87.78	212.71	44,719	3,998.18	196.21	401.37
2037	4,148	581.79	28.84	144.23	12,385	1,429.76	86.94	214.27	46,088	4,257.35	208.81	432.33
2038	3,416	491.89	23.72	119.25	11,817	1,405.82	85.58	214.57	47,389	4,521.10	221.60	464.27
2039	2,789	412.38	19.36	97.40	11,247	1,377.42	83.87	214.40	48,584	4,785.80	234.37	496.95
2040	2,250	341.46	15.62	78.53	10,711	1,348.50	82.11	214.32	49,659	5,049.41	247.01	529.48
2041	1,801	280.43	12.52	62.97	10,199	1,317.37	80.28	213.87	50,620	5,310.68	259.42	561.79
2042	1,433	229.24	10.06	50.40	9,685	1,281.60	78.17	212.58	51,503	5,571.46	271.70	594.12
2043	1,131	186.15	8.06	40.13	9,177	1,242.37	75.79	210.48	52,313	5,830.99	283.86	626.47
2044	887	150.17	6.43	31.78	8,669	1,199.07	73.16	207.08	53,064	6,089.34	295.93	658.87
2045	690	120.22	5.10	25.01	8,141	1,149.10	70.03	201.87	53,790	6,348.51	308.01	691.46

Total payroll is capped for members hired after December 31, 2010, as defined in Public Act 96-0889.
Active member population includes disabilities.

SECTION I

HISTORICAL VALUATION INFORMATION AND RESULTS

Key Historical Valuation Results

Historical Actuarial Valuation Information and Results ($ In Millions)											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Valuation Year	Member Counts			Covered Uncapped Payroll	Benefits and Expenses	Net Investment Income	Actual State Contributions	Employee Contributions	Actuarially Determined Contribution	ADC Contribution Shortfall	Total Normal Cost[a]
	Active	Inactive	Retiree								
2016	61,317	26,120	70,244	$ 4,284.4	$ 2,233.3	$ (125.4)	$ 1,882.2	$ 256.2	$ 2,019.7	$ 137.4	$ 933.1
2017	60,612	24,759	72,004	4,195.8	2,371.2	1,812.9	1,798.3	251.6	2,129.5	331.1	896.8
2018	61,397	24,742	73,380	4,243.7	2,507.6	1,257.0	1,929.2	254.4	2,739.4	810.2	875.9
2019	62,026	25,525	74,770	4,601.4	2,647.5	1,118.4	2,274.9	275.7	2,979.8	704.8	869.1
2020	62,621	27,252	75,527	4,523.9	2,764.6	823.5	2,368.9	271.7	2,913.6	544.7	877.6

[a] *Includes load for Administrative Expense Contribution.*

(1) and (3). The number of retirees has increased from 70,244 in 2016 to 75,527 in 2020 and the number of actives has increased from 61,317 in 2016 to 62,621 in 2020. The trend shown in the table suggests that the System in maturing.

(5), (7), and (8). Benefits and expenses have exceeded contributions during the last five years which implies that a portion of net investment income was used to pay benefits. For underfunded plans it is preferable for contributions to exceed benefits and expenses, ot herwise assets may not grow at an adequate rate.

(9). The actuarially determined contribution (ADC) has increased from $2.0 billion in 2016 to $2.9 billion in 2020, an increase of 45 percent over the period. Typically, the ADC is expected to increase each year by the wage inflation assumption which has ranged from 2.75 percent to 3.00 percent per year. The slow growth in assets, due mainly to the current statutory funding policy, is one of the primary reasons why the ADC has grown at a significantly higher rate than wage inflation.

(10). ADC less Actual State Contributions. Represents additional employer contribution needed to finance normal cost and existing unfunded actuarial liability over a 25-year closed period as of July 1, 2015, expressed as a level percentage of capped payroll.

(11). The total normal cost has decreased from $933 million in 2016 to $878 million in 2020. The decrease is mainly due to the growing proportion of active members with Tier 2 benefits.

Key Historical Valuation Results

Historical Actuarial Valuation Information and Results ($ In Millions)											
	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
Valuation Year	Actuarial Value of Assets	Actuarial Accrued Liability (AAL) Active	Inactive	Retiree	Total	Funded Ratio (AVA/AAL)	Demographic (Gain)/Loss	Investment (Gain)/Loss	Impact of Plan Changes	Impact of Assumption Changes	Contribution (Excess)/Shortfall
2016	$ 15,632.6	$ 14,733.3	$ 689.6	$ 30,092.4	$ 45,515.4	34.35%	$ (636.6)	$ 79.6	$ -	$ 3,824.3	$ 613.8
2017	16,558.9	14,094.8	678.9	31,927.6	46,701.3	35.46%	(509.4)	(164.3)	-	-	933.4
2018	17,478.1	13,612.0	743.7	33,570.0	47,925.7	36.47%	(191.9)	(95.2)	-	(214.0)	806.1
2019	18,429.2	13,543.1	715.9	34,472.4	48,731.4	37.82%	(49.2)	164.4	(404.7)	(293.9)	438.0
2020	19,389.5	13,631.0	740.3	35,774.6	50,145.8	38.67%	56.6	158.9	-	-	238.6

(13) and (15). The actuarial liability for active members has decreased whereas the actuarial liability for retired members has increased. This is mostly due to the relative level of Tier 1 and Tier 2 benefits. The actuarial liability for retired members is comprised primarily of Tier 1 benefits, whereas the actuarial liability for active members is comprised of both Tier 1 and Tier 2 benefits. The level of Tier 2 benefits for active members increases as newly retired Tier 1 members are effectively replaced with newly hired Tier 2 members.

(17). The funded ratio has grown marginally from 34.35 percent at 2016 to 38.67 percent at 2020. One of the key reasons for the slow growth in the funded ratio is due to the statutory funding policy.

(18) and (21). The System experienced significant demographic gains from 2016 to 2018. An Experience Study was performed in 2018 and assumptions were modified to be more consistent with observed experience. In 2019 and 2020 demographic (gains) and losses are -0.1 percent and +0.1 percent of actuarial liabilities, which means on an aggregate basis the current set of demographic assumptions is consistent with observed experience.

(20). The 2019 change in actuarial liability due to plan changes reflects the Accelerated Pension Benefit Program.

(22). Contribution shortfall reflects the additional contributions needed to *maintain* the current level of unfunded actuarial liability. Note that this measure does not address the additional contributions needed to *reduce* the unfunded actuarial liability.

