

# State Employees' Retirement System of Illinois

Annual Actuarial Valuation as of June 30, 2017



October 30, 2017

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

**Re: State Employees' Retirement System of Illinois Actuarial Valuation as of June 30, 2017**

Dear Board Members:

The results of the June 30, 2017, 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, 2018, and ending June 30, 2019. 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 with 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 actuarial valuation was based on the provisions of SERS in effect as of June 30, 2017, data on the SERS membership and information on the asset value of the trust fund as of that date. The actuarial valuation was based upon information furnished by SERS staff concerning System benefits, financial transactions, and active members, terminated members, retirees and beneficiaries. We checked for internal and year-to-year consistency but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by SERS.

The actuarial valuation results summarized in this report involve actuarial calculations that require assumptions about future events. The actuarial assumptions used for the June 30, 2017, actuarial valuation are based on a full experience review for the four-year period ended June 30, 2013, and a modified experience review for the three-year period ended June 30, 2015. 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, 2015, through June 30, 2018, will be performed after the June 30, 2018, actuarial valuation with expected implementation of the recommended assumptions beginning with the June 30, 2019, actuarial valuation.

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.

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 or applicable law.

This report should not be relied on for any purpose other than the purpose stated.

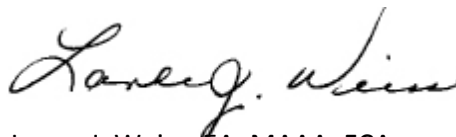
Alex Rivera and Lance J. Weiss are Members of the American Academy of Actuaries and are independent of the plan sponsor and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein.

Respectfully submitted,

**Gabriel, Roeder, Smith & Company**



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AR/LW:rg



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## SECTION A

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### SUMMARY OF ACTUARIAL VALUATION RESULTS

# Summary of the Actuarial Valuation Results

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## 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, 2017. 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, 2019.

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, 2017, actuarial valuation are based on a full experience review for the four-year period ended June 30, 2013, and a modified experience review for the three-year period ended June 30, 2015. 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 Valuation

### 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. The provisions of the Tier 3 plan are provided in Section F of this report.

# Summary of the Actuarial Valuation Results

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Public Act 99-0683, effective July 29, 2016, provides that each retirement system must implement a procedure to identify deceased annuitants. The procedure must include the requirement that the system check for deceased annuitants at least once per month and that the systems shall have access to the Illinois Department of Public Health vital records.

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. The actuarial assumptions used for the June 30, 2017, actuarial valuation are based on a full experience review for the four-year period ended June 30, 2013, and a modified experience review for the three-year period ended June 30, 2015, which became effective with the June 30, 2016, actuarial valuation. Under 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, 2015, through June 30, 2018, will be performed after the June 30, 2018, actuarial valuation with expected implementation of the recommended assumptions beginning with the June 30, 2019, actuarial valuation. There were no changes to the assumptions or methods since the actuarial valuation as of June 30, 2016.

## Tier 3 Participation Assumptions for Funding Projections

As of June 30, 2017, the System has approximately 350 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 population 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 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 60,612 members over the 28-year projection period. Currently, there are approximately 2,100 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 2,100 members. Future members of this group may elect to participate in either the Tier 2 or Tier 3 benefit plan. In order to evaluate the sensitivity of the Tier 3 participation assumption for future members not covered by Social Security and the effect this assumption could have on the State's fiscal year 2019 contribution rate, we performed alternate funding projections assuming 25 percent of future members not covered by Social Security would elect the Tier 3 plan. Based on this sensitivity projection, the State's fiscal year 2019 contribution rate is estimated to decrease by 0.0085 percent, as a percentage of projected capped payroll, or \$375,000, as a dollar amount. Given the low level of impact on the State's fiscal year 2019 contribution and the uncertainty of Tier 3 participation, we have assumed all future members not covered by Social Security would participate in Tier 2.

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

# 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

Actuarial Valuation Date:	June 30, 2017	June 30, 2016
Fiscal Year Ending:	June 30, 2019	June 30, 2018
<b>Estimated Statutory Contributions:</b>		
· Annual Amount	\$ 2,165,841,000	\$ 1,941,570,000
· Percentage of Projected Capped Payroll for Fiscal Year <sup>a</sup>	49.593%	45.424%
<b>Actuarially Determined Contribution<sup>b</sup> (ADC):</b>		
· Annual Amount	\$ 2,818,880,078	\$ 2,759,110,028
· Percentage of Projected Capped Payroll for Fiscal Year	64.546%	64.551%
<b>Membership</b>		
· Number of		
- Active Members	60,612	61,317
- Members Receiving Payments	71,805	70,031
- Members Eligible for Deferred Benefits	199	213
- Total	132,616	131,561
· Covered Payroll Provided by the System	\$ 4,195,777,563	\$ 4,284,362,301
· Projected Capped Payroll for Fiscal Year	\$ 4,367,232,137	\$ 4,274,325,431
· Annualized Benefit Payments	\$ 2,365,080,898	\$ 2,220,115,396
<b>Assets</b>		
· Market Value of Assets (MVA)	\$ 16,530,179,792	\$ 15,038,528,150
· Actuarial Value of Assets (AVA)	\$ 16,558,873,542	\$ 15,632,604,174
· Return on MVA	12.19%	-0.82%
· Return on AVA	8.06%	6.71%
· Ratio – AVA to MVA	100.17%	103.95%
<b>Actuarial Information</b>		
· Employer Normal Cost Amount	\$ 668,709,844	\$ 678,482,205
· Actuarial Accrued Liability (AAL)	\$ 46,701,348,277	\$ 45,515,370,479
· Unfunded Actuarial Accrued Liability (UAAL)	\$ 30,142,474,735	\$ 29,882,766,305
· Funded Ratio based on AVA	35.46%	34.35%
· UAAL as % of Covered Payroll Provided by the System	718.40%	697.48%
· Funded Ratio based on MVA	35.40%	33.04%

<sup>a</sup> Fiscal year 2018 statutory contribution rate of 45.424 percent, was recertified, pursuant to P.A. 100-0023. Statutory contribution rates are expressed as a percentage of capped payroll.

<sup>b</sup> 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, 2017, the remaining amortization period is 23 years. The ADC is used for financial reporting purposes only.



## **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**

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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 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. Provided on the following page is the development of the contribution rate phase-in schedule that applies to State contribution rates determined on and after fiscal year 2018.

## Phase-in Schedule of Contribution Rate Variances Due to Change in Actuarial Assumptions

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An experience review of the actuarial assumptions for the period from July 1, 2009, to June 30, 2013, was performed. As a result of this review, the Board approved actuarial assumption changes for use beginning with the June 30, 2014, actuarial valuation. The actuarial assumption changes included:

- A reduction in the investment return assumption from 7.75 percent to 7.25 percent;
- A reduction in the payroll growth assumption from 4.00 percent to 3.50 percent;
- The mortality table was updated from the RP-2000 Mortality table projected to 2015 to 105 percent of the RP-2014 Healthy Annuitant Mortality table for the post-retirement mortality.
- Lowered the salary increase assumption;
- Increased normal retirement rates;
- Increased turnover rates;
- Increased the load on the normal cost for disability from 1.00 percent of pay to 1.63 percent of pay; and
- Added a load of 15 percent to the liability attributable to inactive members eligible for deferred vested pension benefits.

The preceding actuarial assumption changes increased the fiscal year 2016 State contribution rate as a percentage of projected capped payroll from 38.830 percent to 43.880 percent or 5.050 percentage points. Based on the funding policy changes detailed in P.A. 100-0023, this increase in the State contribution rate would be phased-in over a five-year period beginning with fiscal year 2016. The State contribution rate for fiscal years 2016 and 2017 would remain unchanged. The State contribution rates for fiscal years on and after 2018 would be reduced by the portion of the five-year phase-in that is applicable to fiscal years on and after 2018. The increase in the State contribution rate would be phased-in according to the following schedule:

Fiscal Year	Portion Recognized	Portion to Subtract	Rate to Subtract from Statutory Contribution
2016	20%	80%	4.040%
2017	40%	60%	3.030%
<b>2018</b>	<b>60%</b>	<b>40%</b>	<b>2.020%</b>
<b>2019</b>	<b>80%</b>	<b>20%</b>	<b>1.010%</b>
<b>2020</b>	<b>100%</b>	<b>0%</b>	<b>0.000%</b>

At the Board's request, a modified experience review of a specific set of actuarial assumptions for the period from July 1, 2012, to June 30, 2015, was performed. As a result of this review, the Board approved actuarial assumption changes for use beginning with the June 30, 2016, actuarial valuation. These actuarial assumption changes included:

- A reduction in the investment return assumption from 7.25 percent to 7.00 percent;
- A reduction in the price inflation assumption from 3.00 percent to 2.75 percent;
- A reduction in the payroll growth assumption from 3.50 percent to 3.25 percent;
- The implementation of generational mortality improvement factors to reflect future mortality improvement;

## Phase-in Schedule of Contribution Rate Variances Due to Change in Actuarial Assumptions

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- Increased turnover rates for Tier 2 members; and
- Service increases due to unused sick leave and optional service purchases.

The preceding actuarial assumption changes increased the fiscal year 2018 State contribution rate as a percentage of projected capped payroll from 45.027 percent to 52.095 percent, or 7.068 percentage points. Based on the funding policy changes detailed in P.A. 100-0023, this increase in the State contribution rate would be phased-in over a five-year period beginning with fiscal year 2018. The increase in the State contribution rate would be phased-in according to the following schedule:

Fiscal Year	Portion Recognized	Portion to Subtract	Rate to Subtract from Statutory Contribution
2018	20%	80%	5.654%
2019	40%	60%	4.241%
2020	60%	40%	2.827%
2021	80%	20%	1.414%
2022	100%	0%	0.000%

The overall phase-in of State contribution rate increases due to actuarial assumption changes resulting from experience reviews for the periods from July 1, 2009, to June 30, 2013, and July 1, 2012, to June 30, 2015, would be phased-in according to the following schedule:

Fiscal Year	Portion Recognized	Portion to Subtract	Rate to Subtract from Statutory Contribution
2018	20%	80%	7.674%
2019	40%	60%	5.251%
2020	60%	40%	2.827%
2021	80%	20%	1.414%
2022	100%	0%	0.000%

As a result, the fiscal year 2018 State contribution rate was recertified from 52.095 percent to 45.424 percent, as a level percentage of capped payroll. Please note contribution rate phase-ins are applied prior to the phase-in of deferred investment gains and losses in the projected actuarial value of assets.

## Development of the Actuarial Value of Assets Based Upon the Market Value of Assets

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The following tables outline the reconciliation of the market value of assets and the development of the hypothetical asset value as of June 30, 2017. 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 6/30/2016	\$ 15,038,528,151
2. Actual State Contribution Amount	1,798,348,440
3. Employee Contribution Amount	251,610,974
4. Benefit Payouts & Refunds	(2,355,228,794)
5. Administrative Expenses	(15,957,439)
6. Investment Income	1,812,878,460
7. Market Value of Assets 6/30/2017	\$ 16,530,179,792
8. Expected Investment Return at 7.00%	1,041,644,184
9. Investment Gain/(Loss) Current Year	771,234,276
10. Deferred Investment Gains and (Losses) All Years	(28,693,750)
11. Actuarial Value of Assets 6/30/2017 (7. - 10.)	\$ 16,558,873,542

## Development of the Actuarial Value of Assets Based Upon the Hypothetical Value of Assets

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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 6/30/2016	\$ 13,619,614,484
2. State Contribution Amount <sup>a</sup>	1,896,524,117
3. Employee Contribution Amount	251,610,974
4. Benefit Payouts & Refunds	(2,355,228,794)
5. Administrative Expenses	(15,957,439)
6. Investment Income <sup>b</sup>	1,647,026,867
7. Hypothetical Value of Assets 6/30/2017	\$ 15,043,590,209
8. Expected Investment Return at 7.00%	945,698,261
9. Investment Gain/(Loss) Current Year	701,328,606
10. Deferred Investment Gains and (Losses) All Years	(23,935,386)
11. Hypothetical Actuarial Value of Assets 6/30/2017 (7. - 10.)	\$ 15,067,525,595

<sup>a</sup> Represents 45.201 percent of covered payroll provided by the System for the basic contribution. This rate was determined as part of the June 30, 2015, 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.

