GRS Gabriel Roeder Smith & Company
Consultants & Actuaries

STATE EMPLOYEES' RETIREMENT SYSTEM OF ILLINOIS

GASB STATEMENTS NOS. 67 AND 68 ACCOUNTING AND FINANCIAL REPORTING FOR PENSIONS

JUNE 30, 2016

GRS
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October 31, 2016

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

Dear Board Members:

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

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

Our calculation of the liability associated with the benefits described in this report was performed for the purpose of providing reporting and disclosure information that satisfies the requirements of GASB Statements Nos. 67 and 68. The Net Pension Liability is not an appropriate measure for measuring the sufficiency of plan assets to cover the estimated cost of settling the employer's benefit obligation. The Net Pension Liability is not an appropriate measure for assessing the need for or amount of future employer contributions. A calculation of the plan's liability for purposes other than satisfying the requirements of GASB Statements Nos. 67 and 68 may produce significantly different results. This report may be provided to parties other than the State Employees' Retirement System of Illinois ("SERS") only in its entirety and only with the permission of SERS.

Our valuation and projections assume the sponsor will make the contributions required by state statute. To the extent the sponsor does not make the statutory required contribution the results contained in this report could be significantly different.

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

This report complements the actuarial valuation report that was provided to SERS and should be considered in conjunction with that report. Please see the actuarial valuation report as of June 30, 2016, for additional discussion of the nature of actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions.

To the best of our knowledge, the information contained with this report is accurate and fairly represents the actuarial position of the State Employees' Retirement System of Illinois. All calculations have been made in conformity with generally accepted actuarial principles and practices as well as with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

The signing actuaries are independent of the plan sponsor.

Alex Rivera and Lance J. Weiss and are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Respectfully submitted,

By Alex Rivera

Alex Rivera
Senior Consultant
FSA, EA, MAAA, FCA

By Lance J. Weiss

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

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EXECUTIVE SUMMARY

EXECUTIVE SUMMARY
AS OF JUNE 30, 2016

		2016
Actuarial Valuation Date		June 30, 2016
Measurement Date of the Net Pension Liability		June 30, 2016
Employer's Fiscal Year Ending Date (Reporting Date)		June 30, 2016
Membership		
Number of		
- Retirees and Beneficiaries		70,031
- Inactive, Nonretired Members		26,333
- Active Members		61,317
- Total		157,681
Covered Payroll	$	4,284,362,301
Net Pension Liability		
Total Pension Liability	$	49,183,947,656
Plan Fiduciary Net Position		15,038,528,150
Net Pension Liability	$	34,145,419,506
Plan Fiduciary Net Position as a Percentage of Total Pension Liability		30.58 %
Net Pension Liability as a Percentage of Covered Payroll		796.98 %
Development of the Single Discount Rate		
Single Discount Rate Beginning of Year		7.02 %
Single Discount Rate End of Year		6.64 %
Long-Term Expected Rate of Investment Return		7.00 %
Long-Term Municipal Bond Rate Beginning of Year[a]		3.80 %
Long-Term Municipal Bond Rate End of Year[a]		2.85 %
Last year ending June 30 in the 2015 to 2114 projection period for which projected benefit payments are fully funded		2072
Total Pension Expense for Fiscal Year End 6/30/2016[b]	$	2,966,164,600
Total Pension Expense for Fiscal Year End 6/30/2017	$	4,181,014,781

Deferred Outflows and Deferred Inflows of Resources by Source to be recognized in Future Pension Expenses as of 6/30/2017

	Deferred Outflows of Resources	Deferred Inflows of Resources
Difference between expected and actual experience	$ 52,276,064	$ 835,012,876
Changes in assumptions	5,248,536,633	-
Net difference between projected and actual earnings on pension plan investments	1,208,049,570	483,147,882
Total	$ 6,508,862,267	$ 1,318,160,758

[a] *Source: "20-Bond GO Index" is the Bond Buyer index, general obligation, 20 years to maturity, mixed quality. In describing this index, the Bond Buyer notes that the bonds' average credit quality is roughly equivalent to Moody's Investors Service's Aa2 rating and Standard & Poor's Corp.'s AA. The rate shown is as of June 30, 2016, the most recent date available on or before the measurement date.*

[b] *Based on valuation results as of June 30, 2015.*

DISCUSSION

Accounting Standard

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

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

Financial Statements

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

Paragraph 57 of GASB Statement No. 68 states, "Contributions to the pension plan from the employer subsequent to the measurement date of the collective net pension liability and before the end of the employer's reporting period should be reported as a deferred outflow of resources related to pensions." The information contained in this report does not incorporate any contributions made to SERS subsequent to the measurement date of June 30, 2016.