SECTION J

STRESS TESTING SCENARIOS

P: 312.456.9800 | www.grsconsulting.com

December 8, 2020

Board of Trustees
State Employees' Retirement System of Illinois
2101 South Veterans Parkway
P.O. Box 19255
Springfield, IL 62794-9255

Re: Stress Testing Scenarios Based on Actuarial Valuation Results as of June 30, 2020

Dear Members of the Board:

At your request, we have performed stress testing of the required statutory contributions and funded ratio for the State Employees' Retirement System of Illinois ("SERS") based on the results of the June 30, 2020, actuarial valuation. This stress testing was performed to illustrate the projected impact on actuarial valuation results (including the annual contribution requirement and funded ratio) if there is a significant market downturn or significant volatility in investment returns, volatility in future active population, or volatility in salary growth.

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

Exhibit A-1 contains the rates of return used for the investment return stress test. The investment return stress test analysis projects the actuarial valuation results assuming that the plan assets earn 6.75 percent, the 25th percentile return of 4.15 percent, and the 40th percentile return of 5.64 percent. In order to demonstrate the risk and volatility of the returns, we are providing results assuming both static returns of 6.75 percent, 4.15 percent, or 5.64 percent and volatile returns that produce 25-year geometric average returns of 6.75 percent, 4.15 percent, or 5.64 percent. In the baseline scenario and Scenarios 1 through 5, the discount rate used to determine liabilities remains at 6.75 percent, average future uncapped salary growth or wage inflation remains at 2.75 percent per year and the future active population remains constant at 62,621 members. Please note that each volatility 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. The 25th and 40th percentile returns used in Scenarios 2 through 5 were determined based on the expected investment return and the current target asset allocation of the System as of the most recent experience review issued to the System on May 19, 2020.

In addition to the investment return stress test scenarios, we have provided scenarios that stress test the required statutory contributions and funded ratio based on fluctuations in future active population and salary growth. In order to demonstrate the risk and volatility associated with changes to the future active

population and uncapped salary growth, we are providing results under the following scenarios: Scenario 6 – future active population increases 1,000 members per year for five years and then remains static; Scenario 7 – future active population decreases 1,000 members per year for five years and then remains static; Scenario 8 – wage inflation increases by one percentage point from the assumed rate of 2.75 percent per year to 3.75 percent per year; and Scenario 9 – wage inflation decreases by one percentage point from the assumed rate of 2.75 percent per year to 1.75 percent per year. In Scenarios 6 through 9, the investment return assumption and discount rate used to determine the liabilities remain at 6.75 percent.

GRS believes that these scenarios provide a reasonable illustration of potential future volatility of investment returns, population, salary growth and the resulting actuarial valuation results. 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 A-1 and the 25-year geometric average of actual returns may be either higher or lower than the assumption of 6.75 percent.

Exhibits B-1 through B-9 contains the numerical results of the stress testing.

Analysis of Stress Testing Scenario Results

Baseline – Static 6.75 Percent

Under the projected results from the actuarial valuation as of June 30, 2020, in which all future actuarial assumptions are realized, the statutory dollar contribution increases by a steady rate of approximately 2.41 percent per year beginning with fiscal year 2035, once the statutory contributions are no longer limited by the maximum contribution. The funded ratio does not grow markedly until after 2033, when it increases from 51.7 percent to 90.0 percent in 2045.

A Baseline projection of cash flows, accrued liabilities, and market value of assets can be found in Exhibit B-9. The accrued liability is projected to increase through 2039 at a decreasing rate before slightly decreasing thereafter due to the preponderance of Tier 2 members in the System. The market value of assets is projected to increase, at a slightly decreasing rate from 2021 to 2033, primarily due to the GOB contribution limit. After 2033, the market value of assets increases, at a slightly increasing rate, since contributions are not impacted by the GOB contribution limit. The funded ratio grows marginally from 39 percent at 2021 to 62 percent at 2038 at a rate of about one to two percentage points per year. The funded ratio grows from 65 percent at 2039 to 90 percent at 2045 at a rate of about three to four percentage points per year.

Scenario 1 – Volatile 6.75 Percent

In Scenario 1, which is based on the assumption that the 25-year geometric average of the returns is equal to 6.75 percent but with volatility in the year-to-year rate of return, the annual contribution is not as stable as the baseline scenario. Relative to the baseline, the contribution requirement is lower starting in 2023 through 2045. The System is projected to be less than 90 percent funded in 2045.

Scenario 2 – Static 4.15 Percent

In Scenario 2, which is based on the assumption that the annual rate of return is equal to 4.15 percent, the annual contribution requirement steadily increases at an increasing rate. Relative to the baseline, the contribution requirement is higher in all years.

Scenario 3 – Volatile 4.15 Percent

In Scenario 3, which is based on the assumption that the 25-year geometric average of the returns is equal to 4.15 percent but with volatility in the year-to-year rate of return, the annual contribution requirement relative to the baseline is slightly lower through 2025, but higher in all other years. In this scenario, the unfunded liability increases through 2028, then decreases significantly through 2045. This scenario demonstrates that while the long-term geometric average may be the same as Scenario 2, the pattern of contributions can be significantly different.

Scenario 4 – Static 5.64 Percent

In Scenario 4, which is based on the assumption that the annual rate of return is equal to 5.64 percent, the annual contribution requirement steadily increases at an increasing rate. Relative to the baseline, the contribution requirement is higher in all years. Relative to Scenario 2, the rate of increase is lower because more investment income is used to fund benefits.

Scenario 5 – Volatile 5.64 Percent

In Scenario 5, which is based on the assumption that the 25-year geometric average of the returns is equal to 5.64 percent but with volatility in the year-to-year rate of return, the annual contribution requirement increases through 2045, except for years 2028 through 2034. Relative to the baseline, the contribution requirement is lower only in 2028 and 2037, and higher for all other years through 2045. Again, this scenario demonstrates that while the long-term geometric average may be the same as Scenario 4, the pattern of contributions can be drastically different.

Scenario 6 – Increases in Active Population

Scenario 6 is based on the assumption that the active population will increase by 1,000 members each year for five years from 62,621 members in 2021 to 67,621 in 2026 and then remain constant for years on and after 2026. Under this scenario the statutory dollar contribution increases by a steady rate of approximately 2.47 percent per year beginning with the fiscal year 2035 once the statutory contributions are no longer limited by the maximum contribution. Relative to the baseline, the contribution requirement is lower in 2023 through 2025 as the payroll base increases with incremental increases in population. Beginning in 2026, the annual contribution requirement is slightly higher through 2045 with increases relative to the baseline at an average rate of 1.44 percent per year beginning in year 2026, as the population stabilizes at 5,000 members greater than the baseline.