<sup>b</sup> Investment income assumes hypothetical value of assets earns the Fund's actual rate of return for fiscal year 2017 of 12.19 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 valuation report since the GOB proceeds were deposited into the trust.

## State Contribution Requirement for Fiscal Year 2019

The fiscal years ending June 30, 2018, and June 30, 2019, 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
2018	45.424%	1.918%	47.342%	\$4.274	\$1,941,570,000	\$2,023,551,000
2019	49.593%	2.021%	51.614%	4.367	2,165,841,000	2,254,103,000
2020	51.798%	2.107%	53.905%	4.462	2,311,172,000	2,405,184,000
2021	53.354%	2.181%	55.535%	4.560	2,432,793,000	2,532,241,000
2022	54.802%	2.244%	57.046%	4.658	2,552,453,000	2,656,969,000
2023	54.498%	2.296%	56.794%	4.757	2,592,606,000	2,701,832,000
2024	54.344%	2.409%	56.753%	4.860	2,641,154,000	2,758,233,000
2025	54.214%	2.504%	56.718%	4.965	2,691,883,000	2,816,214,000
2026	54.203%	2.513%	56.716%	5.077	2,752,112,000	2,879,708,000
2027	54.205%	2.512%	56.717%	5.195	2,815,851,000	2,946,345,000
2028	54.130%	2.566%	56.696%	5.318	2,878,743,000	3,015,208,000

For fiscal years 2019 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 2019 contribution rate is calculated assuming the actuarial value of assets as of July 1, 2017, 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 2018 through 2022 include smoothing of contribution rate variances due to changes in actuarial assumptions.

The contributions for fiscal years 2020 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 2018 through 2021 have been projected as though a valuation in each of those years was performed. At each projected valuation, an additional 20 percent of the investment gains and losses are recognized. The market value of assets at June 30, 2017, is assumed to have a rate of return equal to the valuation interest rate going forward. Therefore, the actuarial value of assets is calculated by adjusting the market value at each respective valuation date by the remaining percentage of the investment gains and losses. The actuarial value of assets converges to market value in 2021, 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

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The results are based on the projected unit credit actuarial cost method, the data provided and assumptions used for the June 30, 2017, actuarial valuation. In order to determine projected contribution rates and amounts, the following additional assumptions were used:

- Projected annualized payroll of \$4,274,300,000 for fiscal year 2018.
- Total employer contributions of \$1,941,570,000 (including no payments from the unclaimed property fund) for fiscal year 2018.
- Administrative expenses of \$18,159,507 for fiscal year 2018, as provided by the System.
- New entrants whose average age is 36.00 and average pay is \$49,681 (2017 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 60,612 for all years of the 28-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 new provisions established in P.A. 96-0889.

The average increase in total uncapped payroll for the 28-year projection period is approximately 3.25 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 1.375 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 2018 appropriation was converted to a percentage of the expected 2018 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 2018 will be 45.424 percent based on the recertification of the June 30, 2016, actuarial valuation report issued on October 21, 2016, and the re-certification letter issued on July 21, 2017.
- The contribution rates for fiscal years 2034 through 2045 will be a uniform percentage of capped payroll.

## Method of Calculation for Appropriation Requirements

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- The contribution rates for fiscal years 2018 through 2022 are reduced according to the phase-in schedule provided on page 6.

Finally, the certified FY 2019 contribution rate of 49.593 percent is applied to actual FY 2019 capped payroll.



## GASB: Financial Accounting Information

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In an effort to enhance the understandability and usefulness of the pension information that is included in the financial reports of pension plans for state and local governments, the Governmental Accounting Standards Board (“GASB”) issued Statement No. 25—Financial Reporting for Defined Benefit Pension Plans and Statement No. 27—Accounting for Pensions by State and Local Governmental Employers. Effective with fiscal year ending June 30, 2014, Statement No. 67—Financial Reporting for Pension Plans replaced Statement No. 25 for pension plan financial reporting requirements. Statement No. 68—Accounting and Financial Reporting for Pensions replaced Statement No. 27 for employer financial reporting effective with fiscal year ending June 30, 2015.

Pension plan financial reporting under GASB Statement Nos. 67 and No. 68 are provided in a separate report.

The term Annual Required Contribution (“ARC”) is no longer in the GASB Statements. However, under GASB Statements Nos. 67 and 68 the Actuarially Determined Contribution (“ADC”) is defined as:

*A target or recommended contribution to a defined benefit pension plan for the reporting period, determined in conformity with the Actuarial Standards of Practice based on the most recent measurement available when the contribution for the reporting period was adopted.*

The ADC is presented in the financial statements as Required Supplementary Information and is compared to actual contributions to the System that are calculated under the current statutory funding policy that provides a 90 percent funded ratio in 2045. The current funding policy may not conform to the Actuarial Standards of Practice; therefore, the Board has adopted a policy to calculate the ADC for financial reporting purposes. Under this policy, the ADC is calculated 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, 2015. The remaining amortization period as of the June 30, 2017, actuarial valuation is 23 years.

The ADC for fiscal years 2018 and 2019, as well as the statutory contribution for fiscal years 2018 and 2019, are shown on the following page as a percentage of capped payroll. The ADC percentage and statutory contribution for 2018 are based on the results of the June 30, 2016, actuarial valuation. The dollar amount of the ADC for 2018 and 2019 and the statutory contribution for 2018 and 2019 will be the product of the actual payroll for 2018 and 2019 and the percentages shown.

## GASB: Financial Accounting Information

Actuarial Valuation Date:	June 30, 2017	June 30, 2016
Actuarially Determined Contributions for Fiscal Year Ending:	June 30, 2019	June 30, 2018
1. Employer normal cost	\$ 668,709,844	\$ 678,482,205
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	<u>2,150,170,234</u>	<u>2,080,627,823</u>
3. ADC [(1) + (2)]	\$ 2,818,880,078	\$ 2,759,110,028
4. Projected capped payroll for fiscal year	\$ 4,367,232,137	\$ 4,274,325,431
5. ADC as a percentage of projected capped payroll	64.546%	64.551%
6. Estimated statutory contribution <sup>a</sup>	\$ 2,165,841,000	\$ 1,941,570,000
7. Estimated statutory contribution as a percentage of projected capped payroll	49.593%	45.424%
8. Estimated statutory contribution as a percentage of ADC [(6) / (3)]	76.833%	70.369%

<sup>a</sup>Fiscal year 2018 statutory contribution rate was recertified, pursuant to P.A. 100-0023.

The significant provisions of GASB Statement Nos. 67 and 68 include:

1. Recognizing the entire Net Pension Liability (similar to the Unfunded Actuarial Liability) on the balance sheet. The Net Pension Liability is comparable to the Net Pension Obligation which was recognized under GASB Statement No. 27.
2. Use of a single equivalent discount rate based on (1) 7.00 percent for the projected benefits for all current members that can be paid from current assets and projected investment return, future employee contributions from current members, and future employer contributions attributable to current members, and (2) a municipal bond rate for the portion of the projected benefits after assets are depleted. The applicable municipal bond rate for fiscal year end 2017 is 3.56 percent.
3. Use of market value of assets to calculate the Net Pension Liability.
4. Use of the entry age normal cost method to calculate the Total Pension Liability.
5. Elimination of the Annual Pension Cost and replacing it with the Pension Expense, which is determined using a much shorter amortization period than 30 years.

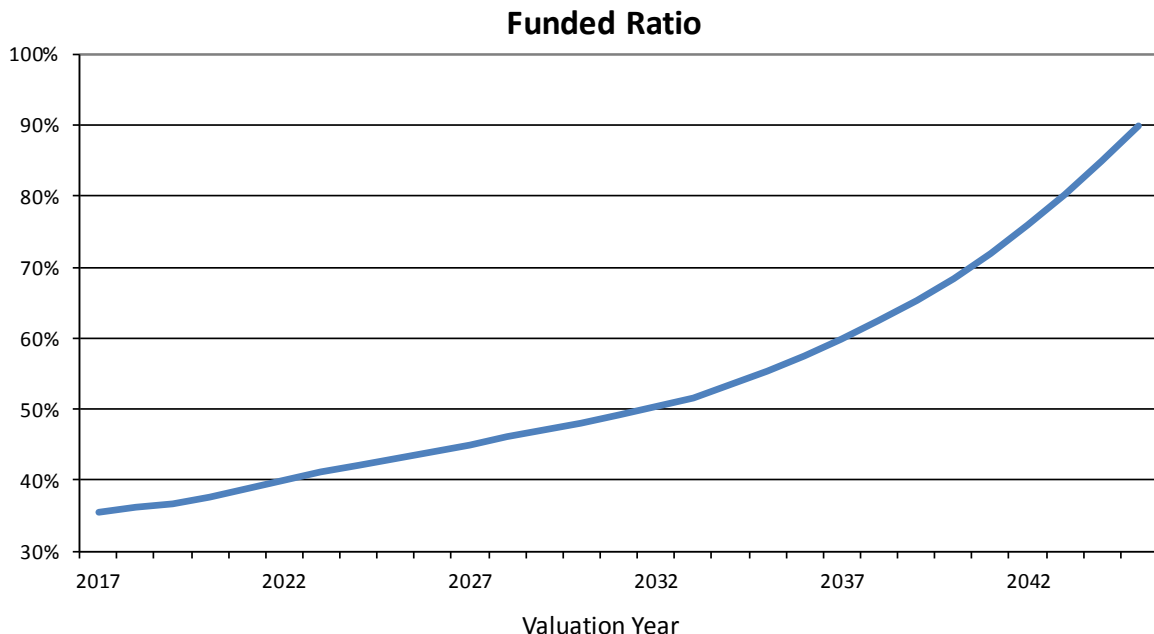
Due to the single equivalent discount rate and shorter amortization periods required under GASB Statements Nos. 67 and 68, the liabilities and pension expense will be higher and more volatile than under the prior standards. The measurements required under GASB Statement Nos. 67 and 68 are provided in a separate report.

## 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. 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. Under this policy, the ADC is calculated 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, 2015.

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.