Scenario 7 – Decreases in Active Population

Scenario 7 is based on the assumption that the active population will decrease by 1,000 members each year for five years from 62,621 members in 2021 to 57,621 in 2026 and then remain constant for years on and after 2026. Under this scenario the statutory contribution increases by a steady rate of approximately 2.34 percent per year beginning in year 2035 once the statutory contributions are no longer limited by the maximum contribution. Relative to the baseline, the contribution requirement is higher in years 2023 through 2025 as the payroll base decreases with incremental decreases in population. Beginning in 2026, the annual contribution requirement is slightly lower through 2045 with decreases relative to the baseline at an average rate of 1.39 percent per year beginning in year 2026, as the population stabilizes at 5,000 members less than the baseline.

Scenario 8 – Increased Salary Growth

Scenario 8 is based on the assumption that uncapped salary growth for active members will increase from the baseline assumption of 2.75 percent per year to 3.75 percent per year, limited by the statutory cap. Under this scenario the statutory contribution increases by a steady rate of approximately 2.38 percent per year beginning in year 2035 once the statutory contributions are no longer limited by the maximum contribution. Relative to the baseline, the contribution requirement is higher for all years starting in 2025 through 2045.

Scenario 9 – Decreased Salary Growth

Scenario 9 is based on the assumption that uncapped salary growth for active members will decrease from the baseline assumption of 2.75 percent per year to 1.75 percent per year, limited by the statutory cap. Under this scenario the statutory contribution increases by a steady rate of approximately 1.63 percent per year beginning in year 2035 once the statutory contributions are no longer limited by the maximum contribution. Relative to the baseline, the contribution requirement is higher in years 2023 through 2028 and then lower through 2045.

In all scenarios, it is apparent that based on the funding policy of attaining 90 percent funding in 2045, market volatility will have a larger impact on the statutory contribution as the number of years until 2045 becomes shorter.

In Scenario 5, the funded ratio is greater than 90 percent in year 2045 due to significant favorable investment returns at the end of the projection period. In Scenarios 1 through 4, the funded ratio is not 90 percent in the year 2045 because of deferred asset gains and losses that have not been fully recognized in the actuarial value of assets. This is a result of the fact that the assumed investment return in each of these scenarios is not equal to the valuation assumption of 6.75 percent.

In each projection scenario, the actuarial valuations in each year have been projected as though an actuarial valuation in each of those years was performed. The market value of assets at each projected actuarial valuation is assumed to have a rate of return according to the Scenario being modeled for that one year and the valuation interest rate going forward. At each projected actuarial valuation, an additional 20 percent of the investment gains and losses are recognized. This iterative process is followed for each projection year through 2045.

Statutory contributions in each projection scenario were determined in accordance with Public Act 100-0023, which modified the State's funding policy beginning in fiscal year 2018, by phasing in contribution rate variances due to changes in actuarial assumptions over a five-year period. The phase-in schedule used to determine the statutory contributions can be found in the June 30, 2020, draft actuarial valuation report.

It is important to note that the scenarios presented in this letter represent an extremely small sample of possibilities.

In each scenario, we have assumed that the plan sponsor will make the statutory contribution when due. However, some scenarios result in very high contribution rates for extended periods of time and may jeopardize the sustainability of the System. We are not qualified to opine on the sponsor's ability to pay the statutory contribution when due.

To the best of our knowledge, this actuarial statement is complete and accurate, fairly presents the actuarial position of SERS as of June 30, 2020, based on the stress testing scenarios and has been prepared in accordance with generally accepted actuarial principles and practices, with the Actuarial Standards of Practice issued by the Actuarial Standards Board, and with applicable statutes.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions, contribution amounts or applicable law. Due to the

limited scope of the actuary's assignment, the actuary did not perform an analysis of the potential range of such future measurements in this report.

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. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

This letter is part of the actuarial valuation as of June 30, 2020, and is subject to the same actuarial assumptions and disclosures as used in the presentation and annual actuarial valuation report. The investment return stress testing scenarios used future investment returns as shown in Exhibit A-1 and the population and salary growth stress testing scenarios used future populations and wage inflation assumptions as shown in Exhibits A-2 and A-3. All other assumptions and methods were the same as the actuarial valuation.

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 adherence to a funding policy, such as the Board policy used to calculate the ADC under GASB Statement Nos. 67 and 68, that funds the normal cost of the plan as well as an amortization payment that seeks to pay off any unfunded accrued liability over a closed period of 25 years beginning July 1, 2015.

The signing actuaries are independent of the plan sponsor.

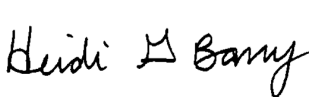
Alex Rivera, Heidi Barry and Jeffrey Tebeau are Members of the American Academy of Actuaries ("MAAA") and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

This communication shall not be construed to provide tax advice, legal advice or investment advice.

Respectfully submitted,

Gabriel, Roeder, Smith & Company

Alex Rivera, FSA, EA, MAAA
Senior Consultant



Heidi G. Barry, ASA, FCA, MAAA
Senior Consultant

Jeffrey T. Tebeau, FSA, EA, MAAA
Consultant

AR/HGB/JTT:dj
Enclosure

State Employees' Retirement System of Illinois
Comparison of Actuarial Valuation Results and Stress Testing Scenarios
Assumed Rates of Investment Return
Based on Actuarial Valuation as of June 30, 2020

Illinois SERS						
Scenario	**Baseline**	**1**	**2**	**3**	**4**	**5**
Investment Return Assumption	6.75% per year	Varying Rates for the first 25 years, 6.75% per year thereafter	4.15% per year for the first 25 years, 6.75% per year thereafter	Varying Rates for the first 25 years, 6.75% per year thereafter	5.64% per year for the first 25 years, 6.75% per year thereafter	Varying Rates for the first 25 years, 6.75% per year thereafter
25-Year Geometric Return	6.75%	6.75%	4.15%	4.15%	5.64%	5.64%
Summary of Investment Returns Included in the Scenario	N/A	Investment returns during the first 25 years **with** volatility, based on the System's asset allocation policy	Investment returns during the first 25 years represent the 25th percentile return **with no** volatility, based on the System's asset allocation policy	Investment returns during the first 25 years represent the 25th percentile return **with** volatility, based on the System's asset allocation policy	Investment returns during the first 25 years represent the 40th percentile return **with no** volatility, based on the System's asset allocation policy	Investment returns during the first 25 years represent the 40th percentile return **with** volatility, based on the System's asset allocation policy
Fiscal Year	**Rates of Investment Returns**					
2021	6.75%	14.41%	4.15%	20.65%	5.64%	3.17%
2022	6.75%	4.15%	4.15%	9.50%	5.64%	1.77%
2023	6.75%	0.45%	4.15%	-18.35%	5.64%	8.68%
2024	6.75%	29.07%	4.15%	-24.77%	5.64%	6.62%
2025	6.75%	-1.29%	4.15%	8.56%	5.64%	28.44%
2026	6.75%	31.06%	4.15%	10.95%	5.64%	0.46%
2027	6.75%	15.72%	4.15%	14.50%	5.64%	20.44%
2028	6.75%	-0.79%	4.15%	2.93%	5.64%	1.75%
2029	6.75%	2.28%	4.15%	22.18%	5.64%	7.03%
2030	6.75%	26.59%	4.15%	8.38%	5.64%	13.53%
2031	6.75%	-3.77%	4.15%	7.39%	5.64%	7.05%
2032	6.75%	3.85%	4.15%	12.74%	5.64%	17.93%
2033	6.75%	-3.71%	4.15%	-4.04%	5.64%	-19.70%
2034	6.75%	21.84%	4.15%	0.01%	5.64%	9.06%
2035	6.75%	1.96%	4.15%	-5.86%	5.64%	-2.47%
2036	6.75%	-7.26%	4.15%	29.25%	5.64%	-2.71%
2037	6.75%	14.06%	4.15%	6.12%	5.64%	19.67%
2038	6.75%	7.08%	4.15%	-1.58%	5.64%	2.99%
2039	6.75%	14.76%	4.15%	15.38%	5.64%	-19.79%
2040	6.75%	-1.10%	4.15%	14.81%	5.64%	7.78%
2041	6.75%	2.82%	4.15%	-4.88%	5.64%	18.48%
2042	6.75%	11.62%	4.15%	3.37%	5.64%	11.00%
2043	6.75%	4.41%	4.15%	-5.61%	5.64%	16.96%
2044	6.75%	-5.25%	4.15%	4.50%	5.64%	6.67%
2045	6.75%	-1.28%	4.15%	-4.43%	5.64%	-8.17%