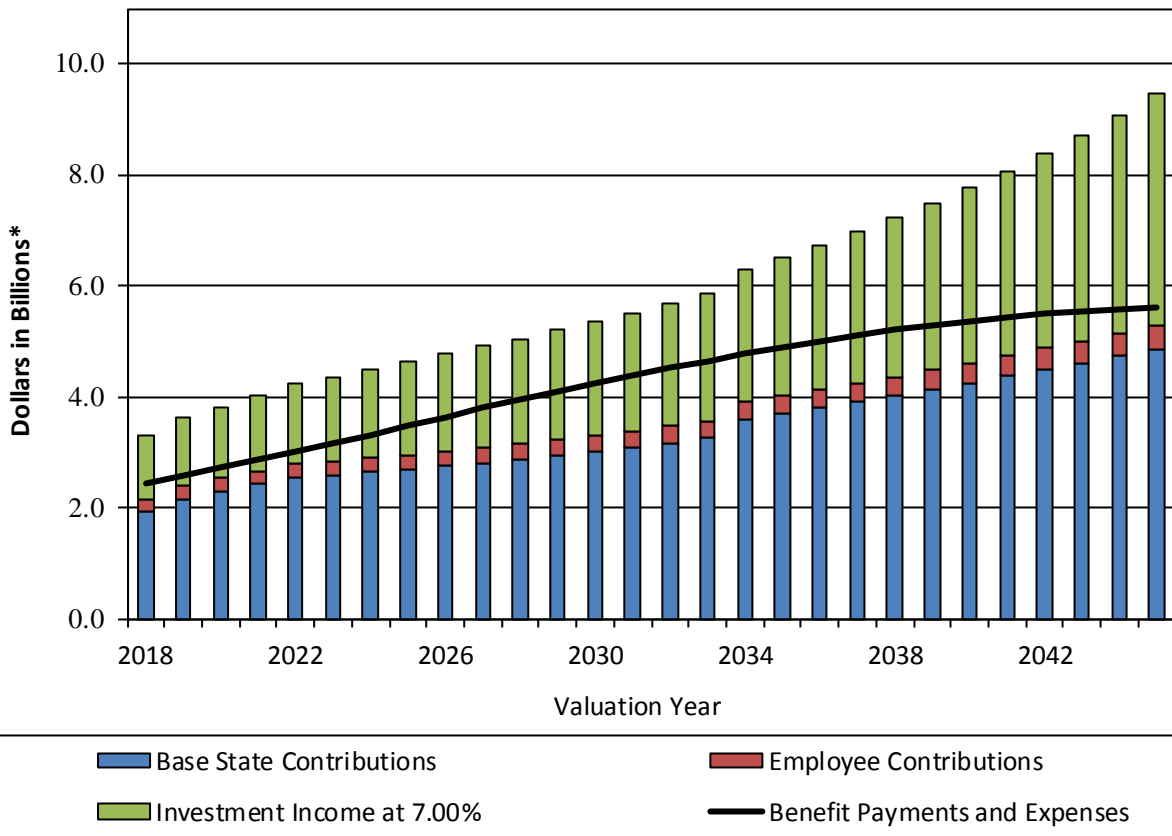
The statutory funding policy adopted for SERS provides for level percent of pay funding that produces a funding target of 90 percent by 2045, assuming an open group projection. The following graph shows the projected funded ratio. A key observation is that the funded ratio does not grow markedly until 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. Beginning in 2018, benefits exceed State and employee contributions. From 2018 to 2033, the percentage of investment income needed to pay ongoing benefits increases from approximately 25.2 percent to 47.0 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 36.0 percent in 2034 to 8.1 percent in 2045, which is projected to cause assets to grow at a faster rate.

**Comparison of Cash Flows**



*\*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 SERS funded ratio at June 30, 2017, is only 35 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:

## Observations on Actuarial Funding and Statutory Funding

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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.

In 2014, the Society of Actuaries Blue Ribbon Panel on Public Pension Plan Funding and the Conference of Consulting Actuaries Public Plans Community both issued reports on public plan funding. Some of the common elements in those reports are to:

1. Establish a Funding Policy using Actuarially Determined Contributions;
2. Target 100 percent funded; and
3. Shorten the amortization period to 15 to 20 years to avoid negative amortization of the unfunded actuarial accrued liability.

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.

## **SECTION B**

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### **FUNDING RESULTS**

## Table 1

### Results of Actuarial Valuation as of June 30, 2017

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1	Number of Members	
	a. Active	60,612
	b. Inactive:	
	i. Eligible for deferred vested pension benefits (3,638 based on SERS service alone. An additional 384 are eligible when reciprocal service is added to SERS service).	4,022
	ii. Eligible for return of contributions only	20,737
	c. Current Benefit Recipients:	
	i. Retirement annuities	58,453
	ii. Survivor annuities	11,186
	iii. Disability annuities	2,166
	d. Eligible for Deferred Benefits:	
	i. Retirement annuities	68
	ii. Survivor annuities	131
	e. Total	157,375
2	Covered Payroll Provided by System	\$ 4,195,777,563
3	Annualized Benefit Payments Currently Being Made	
	a. Retirement (Includes those eligible for deferred benefits)	\$ 2,158,918,457
	b. Survivor (Includes those eligible for deferred benefits)	149,735,629
	c. Disability	56,426,812
	d. Total	\$ 2,365,080,898
4	Actuarial Liability—Annuitants	
	a. Current Benefit Recipients:	
	i. Retirement annuities	\$ 29,728,687,173
	ii. Survivor annuities	1,639,922,359
	iii. Disability annuities	544,171,900
	b. Eligible for Deferred Benefits:	
	i. Retirement annuities	6,437,484
	ii. Survivor annuities	8,424,286
	c. Total	\$ 31,927,643,202

## Table 1 (continued)

### Results of Actuarial Valuation as of June 30, 2017

5	Actuarial Liability—Inactive Members		
	a. Eligible for Deferred Vested Pension Benefits	\$	637,058,197
	b. Eligible for Return of Contributions Only		41,810,656
	c. Total	\$	678,868,853
		Normal Cost	Actuarial Liability
6	Active Members		
	a. Pension Benefits	\$ 542,759,997	\$ 9,578,471,266
	b. Cost-of-Living Adjustments	213,754,707	4,050,470,262
	c. Death Benefits		
	i. Occupational	\$ 994,031	\$ 10,696,019
	ii. Non-occupational	7,457,284	97,528,410
	iii. Refund	8,492,094	29,218,099
	iv. Total	\$ 16,943,409	\$ 137,442,528
	d. Disability		
	i. Occupational	\$ 10,578,955	\$ -
	ii. Non-occupational	59,947,414	-
	iii. Total	\$ 70,526,369	\$ -
	e. Withdrawal	34,675,976	328,452,166
	f. Expenses	18,159,507	-
	g. Total	\$ 896,819,965	\$ 14,094,836,222
7	Total Actuarial Liability (4 + 5 + 6)		\$ 46,701,348,277
8	Market Value of Assets (MVA)		\$ 16,530,179,792
9	Unfunded Actuarial Liability Based on MVA (7 – 8)		\$ 30,171,168,485
10	Funded Percentage Based on MVA (8 ÷ 7) <sup>a</sup>		35.40%
11	Actuarial Value of Assets (AVA)		\$ 16,558,873,542
12	Unfunded Actuarial Liability Based on AVA (7 – 11)		\$ 30,142,474,735
13	Funded Percentage Based on AVA (11 ÷ 7) <sup>a</sup>		35.46%
14	Total Normal Cost	\$ 896,819,965	
15	Employee Contributions	\$ 228,110,121	
16	Annual Employer Normal Cost	\$ 668,709,844	
	(% covered payroll provided by the System)		15.94%

<sup>a</sup> 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

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In addition to the expected change in the unfunded accrued actuarial liability, changes in membership demographics and fund assets have affected the actuarial valuation results. The increase in the unfunded actuarial accrued liability (UAAL) of \$259,708,430 was due to the following:

1	UAAL at 06/30/2016	\$ 29,882,766,305
2	Contributions	
	a. Contributions due (Normal Cost plus Interest on UAAL)	
	i interest on 1)	\$ 2,091,793,641
	ii members contributions	251,610,974
	iii employer normal cost	678,482,205
	iv interest on ii and iii	32,002,686
	v total due	\$ 3,053,889,506
	b. Contributions paid (Actual)	
	i member contributions	\$ 251,610,974
	ii state agencies	1,798,348,440
	iii interest on i and ii	70,535,092
	iv total paid	\$ 2,120,494,506
	c. Expected increase in UAAL	\$ 933,395,000
3	Expected UAAL at 06/30/2017	\$ 30,816,161,305
4	(Gains)/Losses	
	a. investment income	\$ (164,266,681)
	b. salary increases	(475,475,873)
	c. demographic	(33,944,016)
	d. total	\$ (673,686,570)
5	Plan Provision Changes	\$ -
6	Assumption Changes	\$ -
7	Total Change in UAAL	\$ 259,708,430
8	UAAL at 06/30/2017	\$ 30,142,474,735

### Table 3

## Analysis of Financial Gains and Losses in Unfunded Accrued Actuarial Liability for Fiscal Year Ended June 30, 2017

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Activity	(Gain)/Loss	% of 06/30/2016 AAL
1 Actuarial (Gain)/Loss		
a. Retirements	\$ 65,405,320	0.15%
b. Incidence of Disability	(382,967)	0.00%
c. In-Service Mortality	(675,563)	0.00%
d. Retiree Mortality and Benefit Changes	(202,293,533)	-0.44%
e. Salary Increases	(475,475,873)	-1.04%
f. Terminations	2,895,832	0.01%
g. Investment	(164,266,681)	-0.36%
h. New Entrant Liability	61,156,785	0.13%
i. Other	39,950,110	0.09%
j. Total Actuarial (Gain)/Loss	\$ (673,686,570)	-1.46%
2 Plan Provision Changes	\$ -	0.00%
3 Assumption Changes	\$ -	0.00%
4 Contribution (Excess)/Shortfall <sup>a</sup>	\$ 933,395,000	2.05%
5 Total Financial (Gain)/Loss	\$ 259,708,430	0.59%

<sup>a</sup>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 GOP Proceeds**  
**Investment Return of 7.00% 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.	Normal Cost	Percent of Pay	Amount	Percent of Pay	
2018	60,612	\$ 48,354	\$ 15,938	\$ 32,416	32.96%	\$ 4,274	\$ 897	\$ 228	\$ 669	15.65%	\$ 2,058	48.15%	\$ 2,459
2019	60,612	49,990	16,978	33,012	33.96%	4,367	900	232	668	15.30%	2,286	52.35%	2,591
2020	60,612	51,600	18,117	33,483	35.11%	4,462	901	236	665	14.90%	2,443	54.75%	2,727
2021	60,612	53,177	19,316	33,861	36.32%	4,560	901	240	661	14.50%	2,562	56.19%	2,869
2022	60,612	54,710	20,576	34,134	37.61%	4,658	898	244	654	14.04%	2,682	57.59%	3,015
2023	60,612	56,187	21,830	34,357	38.85%	4,757	893	248	645	13.56%	2,740	57.59%	3,167
2024	60,612	57,598	23,076	34,522	40.06%	4,860	886	252	634	13.05%	2,799	57.59%	3,324
2025	60,612	58,934	24,309	34,625	41.25%	4,965	877	255	622	12.53%	2,860	57.59%	3,484
2026	60,612	60,190	25,537	34,653	42.43%	5,077	869	259	610	12.01%	2,924	57.59%	3,642
2027	60,612	61,363	26,760	34,603	43.61%	5,195	861	264	597	11.49%	2,992	57.59%	3,800
2028	60,612	62,461	27,996	34,465	44.82%	5,318	856	268	588	11.06%	3,063	57.59%	3,948
2029	60,612	63,481	29,251	34,230	46.08%	5,452	854	274	580	10.64%	3,140	57.59%	4,095
2030	60,612	64,424	30,535	33,889	47.40%	5,592	854	279	575	10.28%	3,221	57.59%	4,238
2031	60,612	65,291	31,859	33,432	48.80%	5,740	856	286	570	9.93%	3,306	57.59%	4,378
2032	60,612	66,078	33,234	32,844	50.30%	5,894	857	292	565	9.59%	3,394	57.59%	4,514