State Employees' Retirement System of Illinois
Comparison of Actuarial Valuation Results and Stress Testing Scenarios
Projection of Population
Based on Actuarial Valuation as of June 30, 2020

Illinois SERS					
Scenario	**Baseline; 1-5**	**6**	**7**	**8**	**9**
Investment Return Assumption	6.75% per year	6.75% per year	6.75% per year	6.75% per year	6.75% per year
Wage Inflation Assumption	2.75%	2.75%	2.75%	3.75%	1.75%
Population Growth Assumption	Active population remains constant at 62,621 members through the projection period	Active population increases 1,000 members each year for 5 years and then remains constant at 67,621 members for fiscal years on and after fiscal year 2026	Active population decreases 1,000 members each year for 5 years and then remains constant at 57,621 members for fiscal years on and after fiscal year 2026	Active population remains constant at 62,621 members through the projection period	Active population remains constant at 62,621 members through the projection period
Fiscal Year	**Population**				
2021	62,621	62,621	62,621	62,621	62,621
2022	62,621	63,621	61,621	62,621	62,621
2023	62,621	64,621	60,621	62,621	62,621
2024	62,621	65,621	59,621	62,621	62,621
2025	62,621	66,621	58,621	62,621	62,621
2026	62,621	67,621	57,621	62,621	62,621
2027	62,621	67,621	57,621	62,621	62,621
2028	62,621	67,621	57,621	62,621	62,621
2029	62,621	67,621	57,621	62,621	62,621
2030	62,621	67,621	57,621	62,621	62,621
2031	62,621	67,621	57,621	62,621	62,621
2032	62,621	67,621	57,621	62,621	62,621
2033	62,621	67,621	57,621	62,621	62,621
2034	62,621	67,621	57,621	62,621	62,621
2035	62,621	67,621	57,621	62,621	62,621
2036	62,621	67,621	57,621	62,621	62,621
2037	62,621	67,621	57,621	62,621	62,621
2038	62,621	67,621	57,621	62,621	62,621
2039	62,621	67,621	57,621	62,621	62,621
2040	62,621	67,621	57,621	62,621	62,621
2041	62,621	67,621	57,621	62,621	62,621
2042	62,621	67,621	57,621	62,621	62,621
2043	62,621	67,621	57,621	62,621	62,621
2044	62,621	67,621	57,621	62,621	62,621
2045	62,621	67,621	57,621	62,621	62,621

State Employees' Retirement System of Illinois
Comparison of Actuarial Valuation Results and Stress Testing Scenarios
Projection of Capped Payroll
Based on Actuarial Valuation as of June 30, 2020

Illinois SERS					
Scenario	**Baseline; 1-5**	**6**	**7**	**8**	**9**
Investment Return Assumption	6.75% per year	6.75% per year	6.75% per year	6.75% per year	6.75% per year
Wage Inflation Assumption	2.75%	2.75%	2.75%	3.75%	1.75%
Population Growth Assumption	Active population remains constant at 62,621 members through the projection period	Active population increases 1,000 members each year for 5 years and then remains constant at 67,621 members for fiscal years on and after fiscal year 2026	Active population decreases 1,000 members each year for 5 years and then remains constant at 57,621 members for fiscal years on and after fiscal year 2026	Active population remains constant at 62,621 members through the projection period	Active population remains constant at 62,621 members through the projection period
Fiscal Year	**Capped Payroll ($ in millions)**				
2021	$4,520	$4,520	$4,520	$4,520	$4,520
2022	4,584	4,637	4,531	4,628	4,540
2023	4,654	4,763	4,544	4,743	4,565
2024	4,726	4,896	4,556	4,862	4,592
2025	4,800	5,035	4,565	4,985	4,620
2026	4,881	5,185	4,577	5,115	4,654
2027	4,966	5,284	4,649	5,250	4,691
2028	5,056	5,387	4,725	5,388	4,731
2029	5,155	5,499	4,810	5,534	4,779
2030	5,258	5,616	4,899	5,683	4,830
2031	5,368	5,741	4,995	5,838	4,886
2032	5,482	5,869	5,095	5,993	4,945
2033	5,600	6,002	5,198	6,148	5,007
2034	5,724	6,141	5,308	6,308	5,074
2035	5,854	6,286	5,422	6,470	5,145
2036	5,986	6,433	5,539	6,631	5,218
2037	6,124	6,587	5,662	6,793	5,295
2038	6,269	6,747	5,791	6,960	5,377
2039	6,419	6,913	5,925	7,129	5,463
2040	6,576	7,086	6,065	7,300	5,554
2041	6,739	7,266	6,213	7,474	5,650
2042	6,908	7,451	6,366	7,647	5,749
2043	7,082	7,642	6,523	7,820	5,852
2044	7,260	7,835	6,684	7,994	5,958
2045	7,439	8,030	6,847	8,168	6,066

State Employees' Retirement System of Illinois
Comparison of Actuarial Valuation Results and Stress Testing Scenarios
Projection of Statutory Contribution Dollars
Based on Actuarial Valuation as of June 30, 2020