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 (continued)**  
**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 GOP Proceeds**  
**Investment Return of 7.00% 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	Employer			Amount	Percent of Pay	
								Employee Cont.	Normal Cost	Percent of Pay			
2033	60,612	\$ 66,788	\$ 34,671	\$ 32,117	51.91%	\$ 6,053	\$ 859	\$ 299	\$ 560	9.25%	\$ 3,486	57.59%	\$ 4,644
2034	60,612	67,425	36,188	31,237	53.67%	6,219	864	306	558	8.97%	3,582	57.59%	4,768
2035	60,612	67,990	37,801	30,189	55.60%	6,393	869	314	555	8.68%	3,682	57.59%	4,886
2036	60,612	68,482	39,522	28,960	57.71%	6,570	874	322	552	8.40%	3,784	57.59%	5,000
2037	60,612	68,909	41,374	27,535	60.04%	6,754	883	330	553	8.19%	3,890	57.59%	5,104
2038	60,612	69,279	43,381	25,898	62.62%	6,948	894	339	555	7.99%	4,001	57.59%	5,200
2039	60,612	69,600	45,567	24,033	65.47%	7,147	909	348	561	7.85%	4,116	57.59%	5,287
2040	60,612	69,882	47,959	21,923	68.63%	7,352	926	358	568	7.73%	4,234	57.59%	5,364
2041	60,612	70,135	50,583	19,552	72.12%	7,560	946	368	578	7.65%	4,354	57.59%	5,432
2042	60,612	70,368	53,465	16,903	75.98%	7,769	969	379	590	7.59%	4,474	57.59%	5,490
2043	60,612	70,593	56,634	13,959	80.23%	7,980	994	389	605	7.58%	4,596	57.59%	5,539
2044	60,612	70,818	60,120	10,698	84.89%	8,192	1,021	400	621	7.58%	4,718	57.59%	5,580
2045	60,612	71,053	63,951	7,102	90.00%	8,405	1,050	410	640	7.61%	4,840	57.59%	5,615

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 7.00% Each Year (\$ in Millions)**

Plan Year End 6/30	Number Active	Actuarial Accrued Liability	Assets	Unfunded Liability	Funded Ratio	Total Payroll	Annual Normal Cost			Required State Contribution							
							Total	Employer		(a) Without GOB		(b) Debt Service	(c)=(a)-(b) Maximum Cont.	(d) Formula Rate With GOB	Minimum of (c) and (d)		Total Expenses
								Employee Cont.	Normal Cost	Percent of Pay	Cont.	Cont.	Cont.	Cont.	Required Cont.	Percent of Pay	
2018	60,612	\$ 48,354	\$ 17,419	\$ 30,935	36.02%	\$ 4,274	\$ 897	\$ 228	\$ 669	15.65%	\$ 2,058	\$ 116	\$ 1,942	\$ 2,073	\$ 1,942	45.42%	\$ 2,459
2019	60,612	49,990	18,438	31,552	36.88%	4,367	900	232	668	15.30%	2,286	120	2,166	2,297	2,166	49.59%	2,591
2020	60,612	51,600	19,547	32,053	37.88%	4,462	901	236	665	14.90%	2,443	127	2,316	2,455	2,316	51.90%	2,727
2021	60,612	53,177	20,706	32,471	38.94%	4,560	901	240	661	14.50%	2,562	136	2,426	2,574	2,426	53.21%	2,869
2022	60,612	54,710	21,917	32,793	40.06%	4,658	898	244	654	14.04%	2,682	142	2,540	2,695	2,540	54.54%	3,015
2023	60,612	56,187	23,111	33,076	41.13%	4,757	893	248	645	13.56%	2,740	149	2,591	2,752	2,591	54.47%	3,167
2024	60,612	57,598	24,282	33,316	42.16%	4,860	886	252	634	13.05%	2,799	159	2,640	2,812	2,640	54.32%	3,324
2025	60,612	58,934	25,425	33,509	43.14%	4,965	877	255	622	12.53%	2,860	169	2,691	2,873	2,691	54.19%	3,484
2026	60,612	60,190	26,551	33,639	44.11%	5,077	869	259	610	12.01%	2,924	173	2,751	2,938	2,751	54.18%	3,642
2027	60,612	61,363	27,663	33,700	45.08%	5,195	861	264	597	11.49%	2,992	178	2,814	3,006	2,814	54.18%	3,800
2028	60,612	62,461	28,770	33,691	46.06%	5,318	856	268	588	11.06%	3,063	186	2,877	3,077	2,877	54.10%	3,948
2029	60,612	63,481	29,879	33,602	47.07%	5,452	854	274	580	10.64%	3,140	193	2,947	3,154	2,947	54.05%	4,095
2030	60,612	64,424	30,996	33,428	48.11%	5,592	854	279	575	10.28%	3,221	205	3,016	3,236	3,016	53.94%	4,238
2031	60,612	65,291	32,130	33,161	49.21%	5,740	856	286	570	9.93%	3,306	215	3,091	3,321	3,091	53.85%	4,378
2032	60,612	66,078	33,296	32,782	50.39%	5,894	857	292	565	9.59%	3,394	219	3,175	3,410	3,175	53.86%	4,514

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 (continued)**  
**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 7.00% Each Year (\$ in Millions)**

Plan Year End 6/30	Number Active	Actuarial Accrued Liability	Assets	Unfunded Liability	Funded Ratio	Total Payroll	Annual Normal Cost				Required State Contribution					Total Expenses	
							Total	Employer			(a) Without GOB Cont.	(b) Debt Service	(c)=(a)-(b) Maximum Cont.	(d) Formula Rate With GOB	Minimum of (c) and (d)		
								Employee Cont.	Normal Cost	Percent of Pay					Required Cont.		Percent of Pay
2033	60,612	\$ 66,788	\$ 34,512	\$ 32,276	51.67%	\$ 6,053	\$ 859	\$ 299	\$ 560	9.25%	\$ 3,486	\$ 219	\$ 3,267	\$ 3,502	\$ 3,267	53.97%	\$ 4,644
2034	60,612	67,425	36,035	31,390	53.44%	6,219	864	306	558	8.97%	3,582	-	N/A	3,598	3,598	57.86%	4,768
2035	60,612	67,990	37,654	30,336	55.38%	6,393	869	314	555	8.68%	3,682	-	N/A	3,699	3,699	57.86%	4,886
2036	60,612	68,482	39,384	29,098	57.51%	6,570	874	322	552	8.40%	3,784	-	N/A	3,802	3,802	57.86%	5,000
2037	60,612	68,909	41,244	27,665	59.85%	6,754	883	330	553	8.19%	3,890	-	N/A	3,908	3,908	57.86%	5,104
2038	60,612	69,279	43,262	26,017	62.45%	6,948	894	339	555	7.99%	4,001	-	N/A	4,020	4,020	57.86%	5,200
2039	60,612	69,600	45,459	24,141	65.31%	7,147	909	348	561	7.85%	4,116	-	N/A	4,135	4,135	57.86%	5,287
2040	60,612	69,882	47,864	22,018	68.49%	7,352	926	358	568	7.73%	4,234	-	N/A	4,254	4,254	57.86%	5,364
2041	60,612	70,135	50,502	19,633	72.01%	7,560	946	368	578	7.65%	4,354	-	N/A	4,374	4,374	57.86%	5,432
2042	60,612	70,368	53,400	16,968	75.89%	7,769	969	379	590	7.59%	4,474	-	N/A	4,495	4,495	57.86%	5,490
2043	60,612	70,593	56,586	14,007	80.16%	7,980	994	389	605	7.58%	4,596	-	N/A	4,617	4,617	57.86%	5,539
2044	60,612	70,818	60,092	10,726	84.85%	8,192	1,021	400	621	7.58%	4,718	-	N/A	4,740	4,740	57.86%	5,580
2045	60,612	71,053	63,944	7,109	90.00%	8,405	1,050	410	640	7.61%	4,840	-	N/A	4,863	4,863	57.86%	5,615

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 7.00% 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
							Employer			Total	Amount	Percent of Pay	
							Employee Cont.	Normal Cost	Percent of Pay				
2018	60,612	\$ 48,354	\$ 16,002	\$ 32,352	33.09%	\$ 4,274	\$ 897	\$ 228	\$ 669	15.65%	\$ 2,058	48.15%	\$ 2,459
2019	60,612	49,990	16,892	33,098	33.79%	4,367	900	232	668	15.30%	2,286	52.35%	2,591
2020	60,612	51,600	17,943	33,657	34.77%	4,462	901	236	665	14.90%	2,439	54.66%	2,727
2021	60,612	53,177	19,286	33,891	36.27%	4,560	901	240	661	14.50%	2,568	56.32%	2,869
2022	60,612	54,710	20,557	34,153	37.57%	4,658	898	244	654	14.04%	2,694	57.84%	3,015
2023	60,612	56,187	21,811	34,376	38.82%	4,757	893	248	645	13.56%	2,741	57.62%	3,167
2024	60,612	57,598	23,056	34,542	40.03%	4,860	886	252	634	13.05%	2,800	57.62%	3,324
2025	60,612	58,934	24,290	34,644	41.22%	4,965	877	255	622	12.53%	2,861	57.62%	3,484
2026	60,612	60,190	25,518	34,672	42.40%	5,077	869	259	610	12.01%	2,925	57.62%	3,642
2027	60,612	61,363	26,741	34,622	43.58%	5,195	861	264	597	11.49%	2,993	57.62%	3,800
2028	60,612	62,461	27,977	34,484	44.79%	5,318	856	268	588	11.06%	3,064	57.62%	3,948
2029	60,612	63,481	29,232	34,249	46.05%	5,452	854	274	580	10.64%	3,141	57.62%	4,095
2030	60,612	64,424	30,516	33,908	47.37%	5,592	854	279	575	10.28%	3,222	57.62%	4,238
2031	60,612	65,291	31,841	33,450	48.77%	5,740	856	286	570	9.93%	3,308	57.62%	4,378
2032	60,612	66,078	33,216	32,862	50.27%	5,894	857	292	565	9.59%	3,396	57.62%	4,514

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 (continued)**  
**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 7.00% 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
							Employer			Total	Amount	Percent of Pay	
							Employee Cont.	Normal Cost	Percent of Pay				
2033	60,612	\$ 66,788	\$ 34,654	\$ 32,134	51.89%	\$ 6,053	\$ 859	\$ 299	\$ 560	9.25%	\$ 3,488	57.62%	\$ 4,644
2034	60,612	67,425	36,172	31,253	53.65%	6,219	864	306	558	8.97%	3,583	57.62%	4,768
2035	60,612	67,990	37,785	30,205	55.57%	6,393	869	314	555	8.68%	3,683	57.62%	4,886
2036	60,612	68,482	39,507	28,975	57.69%	6,570	874	322	552	8.40%	3,786	57.62%	5,000
2037	60,612	68,909	41,359	27,550	60.02%	6,754	883	330	553	8.19%	3,892	57.62%	5,104
2038	60,612	69,279	43,368	25,911	62.60%	6,948	894	339	555	7.99%	4,003	57.62%	5,200
2039	60,612	69,600	45,555	24,045	65.45%	7,147	909	348	561	7.85%	4,118	57.62%	5,287
2040	60,612	69,882	47,948	21,934	68.61%	7,352	926	358	568	7.73%	4,236	57.62%	5,364
2041	60,612	70,135	50,573	19,562	72.11%	7,560	946	368	578	7.65%	4,356	57.62%	5,432
2042	60,612	70,368	53,457	16,911	75.97%	7,769	969	379	590	7.59%	4,476	57.62%	5,490
2043	60,612	70,593	56,628	13,965	80.22%	7,980	994	389	605	7.58%	4,598	57.62%	5,539
2044	60,612	70,818	60,115	10,703	84.89%	8,192	1,021	400	621	7.58%	4,720	57.62%	5,580
2045	60,612	71,053	63,949	7,104	90.00%	8,405	1,050	410	640	7.61%	4,843	57.62%	5,615

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 7.00% Each Year**  
**Phase-In of Deferred Investment Gains and Losses Recognized in the**  
**Projected Actuarial Value of Assets (\$ in Millions)**

Plan Year End 6/30	Actuarial Number Active	Actuarial Accrued Liability	Annual Normal Cost				Required State Contribution										
			Unfunded Assets	Funded Liability	Funded Ratio	Total Payroll	(a) Without GOB Cont.	(b) Debt Service	(c)=(a)-(b) Maximum Cont.	(d) Formula Rate With GOB	Minimum of (c) and (d) Required Cont.	Percent of Pay	Total Expenses				
2018	60,612	\$ 48,354	\$ 17,492	\$ 30,862	36.17%	\$ 4,274	\$ 897	\$ 228	\$ 669	15.65%	\$ 2,058	\$ 116	\$ 1,942	\$ 2,073	\$ 1,942	45.42%	\$ 2,459
2019	60,612	49,990	18,343	31,647	36.69%	4,367	900	232	668	15.30%	2,286	120	2,166	2,297	2,166	49.59%	2,591
2020	60,612	51,600	19,353	32,247	37.51%	4,462	901	236	665	14.90%	2,439	128	2,311	2,449	2,311	51.80%	2,727
2021	60,612	53,177	20,670	32,507	38.87%	4,560	901	240	661	14.50%	2,568	135	2,433	2,582	2,433	53.35%	2,869
2022	60,612	54,710	21,891	32,819	40.01%	4,658	898	244	654	14.04%	2,694	142	2,552	2,711	2,552	54.80%	3,015
2023	60,612	56,187	23,085	33,102	41.09%	4,757	893	248	645	13.56%	2,741	148	2,593	2,755	2,593	54.50%	3,167
2024	60,612	57,598	24,255	33,343	42.11%	4,860	886	252	634	13.05%	2,800	159	2,641	2,815	2,641	54.34%	3,324
2025	60,612	58,934	25,398	33,536	43.10%	4,965	877	255	622	12.53%	2,861	169	2,692	2,876	2,692	54.21%	3,484
2026	60,612	60,190	26,524	33,666	44.07%	5,077	869	259	610	12.01%	2,925	173	2,752	2,941	2,752	54.20%	3,642
2027	60,612	61,363	27,635	33,728	45.04%	5,195	861	264	597	11.49%	2,993	177	2,816	3,009	2,816	54.20%	3,800
2028	60,612	62,461	28,741	33,720	46.01%	5,318	856	268	588	11.06%	3,064	185	2,879	3,080	2,879	54.13%	3,948
2029	60,612	63,481	29,850	33,631	47.02%	5,452	854	274	580	10.64%	3,141	193	2,948	3,158	2,948	54.08%	4,095
2030	60,612	64,424	30,966	33,458	48.07%	5,592	854	279	575	10.28%	3,222	204	3,018	3,239	3,018	53.96%	4,238
2031	60,612	65,291	32,100	33,191	49.16%	5,740	856	286	570	9.93%	3,308	215	3,093	3,325	3,093	53.87%	4,378
2032	60,612	66,078	33,266	32,812	50.34%	5,894	857	292	565	9.59%	3,396	220	3,176	3,414	3,176	53.89%	4,514

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 (continued)**  
**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 7.00% Each Year**  
**Phase-In of Deferred Investment Gains and Losses Recognized in the  
Projected Actuarial Value of Assets (\$ in Millions)**

Plan Year End 6/30	Number Active	Actuarial Accrued Liability	Actuarial				Annual Normal Cost					Required State Contribution					Total Expenses
			Assets	Unfunded Liability	Funded Ratio	Total Payroll	Employer			(a) Without GOB Cont.	(b) Debt Service	(c)=(a)-(b) Maximum Cont.	(d) Formula Rate With GOB	Minimum of (c) and (d)			
							Employee Cont.	Normal Cost	Percent of Pay					Required Cont.	Percent of Pay		
2033	60,612	\$ 66,788	\$ 34,480	\$ 32,308	51.63%	\$ 6,053	\$ 859	\$ 299	\$ 560	9.25%	\$ 3,488	\$ 219	\$ 3,269	\$ 3,505	\$ 3,269	54.00%	\$ 4,644
2034	60,612	67,425	36,005	31,420	53.40%	6,219	864	306	558	8.97%	3,583	-	N/A	3,602	3,602	57.91%	4,768
2035	60,612	67,990	37,626	30,364	55.34%	6,393	869	314	555	8.68%	3,683	-	N/A	3,702	3,702	57.91%	4,886
2036	60,612	68,482	39,357	29,125	57.47%	6,570	874	322	552	8.40%	3,786	-	N/A	3,805	3,805	57.91%	5,000
2037	60,612	68,909	41,220	27,689	59.82%	6,754	883	330	553	8.19%	3,892	-	N/A	3,912	3,912	57.91%	5,104
2038	60,612	69,279	43,240	26,039	62.41%	6,948	894	339	555	7.99%	4,003	-	N/A	4,024	4,024	57.91%	5,200
2039	60,612	69,600	45,440	24,160	65.29%	7,147	909	348	561	7.85%	4,118	-	N/A	4,139	4,139	57.91%	5,287
2040	60,612	69,882	47,848	22,034	68.47%	7,352	926	358	568	7.73%	4,236	-	N/A	4,258	4,258	57.91%	5,364
2041	60,612	70,135	50,489	19,646	71.99%	7,560	946	368	578	7.65%	4,356	-	N/A	4,378	4,378	57.91%	5,432
2042	60,612	70,368	53,390	16,978	75.87%	7,769	969	379	590	7.59%	4,476	-	N/A	4,499	4,499	57.91%	5,490
2043	60,612	70,593	56,581	14,012	80.15%	7,980	994	389	605	7.58%	4,598	-	N/A	4,621	4,621	57.91%	5,539
2044	60,612	70,818	60,090	10,728	84.85%	8,192	1,021	400	621	7.58%	4,720	-	N/A	4,745	4,745	57.91%	5,580
2045	60,612	71,053	63,948	7,105	90.00%	8,405	1,050	410	640	7.61%	4,843	-	N/A	4,868	4,868	57.91%	5,615

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

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### FUND ASSETS

**Table 5**  
**Statement of Fiduciary Net Position**  
**for Years Ended June 30, 2017, and 2016**

	2017	2016
<b>Assets</b>		
Cash	\$ <u>227,542,784</u>	\$ <u>300,328,830</u>
Receivables:		
Contributions:		
Participants	\$ 12,374,224	\$ 11,893,976
Employing state agencies	71,478,289	70,171,117
Other accounts	<u>5,256,241</u>	<u>4,477,002</u>
	<u>\$ 89,108,754</u>	<u>\$ 86,542,095</u>
Investments - held in the Illinois State Board of Investment Commingled Fund at fair value	\$ 16,322,605,337	\$ 14,741,054,633
Securities lending collateral with State Treasurer	<u>63,393,000</u>	<u>64,256,000</u>
Capital Assets, net of accumulated depreciation	<u>\$ 7,701,569</u>	<u>\$ 6,938,949</u>
Total Assets	\$ 16,710,351,444	\$ 15,199,120,507
<b>Liabilities</b>		
Benefits payable	\$ 7,036,045	\$ 6,441,515
Refunds payable	1,465,371	1,141,622
Administrative expenses payable	1,389,540	1,768,589
Participants' deferred service credit accounts	418,106	316,145
Due to State of Illinois	106,469,590	86,668,485
Securities lending collateral with State Treasurer	<u>63,393,000</u>	<u>64,256,000</u>
Total Liabilities	<u>\$ 180,171,652</u>	<u>\$ 160,592,356</u>
Net assets held in trust for pension benefits	<u>\$ 16,530,179,792</u>	<u>\$ 15,038,528,151</u>

## Table 6

### Statement of Changes in Fiduciary Net Position for Years Ended June 30, 2017, and 2016

	2017	2016
Additions:		
Contributions:		
Participants	\$ 251,610,974	\$ 256,198,172
Employing state agencies and appropriations	1,798,348,440	1,882,243,268
Total Contributions revenue	\$ 2,049,959,414	\$ 2,138,441,440
Investments income:		
Net investments income	\$ 369,047,950	\$ 410,795,035
Interest earned on cash balances	1,327,756	756,489
Net appreciation in fair value of investments	1,442,502,754	(536,994,455)
Total Investments income	\$ 1,812,878,460	\$ (125,442,931)
Total Additions	\$ 3,862,837,874	\$ 2,012,998,509
Deductions:		
Benefits:		
Retirement annuities	\$ 2,111,021,041	\$ 1,977,598,561
Survivors' annuities	136,359,106	128,689,627
Disability benefits	64,167,865	64,057,780
Lump-sum benefits	17,072,771	20,155,235
Total Benefits	\$ 2,328,620,783	\$ 2,190,501,203
Refunds	26,608,011	26,708,730
Administrative	15,957,439	16,126,997
Total Deductions	\$ 2,371,186,233	\$ 2,233,336,930
Net increase	\$ 1,491,651,641	\$ (220,338,421)
Net assets held in trust for pension benefits:		
Beginning of year	\$ 15,038,528,151	\$ 15,258,866,572
End of year	\$ 16,530,179,792	\$ 15,038,528,151

## Table 7

### Development of the Actuarial Value of Assets — Actual Assets

Year Ending June 30	2017	2018	2019	2020	2021
Beginning of Year:					
(1) Market Value of Assets	\$ 15,038,528,151				
(2) Actuarial Value of Assets	15,632,604,174				
End of Year:					
(3) Market Value of Assets	16,530,179,792				
(4) Contributions and Disbursements					
(4a) Actual State Contribution Amount	1,798,348,440				
(4b) Employee Contribution Amount	251,610,974				
(4c) Benefit Payouts & Refunds	(2,355,228,794)				
(4d) Administrative Expenses	(15,957,439)				
(4e) Net of Contributions and Disbursements	(321,226,819)				
(5) Total Investment Income					
=(3)-(1)-(4e)	1,812,878,460				
(6) Projected Rate of Return	7.00%				
(7) Projected Investment Income					
=(1)x(6)+[(1+(6)) <sup>5</sup> -1]x(4e)	1,041,644,184				
(8) Investment Income in Excess of Projected Income	771,234,276				
(9) Excess Investment Income Recognized					
This Year (5-year recognition)					
(9a) From This Year	\$ 154,246,855				
(9b) From One Year Ago	(245,666,197)	\$ 154,246,855			
(9c) From Two Years Ago	(75,128,261)	(245,666,197)	\$ 154,246,855		
(9d) From Three Years Ago	241,573,942	(75,128,261)	(245,666,197)	\$ 154,246,855	
(9e) From Four Years Ago	130,825,664	241,573,941	(75,128,261)	(245,666,196)	\$ 154,246,856
(9f) Total Recognized Investment Gain	205,852,003	75,026,338	(166,547,603)	(91,419,341)	154,246,856
(10) Change in Actuarial Value of Assets					
=(4e)+(7)+(9f)	\$ 926,269,368				
End of Year:					
<b>(3) Market Value of Assets</b>	<b>\$ 16,530,179,792</b>				
<b>(11) Actuarial Value of Assets</b>					
=(2)+(10)	<b>\$ 16,558,873,542</b>				

## Table 8

### Development of the Actuarial Value of Assets — Hypothetical Assets

Year Ending June 30	2017	2018	2019	2020	2021
Beginning of Year:					
(1) Hypothetical Value of Assets	\$ 13,619,614,484				
(2) Hypothetical Actuarial Value of Assets	14,163,753,688				
End of Year:					
(3) Hypothetical Value of Assets	15,043,590,209				
(4) Contributions and Disbursements					
(4a) State Contribution Amount <sup>a</sup>	1,896,524,117				
(4b) Employee Contribution Amount	251,610,974				
(4c) Benefit Payouts & Refunds	(2,355,228,794)				
(4d) Administrative Expenses	(15,957,439)				
(4e) Net of Contributions and Disbursements	(223,051,142)				
(5) Total Investment Income <sup>b</sup>					
=(3)-(1)-(4e)	1,647,026,867				
(6) Projected Rate of Return					
	7.00%				
(7) Projected Investment Income					
=(1)x(6)+([1+(6)] <sup>5</sup> -1)x(4e)	945,698,261				
(8) Investment Income in Excess of Projected Income					
	701,328,606				
(9) Excess Investment Income Recognized					
This Year (5-year recognition)					
(9a) From This Year	\$ 140,265,721				
(9b) From One Year Ago	(221,614,287)	\$ 140,265,721			
(9c) From Two Years Ago	(67,410,944)	(221,614,287)	\$ 140,265,721		
(9d) From Three Years Ago	214,666,481	(67,410,944)	(221,614,287)	\$ 140,265,721	
(9e) From Four Years Ago	115,217,817	214,666,479	(67,410,944)	(221,614,288)	\$ 140,265,722
(9f) Total Recognized Investment Gain	181,124,788	65,906,969	(148,759,510)	(81,348,567)	140,265,722
(10) Change in Hypothetical Actuarial Value of Assets					
=(4e)+(7)+(9f)	\$ 903,771,907				
End of Year:					
<b>(3) Hypothetical Market Value of Assets</b>	<b>\$ 15,043,590,209</b>				
<b>(11) Hypothetical Actuarial Value of Assets</b>					
= <b>(2)+(10)</b>	<b>\$ 15,067,525,595</b>				

<sup>a</sup> Represents 45.201 percent of payroll for the basic contribution. This rate was determined as part of the June 30, 2015, 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.