Illinois SERS						
Scenario	**Baseline**	**1**	**2**	**3**	**4**	**5**
Investment Return Assumption	6.75% per year	Varying Rates for the first 25 years, 6.75% per year thereafter	4.15% per year for the first 25 years, 6.75% per year thereafter	Varying Rates for the first 25 years, 6.75% per year thereafter	5.64% per year for the first 25 years, 6.75% per year thereafter	Varying Rates for the first 25 years, 6.75% per year thereafter
25-Year Geometric Return	6.75%	6.75%	4.15%	4.15%	5.64%	5.64%
Summary of Investment Returns Included in the Scenario	N/A	Investment returns during the first 25 years **with** volatility, based on the System's asset allocation policy	Investment returns during the first 25 years represent the 25th percentile return **with no** volatility, based on the System's asset allocation policy	Investment returns during the first 25 years represent the 25th percentile return **with** volatility, based on the System's asset allocation policy	Investment returns during the first 25 years represent the 40th percentile return **with no** volatility, based on the System's asset allocation policy	Investment returns during the first 25 years represent the 40th percentile return **with** volatility, based on the System's asset allocation policy
Fiscal Year	**Contribution Dollar Amount ($ in millions)**					
2021	$2,378	$2,378	$2,378	$2,378	$2,378	$2,378
2022	2,470	2,470	2,470	2,470	2,470	2,470
2023	2,502	2,482	2,510	2,465	2,506	2,512
2024	2,543	2,504	2,567	2,447	2,553	2,580
2025	2,584	2,549	2,634	2,520	2,605	2,645
2026	2,632	2,534	2,720	2,726	2,670	2,718
2027	2,678	2,527	2,813	2,954	2,737	2,711
2028	2,721	2,447	2,909	3,212	2,803	2,695
2029	2,770	2,274	3,014	3,460	2,878	2,615
2030	2,818	2,109	3,123	3,604	2,954	2,546
2031	2,871	2,086	3,243	3,589	3,037	2,490
2032	2,932	1,894	3,376	3,561	3,132	2,488
2033	3,000	1,889	3,523	3,548	3,238	2,440
2034	3,318	2,171	3,968	3,850	3,615	2,603
2035	3,393	2,338	4,140	3,877	3,737	2,735
2036	3,469	2,360	4,323	4,048	3,865	2,948
2037	3,549	2,596	4,521	4,346	4,004	3,315
2038	3,633	2,901	4,740	4,532	4,154	3,831
2039	3,720	3,157	4,983	4,726	4,318	4,431
2040	3,811	3,229	5,258	4,924	4,501	4,649
2041	3,906	3,407	5,578	4,965	4,707	5,363
2042	4,004	3,633	5,960	4,581	4,945	6,165
2043	4,105	3,672	6,444	4,785	5,236	6,656
2044	4,207	3,819	7,128	5,337	5,622	7,405
2045	4,311	4,140	8,397	6,936	6,291	7,337
Total Cont. Through 2045	**$80,325**	**$67,566**	**$102,720**	**$95,841**	**$90,956**	**$90,726**
Present Value of Total Cont.	**$36,353**	**$31,287**	**$42,859**	**$41,601**	**$39,412**	**$38,107**

State Employees' Retirement System of Illinois
Comparison of Actuarial Valuation Results and Stress Testing Scenarios
Projection of Statutory Contribution as a Percent of Pay
Based on Actuarial Valuation as of June 30, 2020

Illinois SERS						
Scenario	**Baseline**	**1**	**2**	**3**	**4**	**5**
Investment Return Assumption	6.75% per year	Varying Rates for the first 25 years, 6.75% per year thereafter	4.15% per year for the first 25 years, 6.75% per year thereafter	Varying Rates for the first 25 years, 6.75% per year thereafter	5.64% per year for the first 25 years, 6.75% per year thereafter	Varying Rates for the first 25 years, 6.75% per year thereafter
25-Year Geometric Return	6.75%	6.75%	4.15%	4.15%	5.64%	5.64%
Summary of Investment Returns Included in the Scenario	N/A	Investment returns during the first 25 years **with** volatility, based on the System's asset allocation policy	Investment returns during the first 25 years represent the 25th percentile return **with no** volatility, based on the System's asset allocation policy	Investment returns during the first 25 years represent the 25th percentile return **with** volatility, based on the System's asset allocation policy	Investment returns during the first 25 years represent the 40th percentile return **with no** volatility, based on the System's asset allocation policy	Investment returns during the first 25 years represent the 40th percentile return **with** volatility, based on the System's asset allocation policy
Fiscal Year	**Contribution as a Percent of Payroll**					
2021	52.60%	52.60%	52.60%	52.60%	52.60%	52.60%
2022	53.89%	53.89%	53.89%	53.89%	53.89%	53.89%
2023	53.78%	53.33%	53.93%	52.97%	53.84%	53.98%
2024	53.81%	52.97%	54.31%	51.79%	54.03%	54.58%
2025	53.82%	53.10%	54.87%	52.49%	54.27%	55.11%
2026	53.93%	51.92%	55.72%	55.84%	54.70%	55.68%
2027	53.91%	50.88%	56.65%	59.48%	55.10%	54.59%
2028	53.81%	48.39%	57.53%	63.52%	55.44%	53.31%
2029	53.74%	44.12%	58.48%	67.13%	55.83%	50.73%
2030	53.60%	40.11%	59.41%	68.54%	56.18%	48.43%
2031	53.48%	38.85%	60.41%	66.86%	56.58%	46.38%
2032	53.48%	34.55%	61.58%	64.97%	57.13%	45.38%
2033	53.57%	33.73%	62.91%	63.35%	57.81%	43.57%
2034	57.96%	37.93%	69.32%	67.26%	63.16%	45.46%
2035	57.96%	39.94%	70.71%	66.22%	63.84%	46.72%
2036	57.96%	39.42%	72.21%	67.62%	64.57%	49.25%
2037	57.96%	42.39%	73.83%	70.96%	65.38%	54.14%
2038	57.96%	46.27%	75.61%	72.29%	66.26%	61.11%
2039	57.96%	49.19%	77.63%	73.63%	67.27%	69.03%
2040	57.96%	49.10%	79.97%	74.89%	68.45%	70.69%
2041	57.96%	50.56%	82.77%	73.67%	69.85%	79.57%
2042	57.96%	52.58%	86.27%	66.31%	71.58%	89.24%
2043	57.96%	51.85%	90.99%	67.56%	73.94%	93.98%
2044	57.96%	52.61%	98.19%	73.52%	77.44%	102.01%
2045	57.96%	55.65%	112.89%	93.24%	84.57%	98.63%

State Employees' Retirement System of Illinois
Comparison of Actuarial Valuation Results and Stress Testing Scenarios
Projection of Funded Ratio
Based on Actuarial Valuation as of June 30, 2020

Illinois SERS						
Scenario	**Baseline**	**1**	**2**	**3**	**4**	**5**
Investment Return Assumption	6.75% per year	Varying Rates for the first 25 years, 6.75% per year thereafter	4.15% per year for the first 25 years, 6.75% per year thereafter	Varying Rates for the first 25 years, 6.75% per year thereafter	5.64% per year for the first 25 years, 6.75% per year thereafter	Varying Rates for the first 25 years, 6.75% per year thereafter
25-Year Geometric Return	6.75%	6.75%	4.15%	4.15%	5.64%	5.64%
Summary of Investment Returns Included in the Scenario	N/A	Investment returns during the first 25 years **with** volatility, based on the System's asset allocation policy	Investment returns during the first 25 years represent the 25th percentile return **with no** volatility, based on the System's asset allocation policy	Investment returns during the first 25 years represent the 25th percentile return **with** volatility, based on the System's asset allocation policy	Investment returns during the first 25 years represent the 40th percentile return **with no** volatility, based on the System's asset allocation policy	Investment returns during the first 25 years represent the 40th percentile return **with** volatility, based on the System's asset allocation policy
Fiscal Year	**Funded Ratio**					
2021	39.87%	40.44%	39.68%	40.90%	39.79%	39.60%
2022	40.81%	41.89%	40.18%	43.40%	40.54%	39.84%
2023	41.65%	42.61%	40.35%	43.47%	41.09%	40.03%
2024	42.50%	44.91%	40.32%	40.50%	41.56%	40.34%
2025	43.47%	47.07%	40.22%	37.18%	42.06%	42.49%
2026	44.42%	50.59%	40.12%	33.51%	42.54%	44.82%
2027	45.37%	55.93%	40.02%	30.50%	43.01%	48.43%
2028	46.32%	60.85%	39.95%	29.93%	43.49%	51.65%
2029	47.28%	62.86%	39.92%	32.67%	43.99%	54.51%
2030	48.27%	67.49%	39.96%	35.89%	44.52%	56.35%
2031	49.32%	69.12%	40.08%	38.92%	45.12%	58.89%
2032	50.43%	68.56%	40.32%	41.96%	45.81%	61.53%
2033	51.65%	67.44%	40.72%	44.39%	46.61%	61.50%
2034	53.39%	68.63%	41.77%	45.55%	48.00%	60.80%
2035	55.29%	67.70%	43.08%	45.47%	49.59%	58.73%
2036	57.39%	66.30%	44.66%	47.05%	51.40%	55.75%
2037	59.70%	65.92%	46.58%	49.22%	53.49%	52.97%
2038	62.26%	67.72%	48.89%	51.92%	55.89%	54.55%
2039	65.10%	69.35%	51.66%	56.28%	58.67%	54.04%
2040	68.26%	71.07%	54.97%	63.46%	61.87%	54.18%
2041	71.77%	74.15%	58.94%	68.03%	65.57%	57.73%
2042	75.66%	77.44%	63.70%	71.38%	69.87%	62.59%
2043	79.97%	80.83%	69.49%	74.40%	74.89%	70.61%
2044	84.74%	81.65%	76.66%	76.92%	80.84%	83.70%
2045	90.00%	82.58%	86.28%	79.83%	88.24%	94.53%

State Employees' Retirement System of Illinois
Comparison of Actuarial Valuation Results and Stress Testing Scenarios
Unfunded Actuarial Accrued Liability
Based on Actuarial Valuation as of June 30, 2020

Illinois SERS						
Scenario	**Baseline**	**1**	**2**	**3**	**4**	**5**
Investment Return Assumption	6.75% per year	Varying Rates for the first 25 years, 6.75% per year thereafter	4.15% per year for the first 25 years, 6.75% per year thereafter	Varying Rates for the first 25 years, 6.75% per year thereafter	5.64% per year for the first 25 years, 6.75% per year thereafter	Varying Rates for the first 25 years, 6.75% per year thereafter
25-Year Geometric Return	6.75%	6.75%	4.15%	4.15%	5.64%	5.64%
Summary of Investment Returns Included in the Scenario	N/A	Investment returns during the first 25 years **with** volatility, based on the System's asset allocation policy	Investment returns during the first 25 years represent the 25th percentile return **with no** volatility, based on the System's asset allocation policy	Investment returns during the first 25 years represent the 25th percentile return **with** volatility, based on the System's asset allocation policy	Investment returns during the first 25 years represent the 40th percentile return **with no** volatility, based on the System's asset allocation policy	Investment returns during the first 25 years represent the 40th percentile return **with** volatility, based on the System's asset allocation policy
Fiscal Year	**Unfunded Accrued Liability ($ in millions)**					
2021	$30,959	$30,667	$31,059	$30,429	$31,002	$31,096
2022	31,229	30,657	31,563	29,863	31,372	31,742
2023	31,488	30,970	32,191	30,506	31,791	32,361
2024	31,684	30,356	32,885	32,783	32,204	32,876
2025	31,747	29,723	33,569	35,278	32,540	32,297
2026	31,747	28,226	34,206	37,982	32,824	31,524
2027	31,685	25,559	34,787	40,308	33,054	29,910
2028	31,561	23,019	35,304	41,192	33,224	28,427
2029	31,365	22,096	35,743	40,060	33,325	27,067
2030	31,098	19,544	36,098	38,542	33,352	26,245
2031	30,749	18,732	36,352	37,057	33,293	24,941
2032	30,306	19,224	36,487	35,483	33,133	23,522
2033	29,754	20,036	36,480	34,221	32,853	23,694
2034	28,832	19,405	36,016	33,681	32,165	24,247
2035	27,764	20,057	35,351	33,865	31,309	25,631
2036	26,540	20,992	34,465	32,980	30,267	27,559
2037	25,147	21,266	33,331	31,683	29,020	29,344
2038	23,572	20,160	31,923	30,029	27,548	28,386
2039	21,802	19,150	30,201	27,312	25,823	28,709
2040	19,823	18,069	28,122	22,818	23,814	28,613
2041	17,619	16,131	25,625	19,951	21,484	26,377
2042	15,174	14,066	22,628	17,841	18,784	23,326
2043	12,471	11,940	19,004	15,943	15,636	18,306
2044	9,493	11,420	14,520	14,363	11,921	10,139
2045	6,219	10,829	8,530	12,539	7,313	3,399

State Employees' Retirement System of Illinois
Comparison of Actuarial Valuation Results and Stress Testing Scenarios
Projection of Statutory Contribution Dollars
Based on Actuarial Valuation as of June 30, 2020