<sup>b</sup> Investment income assumes hypothetical value of assets earns the Fund's actual rate of return for fiscal year 2017 of 12.19 percent.

## SECTION D

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### **PARTICIPANT DATA**



**Table 9**  
**Active Age and Service Distribution as of June 30, 2017**

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	113	12									125	
20-24	530	739	7								1,276	2%
25-29	478	3,058	622	8							4,166	7%
30-34	350	2,954	1,929	380	13						5,626	9%
35-39	299	2,094	1,515	1,258	940	20					6,126	10%
40-44	307	1,687	1,163	1,014	2,424	680	13				7,288	12%
45-49	432	1,543	1,116	1,022	2,339	2,099	1,024	52			9,627	16%
50-54	470	1,263	915	904	1,675	1,606	1,826	868	38		9,565	16%
55-59	357	973	767	888	1,599	1,145	1,275	902	441		8,347	14%
60-64	240	583	630	606	1,038	677	628	472	550		5,424	9%
65-69	152	177	280	306	465	216	205	134	214		2,149	4%
70 & Over	63	71	87	111	189	103	97	60	112		893	1%
<b>Total</b>	<b>3,791</b>	<b>15,154</b>	<b>9,031</b>	<b>6,497</b>	<b>10,682</b>	<b>6,546</b>	<b>5,068</b>	<b>2,488</b>	<b>1,355</b>		<b>60,612</b>	<b>100%</b>
<b>Percentage of Total</b>	<b>6%</b>	<b>25%</b>	<b>15%</b>	<b>11%</b>	<b>18%</b>	<b>11%</b>	<b>8%</b>	<b>4%</b>	<b>2%</b>		<b>100%</b>	

**Table 10**  
**Retirees and Beneficiaries by Type of Benefit Being Paid as of June 30, 2017**

<u>Type of Benefit Being Paid</u>	<u>Count</u>	<u>Monthly Payment</u>	<u>Annual Payment</u>	<u>Average Annual Payment</u>
Retirement Annuity	58,453	\$ 179,879,036.49	\$ 2,158,548,437.88	\$ 36,927.93
Survivors	10,291	11,326,957.12	135,923,485.44	13,208.00
Widows	40	44,218.45	530,621.40	13,265.54
Occupational Death	51	63,063.68	756,764.16	14,838.51
QILDRO	782	967,830.91	11,613,970.92	14,851.63
Reversionary Annuity	22	54,047.01	648,564.12	29,480.19
Non-Occupational Disability	1,146	2,496,655.54	29,959,866.48	26,142.99
Occupational Disability	613	1,723,664.26	20,683,971.12	33,742.20
Temporary Disability	315	270,790.22	3,249,482.64	10,315.82
Total Temporary Disability - Occupational	92	211,124.31	2,533,491.72	27,537.95
Eligible for Deferred Retirement Annuity	68	30,834.92	370,019.04	5,441.46
Eligible for Deferred Survivor Annuity	131	21,851.92	262,223.04	2,001.70
<b>Total</b>	<b>72,004</b>	<b>\$ 197,090,074.83</b>	<b>\$ 2,365,080,897.96</b>	<b>\$ 32,846.52</b>

## **SECTION E**

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### **ACTUARIAL METHODS AND ASSUMPTIONS**

# Actuarial Methods and Assumptions (Adopted Effective with the June 30, 2016, Actuarial Valuation)

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## 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.

## Actuarial Assumptions Adopted June 30, 2016

Actuarial assumptions are set by the Board of Trustees. The actuarial assumptions used for the June 30, 2017, actuarial valuation are based on a full experience review for the four-year period ended June 30, 2013, and a modified experience review for the three-year period ended June 30, 2015. All actuarial assumptions are expectations of future experience, not market measures.

### Mortality

#### *Post-Retirement Mortality*

105 percent of the RP-2014 Healthy Annuitant mortality tables, sex distinct, with generational mortality improvements using the MP-2014 two-dimensional mortality improvement scales recently released by the Society of Actuaries. This assumption provides a margin for future mortality improvements. No adjustment is made for post-disabled mortality.

#### *Pre-Retirement Mortality, including terminated vested members prior to attaining age 50*

Based on a percentage of 75 percent for males and 90 percent for females of the RP-2014 Total Employee mortality table with generational mortality improvements using the MP-2014 two-dimensional mortality improvement scales, to reflect that experience shows active members having lower mortality rates than retirees of the same age. Five percent of deaths among active employees are assumed to be in the performance of their duty.

# Actuarial Methods and Assumptions (Adopted Effective with the June 30, 2016, Actuarial Valuation)

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## Interest

7.00 percent per annum, compounded annually, net of investment expenses.

## General Inflation

2.75 percent per annum, 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.

# Actuarial Methods and Assumptions (Adopted Effective with the June 30, 2016, Actuarial Valuation)

## Termination

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

Service Based Withdrawal				
Service (Beginning of Year)	Regular Formula Employees		Alternate Formula Employees	
	Males	Females	Males	Females
0	0.2300	0.2300	0.0325	0.0600
1	0.1200	0.1200	0.0325	0.0450
2	0.0950	0.0850	0.0325	0.0450
3	0.0700	0.0650	0.0200	0.0400
4	0.0625	0.0500	0.0175	0.0300
5	0.0425	0.0475	0.0175	0.0300
6	0.0425	0.0350	0.0175	0.0300
7	0.0350	0.0350	0.0175	0.0200
8	0.0300	0.0300	0.0150	0.0200
9	0.0250	0.0250	0.0150	0.0200
10	0.0250	0.0250	0.0150	0.0200
11	0.0200	0.0200	0.0125	0.0175
12	0.0200	0.0200	0.0125	0.0175
13	0.0200	0.0200	0.0100	0.0150
14	0.0150	0.0150	0.0100	0.0150
15	0.0150	0.0150	0.0100	0.0150
16	0.0150	0.0150	0.0100	0.0150
17	0.0150	0.0150	0.0100	0.0150
18	0.0150	0.0150	0.0100	0.0150
19	0.0150	0.0150	0.0100	0.0150
20	0.0150	0.0100	0.0100	0.0150
21	0.0150	0.0100	0.0100	0.0150
22	0.0150	0.0100	0.0100	0.0150
23	0.0150	0.0100	0.0100	0.0150
24	0.0150	0.0100	0.0100	0.0150
25	0.0150	0.0100	0.0100	0.0150
26	0.0150	0.0100	0.0100	0.0150
27	0.0150	0.0100	0.0100	0.0150
28	0.0150	0.0100	0.0100	0.0150
29	0.0150	0.0100	0.0100	0.0150
30+	0.0150	0.0100	0.0100	0.0150

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.

# Actuarial Methods and Assumptions (Adopted Effective with the June 30, 2016, Actuarial Valuation)

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## Salary Increases

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

Age	Annual Increase
25	7.67%
30	6.20%
35	5.30%
40	4.97%
45	4.58%
50	4.26%
55	4.05%
60	3.85%
65	3.47%
70	3.25%

The underlying salary increase assumption is based on a wage inflation assumption of 3.25 percent per annum, comprised of 2.75 percent for general inflation plus 0.50 percent for general merit and productivity increases.

## 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.

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

No explicit assumption is made with respect to these items.

# Actuarial Methods and Assumptions (Adopted Effective with the June 30, 2016, 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 valuation date. The average increase in uncapped payroll for the projection period is 3.25 percent per annum. 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	127	3,689,235			45	1,935,776	21	922,019					193	6,547,030
20-24	2,245	84,748,730	11	447,475	1,270	57,075,976	515	23,574,332	283	18,099,737	8	251,731	4,332	184,197,981
25-29	3,838	167,243,099	25	1,316,902	1,484	69,064,094	618	30,454,069	401	27,027,961	4	129,633	6,370	295,235,758
30-34	3,426	163,599,516	15	829,969	823	41,202,801	463	24,726,638	162	11,337,316	1	31,700	4,890	241,727,940
35-39	2,889	147,564,363	5	243,430	534	28,137,736	371	21,060,414	76	5,308,156	1	57,781	3,876	202,371,880
40-44	2,871	150,399,683	7	386,900	455	25,430,203	287	16,766,146	29	2,017,509			3,649	195,000,441
45-49	2,440	129,147,007	7	402,600	366	20,503,602	219	13,573,027	10	579,126			3,042	164,205,362
50-54	2,006	108,580,572	3	189,630	199	11,752,451	118	7,248,390	10	774,541			2,336	128,545,584
55-59	1,237	64,223,979	5	352,761	131	7,822,880	59	3,362,341	11	840,939			1,443	76,602,900
60-64	456	23,870,203			37	2,331,415	13	1,051,592	3	259,022			509	27,512,232
65-69	28	1,634,927			4	227,177							32	1,862,104
70 & Over														
<b>Total</b>	<b>21,563</b>	<b>\$ 1,044,701,314</b>	<b>78</b>	<b>\$ 4,169,667</b>	<b>5,348</b>	<b>\$ 265,484,111</b>	<b>2,684</b>	<b>\$ 142,738,968</b>	<b>985</b>	<b>\$ 66,244,307</b>	<b>14</b>	<b>\$ 470,845</b>	<b>30,672</b>	<b>\$ 1,523,809,212</b>
Avg. Salary		\$ 48,449		\$ 53,457		\$ 49,642		\$ 53,181		\$ 67,253		\$ 33,632		\$ 49,681
Avg. Age		37.65		33.95		32.09		33.30		28.62		24.84		36.00
Percent Male		43%		91%		77%		71%		89%		100%		53%



# Actuarial Methods and Assumptions (Adopted Effective with the June 30, 2016, Actuarial Valuation)

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## Retirement

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%	25.00%
51	15.00%	25.00%
52	25.00%	30.00%
53	25.00%	25.00%
54	20.00%	20.00%
55	17.50%	16.00%
56	17.50%	16.00%
57	15.00%	16.00%
58	15.00%	16.00%
59	15.00%	16.00%
60	10.00%	16.00%
61	10.00%	12.50%
62	20.00%	20.00%
63	17.50%	17.50%
64	15.00%	17.50%
65	20.00%	25.00%
66	25.00%	20.00%
67	20.00%	20.00%
68	20.00%	20.00%
69	17.50%	20.00%
70	17.50%	20.00%
71	17.50%	15.00%
72	15.00%	20.00%
73	17.50%	20.00%
74	20.00%	20.00%
75	100.00%	100.00%

Early Retirement Rates for Regular Formula Employees		
Age	Males	Females
55	4.50%	4.50%
56	6.00%	4.00%
57	5.00%	7.00%
58	7.50%	9.50%
59	9.50%	12.00%

# Actuarial Methods and Assumptions (Adopted Effective with the June 30, 2016, Actuarial Valuation)

Retirement Rates for Alternate Formula Employees				
Age	Eligible for Alternate Formula Benefits Only		Eligible for Regular Formula Benefits Only	
	Males	Females	Males	Females
50	60.00%	40.00%	N/A	N/A
51	45.00%	40.00%	N/A	N/A
52	45.00%	35.00%	N/A	N/A
53	40.00%	30.00%	N/A	N/A
54	40.00%	25.00%	N/A	N/A
55	35.00%	30.00%	N/A	N/A
56	35.00%	25.00%	N/A	N/A
57	27.50%	20.00%	N/A	N/A
58	30.00%	20.00%	N/A	N/A
59	25.00%	25.00%	N/A	N/A
60	30.00%	30.00%	5.00%	8.00%
61	25.00%	20.00%	5.00%	8.00%
62	45.00%	45.00%	10.00%	8.00%
63	40.00%	35.00%	10.00%	12.50%
64	30.00%	40.00%	10.00%	12.50%
65	55.00%	40.00%	20.00%	17.50%
66	50.00%	60.00%	20.00%	15.00%
67	50.00%	50.00%	20.00%	40.00%
68	30.00%	15.00%	17.50%	30.00%
69	35.00%	35.00%	17.50%	20.00%
70	50.00%	60.00%	17.50%	25.00%
71	30.00%	50.00%	17.50%	30.00%
72	100.00%	100.00%	100.00%	100.00%

## Assets

Assets available for benefits are determined as described on page 47. 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.

# Actuarial Methods and Assumptions (Adopted Effective with the June 30, 2016, Actuarial Valuation)

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## 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 15 percent to the liability attributable to inactive members eligible for deferred vested pension benefits for increase 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.

## Decrement Timing

All decrements are assumed to occur mid-year.

# Actuarial Methods and Assumptions (Adopted Effective with the June 30, 2016, Actuarial Valuation)

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## 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.

## 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			
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%		

## Actuarial Methods and Assumptions (Adopted Effective with the June 30, 2016, Actuarial Valuation)

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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	25.00%	20.00%
62	45.00%	45.00%
63	40.00%	35.00%
64	30.00%	40.00%
65	55.00%	40.00%
66	50.00%	60.00%
67	50.00%	50.00%
68	30.00%	15.00%
69	35.00%	35.00%
70	50.00%	60.00%
71	30.00%	50.00%
72	100.00%	100.00%

## Actuarial Methods and Assumptions (Adopted Effective with the June 30, 2016, 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	0.2700	0.2500	0.0500	0.0775
1	0.1400	0.1600	0.0350	0.0475
2	0.0800	0.1000	0.0350	0.0475
3	0.0800	0.0800	0.0225	0.0425
4	0.0625	0.0700	0.0200	0.0325
5	0.0500	0.0600	0.0200	0.0325
6	0.0450	0.0550	0.0200	0.0325
7	0.0400	0.0500	0.0200	0.0225
8	0.0350	0.0450	0.0175	0.0225
9	0.0300	0.0400	0.0175	0.0225
10	0.0250	0.0350	0.0175	0.0225
11	0.0200	0.0250	0.0150	0.0200
12	0.0200	0.0200	0.0150	0.0200
13	0.0200	0.0200	0.0125	0.0175
14	0.0150	0.0150	0.0125	0.0175
15	0.0150	0.0150	0.0100	0.0150
16	0.0150	0.0150	0.0100	0.0150
17	0.0150	0.0150	0.0100	0.0150
18	0.0150	0.0150	0.0100	0.0150
19	0.0150	0.0150	0.0100	0.0150
20	0.0150	0.0150	0.0100	0.0150
21	0.0150	0.0150	0.0100	0.0150
22	0.0150	0.0150	0.0100	0.0150
23	0.0150	0.0150	0.0100	0.0150
24	0.0150	0.0150	0.0100	0.0150
25	0.0150	0.0150	0.0100	0.0150
26	0.0150	0.0150	0.0100	0.0150
27	0.0150	0.0150	0.0100	0.0150
28	0.0150	0.0150	0.0100	0.0150
29	0.0150	0.0150	0.0100	0.0150
30+	0.0150	0.0150	0.0100	0.0150

# **Actuarial Methods and Assumptions (Adopted Effective with the June 30, 2016, Actuarial Valuation)**

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## **Projection Methodology Adopted June 30, 2005, and Amended June 30, 2009**

## **Appropriation Requirements Under P.A. 93-0002, P.A. 94-0004 and P.A. 96-0043**

### **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:

1. Calculation of the contribution maximum
  - a. A projection of contributions will be made from the 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 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 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.
2. Calculation of the contribution with GOB proceeds
  - a. The basic projection of state contributions from the 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.

# Actuarial Methods and Assumptions (Adopted Effective with the June 30, 2016, Actuarial Valuation)

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- 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.

## **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,



## **Actuarial Methods and Assumptions (Adopted Effective with the June 30, 2016, Actuarial Valuation)**

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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.

## **SECTION F**

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### **SUMMARY OF PLAN PROVISIONS**

# Summary of Plan Provisions (as of June 30, 2017)

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## 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.

# Summary of Plan Provisions (as of June 30, 2017)

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## 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

## Summary of Plan Provisions (as of June 30, 2017)

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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.

# Summary of Plan Provisions (as of June 30, 2017)

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## ***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 survivors annuity otherwise payable. If death of the member occurs on or after January 1, 1984, the minimum total survivors 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

## Summary of Plan Provisions (as of June 30, 2017)

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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.

# Summary of Plan Provisions (as of June 30, 2017)

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## **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



## Summary of Plan Provisions (as of June 30, 2017)

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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 31<sup>st</sup> 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).

# Summary of Plan Provisions (as of June 30, 2017)

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## 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.

# Summary of Plan Provisions (as of June 30, 2017)

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## **Provisions Applicable to Members Hired after December 31, 2010, as a result of Public Act 96-0889**

### ***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.

## Summary of Plan Provisions (as of June 30, 2017)

### *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

### **Provisions Applicable to Certain Current and Future Members not covered by Social Security, as a result of Public Act 100-0023**

#### **Defined Benefit Provisions**

##### ***Final Average Compensation***

Based on last 10 years of service and may not exceed the federal Social Security Wage Base, currently \$127,200 for calendar year 2018.

##### ***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.

## Summary of Plan Provisions (as of June 30, 2017)

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### ***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.

## **SECTION G**

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### **GLOSSARY OF TERMS**

## Glossary of Terms

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<b><i>Actuarial Accrued Liability (“AAL”)</i></b>	The difference between the Actuarial Present Value of Future Benefits, and the Actuarial Present Value of Future Normal Costs.
<b><i>Actuarial Assumptions</i></b>	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.
<b><i>Actuarial Cost Method</i></b>	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.
<b><i>Actuarial Equivalent</i></b>	Of equal Actuarial Present Value, determined as of a given date and based on a given set of Actuarial Assumptions.
<b><i>Actuarial Present Value (“APV”)</i></b>	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.
<b><i>Actuarial Present Value of Future Benefits (“APVFB”)</i></b>	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 valuation date so that the amount invested plus investment earnings would provide sufficient assets to pay all projected benefits and expenses when due.
<b><i>Actuarial Valuation</i></b>	The determination, as of a 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”).
<b><i>Actuarial Value of Assets</i></b>	The value of the assets as of a given date, used by the actuary for 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

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<b><i>Actuarially Determined Contribution ("ADC")</i></b>	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.
<b><i>Amortization Method</i></b>	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.
<b><i>Amortization Payment</i></b>	That portion of the plan contribution or ADC which is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.
<b><i>Amortization Period</i></b>	The period used in calculating the Amortization Payment.
<b><i>Closed Amortization Period</i></b>	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.
<b><i>Employer Normal Cost</i></b>	The portion of the Normal Cost to be paid by the employer. This is equal to the Normal Cost less expected member contributions.
<b><i>Equivalent Single Amortization Period</i></b>	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.
<b><i>Experience Gain/Loss</i></b>	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

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<b><i>Funded Ratio</i></b>	The ratio of the Actuarial Value of Assets to the Actuarial Accrued Liability.
<b><i>GASB</i></b>	Governmental Accounting Standards Board.
<b><i>GASB No. 67 and GASB No. 68</i></b>	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.
<b><i>Normal Cost</i></b>	The annual cost assigned, under the Actuarial Cost Method, to the current plan year.
<b><i>Open Amortization Period</i></b>	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.
<b><i>Unfunded Actuarial Accrued Liability</i></b>	The difference between the Actuarial Accrued Liability and Actuarial Value of Assets.
<b><i>Valuation Date</i></b>	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**

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### **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
2017	\$31,383.47	\$678.87	\$14,428.42	\$210.58	\$0.00	\$32,062.34	\$14,639.01	\$46,701.35
2018	31,207.62	712.08	16,157.62	277.15	0.00	31,919.70	16,434.78	48,354.47
2019	30,985.34	743.55	17,896.00	350.71	14.30	31,728.89	18,261.02	49,989.91
2020	30,715.65	773.10	19,635.51	432.17	43.94	31,488.76	20,111.63	51,600.38
2021	30,397.60	800.31	21,365.66	522.82	90.97	31,197.92	21,979.45	53,177.37
2022	30,030.35	825.18	23,073.17	623.41	157.64	30,855.54	23,854.22	54,709.76
2023	29,613.26	847.49	24,746.28	733.40	246.56	30,460.75	25,726.24	56,186.99
2024	29,145.91	867.13	26,372.13	852.21	360.54	30,013.04	27,584.89	57,597.93
2025	28,628.16	883.86	27,939.70	979.03	502.90	29,512.02	29,421.62	58,933.64
2026	28,060.12	897.81	29,440.93	1,112.92	678.68	28,957.93	31,232.53	60,190.45
2027	27,442.23	908.81	30,866.88	1,253.99	891.52	28,351.04	33,012.39	61,363.43
2028	26,775.35	923.10	32,215.39	1,402.67	1,144.71	27,698.45	34,762.78	62,461.23
2029	26,060.67	934.96	33,485.25	1,559.72	1,440.63	26,995.63	36,485.60	63,481.24
2030	25,299.80	944.39	34,672.23	1,725.58	1,782.50	26,244.19	38,180.31	64,424.50
2031	24,494.76	951.39	35,770.52	1,900.66	2,173.47	25,446.15	39,844.65	65,290.79
2032	23,648.01	955.99	36,771.47	2,085.14	2,617.16	24,604.00	41,473.77	66,077.77
2033	22,762.59	958.30	37,670.57	2,279.14	3,117.29	23,720.89	43,067.01	66,787.90
2034	21,841.99	958.31	38,464.66	2,482.88	3,677.59	22,800.30	44,625.13	67,425.42
2035	20,890.15	955.89	39,145.40	2,696.42	4,302.29	21,846.05	46,144.11	67,990.15
2036	19,911.46	950.88	39,704.00	2,919.75	4,995.99	20,862.34	47,619.74	68,482.08
2037	18,910.74	943.46	40,139.03	3,152.53	5,763.25	19,854.20	49,054.81	68,909.01
2038	17,893.17	933.77	40,451.31	3,394.59	6,606.42	18,826.94	50,452.31	69,279.26
2039	16,864.29	921.60	40,641.96	3,645.57	7,527.06	17,785.89	51,814.59	69,600.47
2040	15,829.87	907.00	40,713.50	3,904.80	8,527.19	16,736.88	53,145.50	69,882.38
2041	14,795.87	890.13	40,668.48	4,171.44	9,608.79	15,686.00	54,448.71	70,134.71
2042	13,768.29	870.98	40,511.03	4,443.91	10,773.61	14,639.27	55,728.56	70,367.83
2043	12,753.13	849.66	40,245.61	4,720.77	12,023.42	13,602.80	56,989.81	70,592.60
2044	11,756.29	826.24	39,876.24	4,999.95	13,359.56	12,582.52	58,235.75	70,818.27
2045	10,783.41	800.82	39,406.42	5,278.71	14,783.32	11,584.23	59,468.45	71,052.68