Illinois SERS					
Scenario	**Baseline**	**6**	**7**	**8**	**9**
Investment Return Assumption	6.75% per year	6.75% per year	6.75% per year	6.75% per year	6.75% per year
Wage Inflation Assumption	2.75%	2.75%	2.75%	3.75%	1.75%
Population Growth Assumption	Active population remains constant at 62,621 members through the projection period	Active population increases 1,000 members each year for 5 years and then remains constant at 67,621 members for fiscal years on and after fiscal year 2026	Active population decreases 1,000 members each year for 5 years and then remains constant at 57,621 members for fiscal years on and after fiscal year 2026	Active population remains constant at 62,621 members through the projection period	Active population remains constant at 62,621 members through the projection period
Fiscal Year	**Contribution Dollar Amount ($ in millions)**				
2021	$2,378	$2,378	$2,378	$2,378	$2,378
2022	2,470	2,470	2,470	2,470	2,470
2023	2,502	2,412	2,606	2,461	2,631
2024	2,543	2,483	2,612	2,526	2,647
2025	2,584	2,556	2,616	2,591	2,663
2026	2,632	2,640	2,626	2,666	2,687
2027	2,678	2,689	2,666	2,736	2,705
2028	2,721	2,737	2,705	2,805	2,722
2029	2,770	2,790	2,749	2,878	2,744
2030	2,818	2,842	2,792	2,950	2,764
2031	2,871	2,900	2,840	3,025	2,788
2032	2,932	2,964	2,896	3,106	2,820
2033	3,000	3,037	2,960	3,194	2,858
2034	3,318	3,359	3,274	3,528	3,147
2035	3,393	3,438	3,344	3,619	3,191
2036	3,469	3,519	3,416	3,709	3,236
2037	3,549	3,603	3,492	3,800	3,284
2038	3,633	3,690	3,571	3,893	3,334
2039	3,720	3,781	3,654	3,987	3,388
2040	3,811	3,876	3,741	4,083	3,444
2041	3,906	3,974	3,832	4,180	3,504
2042	4,004	4,076	3,926	4,277	3,565
2043	4,105	4,180	4,023	4,374	3,629
2044	4,207	4,285	4,122	4,471	3,695
2045	4,311	4,392	4,223	4,568	3,761
Total Cont. Through 2045	**$80,325**	**$81,071**	**$79,534**	**$84,275**	**$76,055**
Present Value of Total Cont.	**$36,353**	**$36,512**	**$36,194**	**$37,697**	**$35,294**

State Employees' Retirement System of Illinois
Comparison of Actuarial Valuation Results and Stress Testing Scenarios
Projection of Statutory Contribution as a Percent of Pay
Based on Actuarial Valuation as of June 30, 2020

Illinois SERS					
Scenario	**Baseline**	**6**	**7**	**8**	**9**
Investment Return Assumption	6.75% per year	6.75% per year	6.75% per year	6.75% per year	6.75% per year
Wage Inflation Assumption	2.75%	2.75%	2.75%	3.75%	1.75%
Population Growth Assumption	Active population remains constant at 62,621 members through the projection period	Active population increases 1,000 members each year for 5 years and then remains constant at 67,621 members for fiscal years on and after fiscal year 2026	Active population decreases 1,000 members each year for 5 years and then remains constant at 57,621 members for fiscal years on and after fiscal year 2026	Active population remains constant at 62,621 members through the projection period	Active population remains constant at 62,621 members through the projection period
Fiscal Year	**Contribution as a Percent of Payroll**				
2021	52.60%	52.60%	52.60%	52.60%	52.60%
2022	53.89%	53.27%	54.52%	53.38%	54.41%
2023	53.78%	50.65%	57.34%	51.89%	57.63%
2024	53.81%	50.72%	57.34%	51.95%	57.65%
2025	53.82%	50.77%	57.31%	51.98%	57.64%
2026	53.93%	50.91%	57.37%	52.11%	57.73%
2027	53.91%	50.90%	57.34%	52.12%	57.68%
2028	53.81%	50.81%	57.23%	52.06%	57.54%
2029	53.74%	50.74%	57.15%	52.02%	57.42%
2030	53.60%	50.61%	56.99%	51.91%	57.22%
2031	53.48%	50.51%	56.86%	51.82%	57.06%
2032	53.48%	50.51%	56.85%	51.84%	57.01%
2033	53.57%	50.60%	56.95%	51.94%	57.08%
2034	57.96%	54.69%	61.68%	55.93%	62.01%
2035	57.96%	54.69%	61.68%	55.93%	62.01%
2036	57.96%	54.69%	61.68%	55.93%	62.01%
2037	57.96%	54.69%	61.68%	55.93%	62.01%
2038	57.96%	54.69%	61.68%	55.93%	62.01%
2039	57.96%	54.69%	61.68%	55.93%	62.01%
2040	57.96%	54.69%	61.68%	55.93%	62.01%
2041	57.96%	54.69%	61.68%	55.93%	62.01%
2042	57.96%	54.69%	61.68%	55.93%	62.01%
2043	57.96%	54.69%	61.68%	55.93%	62.01%
2044	57.96%	54.69%	61.68%	55.93%	62.01%
2045	57.96%	54.69%	61.68%	55.93%	62.01%

State Employees' Retirement System of Illinois
Comparison of Actuarial Valuation Results and Stress Testing Scenarios
Projection of Funded Ratio
Based on Actuarial Valuation as of June 30, 2020

Illinois SERS					
Scenario	**Baseline**	**6**	**7**	**8**	**9**
Investment Return Assumption	6.75% per year	6.75% per year	6.75% per year	6.75% per year	6.75% per year
Wage Inflation Assumption	2.75%	2.75%	2.75%	3.75%	1.75%
Population Growth Assumption	Active population remains constant at 62,621 members through the projection period	Active population increases 1,000 members each year for 5 years and then remains constant at 67,621 members for fiscal years on and after fiscal year 2026	Active population decreases 1,000 members each year for 5 years and then remains constant at 57,621 members for fiscal years on and after fiscal year 2026	Active population remains constant at 62,621 members through the projection period	Active population remains constant at 62,621 members through the projection period
Fiscal Year	**Funded Ratio**				
2021	39.87%	39.87%	39.87%	39.28%	40.44%
2022	40.81%	40.81%	40.81%	40.14%	41.46%
2023	41.65%	41.48%	41.85%	40.82%	42.64%
2024	42.50%	42.21%	42.84%	41.54%	43.79%
2025	43.47%	43.11%	43.88%	42.41%	45.04%
2026	44.42%	44.06%	44.85%	43.31%	46.25%
2027	45.37%	45.00%	45.80%	44.22%	47.42%
2028	46.32%	45.95%	46.75%	45.16%	48.57%
2029	47.28%	46.92%	47.71%	46.15%	49.70%
2030	48.27%	47.93%	48.69%	47.19%	50.83%
2031	49.32%	48.99%	49.72%	48.31%	51.98%
2032	50.43%	50.13%	50.81%	49.53%	53.15%
2033	51.65%	51.37%	52.00%	50.85%	54.38%
2034	53.39%	53.14%	53.71%	52.70%	56.12%
2035	55.29%	55.08%	55.58%	54.73%	57.99%
2036	57.39%	57.21%	57.64%	56.95%	59.99%
2037	59.70%	59.56%	59.91%	59.38%	62.18%
2038	62.26%	62.16%	62.43%	62.06%	64.57%
2039	65.10%	65.04%	65.22%	65.02%	67.19%
2040	68.26%	68.23%	68.34%	68.27%	70.08%
2041	71.77%	71.76%	71.81%	71.85%	73.29%
2042	75.66%	75.68%	75.68%	75.79%	76.84%
2043	79.97%	80.00%	79.97%	80.11%	80.78%
2044	84.74%	84.77%	84.74%	84.84%	85.15%
2045	90.00%	90.00%	90.00%	90.00%	90.00%