**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
2017	\$31,383.47	\$678.87	\$21,190.76	\$1,473.99	\$0.00	\$32,062.34	\$22,664.74	\$54,727.08
2018	31,207.62	712.08	22,549.03	1,545.60	289.26	31,919.70	24,383.89	56,303.59
2019	30,985.34	743.55	23,908.73	1,624.39	622.38	31,728.89	26,155.49	57,884.38
2020	30,715.65	773.10	25,263.77	1,710.06	993.34	31,488.76	27,967.18	59,455.93
2021	30,397.60	800.31	26,606.71	1,803.36	1,406.43	31,197.92	29,816.50	61,014.42
2022	30,030.35	825.18	27,928.72	1,904.89	1,857.64	30,855.54	31,691.25	62,546.79
2023	29,613.26	847.49	29,221.66	2,014.18	2,347.35	30,460.75	33,583.19	64,043.93
2024	29,145.91	867.13	30,476.69	2,130.84	2,882.92	30,013.04	35,490.45	65,503.49
2025	28,628.16	883.86	31,686.08	2,254.28	3,452.60	29,512.02	37,392.96	66,904.98
2026	28,060.12	897.81	32,843.55	2,383.54	4,066.11	28,957.93	39,293.20	68,251.13
2027	27,442.23	908.81	33,942.45	2,518.59	4,720.85	28,351.04	41,181.89	69,532.93
2028	26,775.35	923.10	34,979.96	2,659.60	5,403.75	27,698.45	43,043.30	70,741.75
2029	26,060.67	934.96	35,953.41	2,806.81	6,132.70	26,995.63	44,892.92	71,888.55
2030	25,299.80	944.39	36,858.59	2,960.35	6,904.03	26,244.19	46,722.97	72,967.17
2031	24,494.76	951.39	37,690.26	3,120.35	7,726.52	25,446.15	48,537.13	73,983.27
2032	23,648.01	955.99	38,442.04	3,286.80	8,601.20	24,604.00	50,330.04	74,934.04
2033	22,762.59	958.30	39,110.03	3,459.77	9,525.46	23,720.89	52,095.27	75,816.16
2034	21,841.99	958.31	39,691.04	3,639.28	10,510.36	22,800.30	53,840.67	76,640.97
2035	20,890.15	955.89	40,179.06	3,825.28	11,565.40	21,846.05	55,569.75	77,415.80
2036	19,911.46	950.88	40,568.02	4,017.70	12,686.67	20,862.34	57,272.39	78,134.73
2037	18,910.74	943.46	40,855.85	4,216.22	13,869.07	19,854.20	58,941.14	78,795.34
2038	17,893.17	933.77	41,041.70	4,420.62	15,127.82	18,826.94	60,590.14	79,417.08
2039	16,864.29	921.60	41,125.19	4,630.49	16,456.67	17,785.89	62,212.35	79,998.24
2040	15,829.87	907.00	41,106.79	4,845.12	17,854.97	16,736.88	63,806.89	80,543.76
2041	14,795.87	890.13	40,987.27	5,063.72	19,322.02	15,686.00	65,373.01	81,059.01
2042	13,768.29	870.98	40,768.44	5,284.97	20,858.42	14,639.27	66,911.84	81,551.11
2043	12,753.13	849.66	40,452.46	5,507.57	22,466.84	13,602.80	68,426.88	82,029.67
2044	11,756.29	826.24	40,041.50	5,729.72	24,152.61	12,582.52	69,923.83	82,506.35
2045	10,783.41	800.82	39,537.61	5,949.13	25,916.11	11,584.23	71,402.86	82,987.09

## 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
2017	\$2,293.77	\$13.84	\$120.92	\$30.51	\$0.00	\$2,307.61	\$151.43	\$2,459.04
2018	2,326.75	17.77	211.46	28.43	6.51	2,344.52	246.40	2,590.91
2019	2,357.54	21.74	307.97	27.10	13.11	2,379.29	348.18	2,727.47
2020	2,386.05	26.01	411.37	25.53	19.71	2,412.06	456.61	2,868.67
2021	2,412.09	30.11	522.48	23.88	26.81	2,442.20	573.17	3,015.38
2022	2,435.42	34.28	640.05	23.26	34.23	2,469.70	697.54	3,167.24
2023	2,455.78	38.36	764.19	23.52	41.94	2,494.14	829.64	3,323.78
2024	2,472.88	42.51	893.24	24.86	50.13	2,515.39	968.23	3,483.61
2025	2,486.46	46.32	1,025.28	27.60	56.58	2,532.79	1,109.46	3,642.24
2026	2,496.20	50.12	1,160.23	30.74	63.15	2,546.33	1,254.12	3,800.45
2027	2,501.75	47.69	1,293.95	34.12	70.13	2,549.44	1,398.20	3,947.64
2028	2,502.84	51.00	1,426.07	37.66	77.50	2,553.84	1,541.24	4,095.08
2029	2,499.13	54.15	1,557.95	41.51	85.54	2,553.28	1,685.00	4,238.28
2030	2,490.34	57.14	1,690.27	45.66	94.33	2,547.49	1,830.27	4,377.75
2031	2,476.18	59.93	1,823.78	50.24	104.05	2,536.11	1,978.08	4,514.19
2032	2,456.26	62.46	1,955.66	55.21	114.87	2,518.73	2,125.74	4,644.47
2033	2,430.35	64.84	2,084.96	60.59	126.77	2,495.20	2,272.32	4,767.52
2034	2,398.26	67.18	2,214.16	66.46	139.94	2,465.44	2,420.56	4,886.00
2035	2,359.80	69.54	2,342.97	72.85	154.68	2,429.34	2,570.50	4,999.84
2036	2,314.88	71.52	2,467.04	79.97	171.02	2,386.39	2,718.03	5,104.42
2037	2,263.44	73.21	2,585.11	87.72	190.22	2,336.65	2,863.05	5,199.70
2038	2,205.51	74.96	2,696.64	96.26	213.17	2,280.48	3,006.07	5,286.54
2039	2,141.24	76.48	2,800.80	105.86	239.43	2,217.72	3,146.08	5,363.80
2040	2,070.84	77.69	2,897.31	116.55	269.13	2,148.53	3,282.98	5,431.51
2041	1,994.66	78.75	2,985.22	128.78	302.42	2,073.41	3,416.42	5,489.83
2042	1,913.11	79.55	3,064.34	142.45	339.44	1,992.66	3,546.23	5,538.89
2043	1,826.71	80.15	3,134.77	157.95	380.61	1,906.86	3,673.34	5,580.20
2044	1,736.08	80.48	3,196.80	175.62	426.32	1,816.56	3,798.74	5,615.30
2045	1,641.90	80.59	3,250.27	195.86	476.76	1,722.49	3,922.89	5,645.38

**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			
	Population	Covered Payroll	Employee Contributions	Normal Cost	Population	Covered Payroll	Employee Contributions	Normal Cost	Population	Covered Payroll	Employee Contributions	Normal Cost
June 30												
2017	43,045	\$3,335.30	\$189.43	\$816.20	17,567	\$939.02	\$38.69	\$80.62	0	\$0.00	\$0.00	\$0.00
2018	39,789	3,214.09	183.13	798.61	15,878	900.53	37.14	80.78	4,945	252.62	11.79	20.34
2019	36,828	3,096.72	176.69	778.57	14,763	883.95	36.48	82.12	9,022	481.23	22.81	40.79
2020	34,020	2,976.65	170.04	755.20	13,889	876.12	36.18	83.92	12,703	706.95	33.86	62.20
2021	31,290	2,846.50	162.59	727.34	13,153	872.55	36.04	85.74	16,168	938.54	45.37	85.11
2022	28,652	2,708.71	154.41	696.12	12,515	871.63	36.02	87.40	19,444	1,176.92	57.34	109.52
2023	26,141	2,566.93	145.86	661.34	11,937	871.70	36.03	88.74	22,533	1,421.44	69.69	135.45
2024	23,715	2,417.25	136.57	624.02	11,392	871.67	36.04	89.79	25,506	1,676.38	82.72	163.35
2025	21,447	2,269.24	127.38	585.85	10,889	872.54	36.08	90.79	28,276	1,935.64	95.94	192.47
2026	19,308	2,119.41	118.01	546.44	10,431	874.80	36.18	91.81	30,874	2,200.61	109.55	222.98
2027	17,300	1,969.23	108.63	508.79	9,988	876.80	36.26	92.99	33,323	2,472.17	123.44	254.58
2028	15,511	1,830.90	100.26	473.63	9,618	882.05	36.47	94.56	35,483	2,739.15	136.97	286.11
2029	13,848	1,694.60	92.07	439.45	9,278	887.92	36.70	96.30	37,486	3,009.92	150.70	318.55
2030	12,321	1,563.23	84.45	405.70	8,961	893.88	36.94	98.15	39,331	3,283.35	164.46	351.67
2031	10,890	1,431.66	76.70	370.79	8,660	899.49	37.16	99.96	41,062	3,562.98	178.56	385.91
2032	9,565	1,301.53	68.93	336.47	8,358	902.50	37.27	101.65	42,689	3,848.87	192.96	421.26
2033	8,361	1,177.44	61.71	303.40	8,067	904.08	37.33	103.32	44,184	4,137.90	207.39	457.48
2034	7,251	1,056.82	54.69	269.29	7,779	903.54	37.30	104.88	45,582	4,432.59	222.12	494.99
2035	6,203	934.41	47.37	233.96	7,495	900.58	37.18	106.28	46,914	4,735.45	237.38	534.16
2036	5,244	816.05	40.28	200.77	7,211	894.52	36.93	107.43	48,157	5,043.77	252.91	574.68
2037	4,410	709.21	34.17	170.74	6,927	885.56	36.57	108.38	49,276	5,353.12	268.36	615.33
2038	3,667	609.40	28.57	143.54	6,650	874.75	36.12	109.18	50,295	5,663.12	283.74	656.12
2039	3,032	520.76	23.81	119.66	6,372	861.27	35.58	109.77	51,208	5,970.32	298.87	696.93
2040	2,481	440.29	19.65	98.64	6,101	846.13	34.96	110.07	52,030	6,273.84	313.74	737.69
2041	2,015	369.46	16.14	80.91	5,822	827.25	34.19	109.90	52,775	6,572.40	328.26	778.26
2042	1,628	308.84	13.29	66.30	5,536	805.16	33.29	109.37	53,449	6,865.95	342.44	818.61
2043	1,308	256.92	10.93	54.20	5,254	781.43	32.32	108.38	54,049	7,154.06	356.30	858.67
2044	1,047	212.75	8.97	44.12	4,958	753.12	31.15	106.76	54,607	7,439.17	369.95	898.65
2045	831	174.96	7.32	35.72	4,661	722.46	29.89	104.49	55,119	7,720.85	383.41	938.49

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