State Employees' Retirement System of Illinois
Comparison of Actuarial Valuation Results and Stress Testing Scenarios
Unfunded Actuarial Accrued Liability
Based on Actuarial Valuation as of June 30, 2020

Illinois SERS					
Scenario	**Baseline**	**6**	**7**	**8**	**9**
Investment Return Assumption	6.75% per year	6.75% per year	6.75% per year	6.75% per year	6.75% per year
Wage Inflation Assumption	2.75%	2.75%	2.75%	3.75%	1.75%
Population Growth Assumption	Active population remains constant at 62,621 members through the projection period	Active population increases 1,000 members each year for 5 years and then remains constant at 67,621 members for fiscal years on and after fiscal year 2026	Active population decreases 1,000 members each year for 5 years and then remains constant at 57,621 members for fiscal years on and after fiscal year 2026	Active population remains constant at 62,621 members through the projection period	Active population remains constant at 62,621 members through the projection period
Fiscal Year	**Unfunded Accrued Liability ($ in millions)**				
2021	$30,959	$30,959	$30,959	$31,738	$30,230
2022	31,229	31,230	31,227	32,113	30,397
2023	31,488	31,586	31,377	32,532	30,411
2024	31,684	31,855	31,488	32,876	30,368
2025	31,747	31,966	31,496	33,073	30,199
2026	31,747	31,984	31,476	33,194	29,977
2027	31,685	31,938	31,396	33,235	29,703
2028	31,561	31,828	31,255	33,196	29,380
2029	31,365	31,644	31,046	33,068	29,002
2030	31,098	31,387	30,767	32,849	28,572
2031	30,749	31,046	30,409	32,529	28,085
2032	30,306	30,609	29,959	32,096	27,531
2033	29,754	30,061	29,405	31,536	26,900
2034	28,832	29,140	28,482	30,587	25,929
2035	27,764	28,070	27,416	29,474	24,848
2036	26,540	26,841	26,197	28,185	23,649
2037	25,147	25,441	24,813	26,712	22,324
2038	23,572	23,856	23,251	25,040	20,861
2039	21,802	22,073	21,497	23,158	19,250
2040	19,823	20,077	19,538	21,052	17,480
2041	17,619	17,854	17,358	18,709	15,535
2042	15,174	15,386	14,940	16,117	13,401
2043	12,471	12,656	12,269	13,259	11,062
2044	9,493	9,648	9,326	10,120	8,500
2045	6,219	6,340	6,093	6,681	5,697

State Employees' Retirement System of Illinois
Baseline Valuation
Projection of Cashflows, Accrued Liability, and Market Value of Assets
Based on Actuarial Valuation as of June 30, 2020

Baseline Valuation Projection ($ in Millions)								
Fiscal Year	Employer Contribution	Benefits and Administrative Expenses	Employer Normal Cost	Actuarial Accrued Liability (AAL)	Annual Change in AAL (%)	Market Value of Assets (MVA)	Annual Change in MVA (%)	Funded Ratio
2021	$2,377.94	$2,855.93	$622.19	$51,486.79		$20,257.01		39%
2022	2,470.31	3,001.03	611.14	52,759.01	2.47%	21,342.11	5.36%	40%
2023	2,502.50	3,138.93	600.33	53,965.82	2.29%	22,393.60	4.93%	41%
2024	2,543.13	3,276.92	588.32	55,101.63	2.10%	23,417.99	4.57%	42%
2025	2,583.61	3,417.74	574.55	56,156.83	1.92%	24,410.31	4.24%	43%
2026	2,632.46	3,558.86	559.13	57,124.41	1.72%	25,377.16	3.96%	44%
2027	2,677.52	3,697.60	543.51	58,000.94	1.53%	26,315.60	3.70%	45%
2028	2,720.95	3,829.98	530.30	58,789.61	1.36%	27,228.89	3.47%	46%
2029	2,770.07	3,954.26	519.06	59,495.57	1.20%	28,130.24	3.31%	47%
2030	2,817.89	4,074.35	509.88	60,120.03	1.05%	29,022.17	3.17%	48%
2031	2,870.81	4,182.63	501.69	60,671.30	0.92%	29,922.11	3.10%	49%
2032	2,931.51	4,293.79	493.33	61,141.29	0.77%	30,835.66	3.05%	50%
2033	3,000.04	4,397.53	486.52	61,533.78	0.64%	31,779.48	3.06%	52%
2034	3,317.62	4,492.97	481.28	61,854.17	0.52%	33,021.95	3.91%	53%
2035	3,392.81	4,583.09	475.68	62,102.97	0.40%	34,338.55	3.99%	55%
2036	3,469.48	4,667.23	470.40	62,281.82	0.29%	35,741.94	4.09%	57%
2037	3,549.43	4,742.00	467.42	62,398.33	0.19%	37,251.35	4.22%	60%
2038	3,633.23	4,808.16	466.24	62,459.51	0.10%	38,887.24	4.39%	62%
2039	3,720.11	4,865.29	467.18	62,473.30	0.02%	40,670.82	4.59%	65%
2040	3,810.98	4,911.36	471.15	62,451.43	-0.04%	42,628.00	4.81%	68%
2041	3,905.90	4,947.21	477.60	62,405.08	-0.07%	44,785.69	5.06%	72%
2042	4,003.91	4,974.24	486.41	62,344.51	-0.10%	47,170.08	5.32%	76%
2043	4,104.65	4,993.23	497.17	62,279.33	-0.10%	49,807.87	5.59%	80%
2044	4,207.35	5,005.30	509.37	62,217.91	-0.10%	52,725.38	5.86%	85%
2045	4,311.14	5,012.58	522.20	62,166.16	-0.08%	55,947.60	6.11%	90%