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

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

Notes to Financial Statements

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

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

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

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

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

Required Supplementary Information

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

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

Timing of the Valuation

An actuarial valuation to determine the total pension liability is required to be performed at least every two years. The net pension liability and pension expense should be measured as of the pension plan's fiscal year end (measurement date) on a date that is within the employer's prior fiscal year. If the actuarial valuation used to determine the total pension liability is not calculated as of the measurement date, the total pension liability is required to be rolled forward from the actuarial valuation date to the measurement date.

The GASB Statement No. 68 pension expense for fiscal year end June 30, 2016, is based on the results of the actuarial valuation as of June 30, 2015.

The total pension liability shown in this report is based on an actuarial valuation performed as of June 30, 2016, and a measurement date of **June 30, 2016**.

Single Discount Rate

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

For the purpose of this valuation, the expected rate of return on pension plan investments is **6.64** percent; the municipal bond rate is 2.85 percent (based on the weekly rate closest to but not later than the measurement date of the "state & local bonds" rate from Federal Reserve statistical release (H.15)); and the resulting Single Discount Rate is 6.64 percent.

Effective Date and Transition

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

Change in Assumptions

Pursuant to Public Act 99-0232, effective August 3, 2015, the five state retirement systems shall conduct an actuarial experience study at least once every three years. An experience study was performed for SERS for the four-year period ending June 30, 2013, with the actuarial assumptions adopted for use commencing with the June 30, 2014, actuarial valuation. In order to be compliant with Public Act 99-0232, the next experience study should be completed for the three-year period ending June 30, 2016. However, at the Board's request, we have performed a modified experience review of a specific set of assumptions for the period from July 1, 2012, to June 30, 2015. The primary purpose of the study was to compare the demographic and economic experience against the actuarial assumptions used in the valuations for the following assumptions:

- Investment Return;
- Price Inflation;
- General Wage Increases and Payroll Growth
- Mortality;
- Withdrawal for Tier Two Members; and
- Service Increases Relating to Unused Sick Leave and Optional Service Purchases.

Other demographic assumptions remained unchanged from the 2014 Experience Review.

Following is a summary of the key findings and recommendations, as approved by the Board, which became effective for the June 30, 2016, actuarial valuation.

- **Price inflation**: The rate of price inflation was decreased from 3.00 percent to 2.75 percent.
- **Investment return**: The investment return assumption, net of investment expenses, compounded annually, was decreased from 7.25 percent to 7.00 percent, which reflects an underlying price inflation assumption of 2.75 percent.
- **Payroll growth assumption**: The payroll growth assumption was decreased from 3.50 percent to 3.25 percent, which reflects an underlying general price inflation assumption of 2.75 percent.
- **Turnover rates for Tier Two members:** The current service-based only rate structure was maintained. Separate Tier Two turnover rates were implemented for members eligible for Regular Formula benefits and Alternate Formula benefits. The new rates increased the expected turnover.
- **Mortality rates:** The mortality tables used for the June 30, 2015, actuarial valuation were maintained, however generational mortality improvement factors were added to reflect future mortality improvement. These new mortality tables are a move from a single dimensional age-based table to a two dimensional table, where the year a person was born also influences their mortality rate.
- **Service increases due to unused sick leave and optional service purchases:** Implement an assumption to the actuarial valuation to account for the increase in service of active members due to service credit given at retirement for unused sick leave and optional service purchases and therefore increase service for all current and future active members by 4.5 months.

A summary of the actuarial assumptions and methods used in this actuarial valuation are included in Section G of this report.

SECTION B

FINANCIAL STATEMENTS

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

Statement of Fiduciary Net Position
Years Ended June 30, 2016 and 2015

	2016	2015
Assets		
Cash	$ 300,328,830	$ 170,646,589
Receivables		
Contributions:		
Participants	$ 11,893,976	$ 14,152,324
Employing state agencies	70,171,117	109,810,082
Other Accounts	4,477,002	4,784,680
Total Receivables	$ 86,542,095	$ 128,747,086
Investments		
Held in the Illinois State Board of Investment		
Commingled Fund at fair value	$ 14,741,054,632	$ 14,967,254,053
Securities lending collateral with State Treasurer	64,256,000	64,779,000
Total Investments	$ 14,805,310,632	$ 15,032,033,053
Property and equipment, net of accumulated depreciation	$ 6,938,949	$ 5,272,553
Total Assets	$ 15,199,120,506	$ 15,336,699,281
Liabilities		
Payables		
Benefits payable	$ 6,441,515	$ 5,847,397
Refunds payable	1,141,622	1,055,043
Administrative expenses payable	1,768,589	2,171,343
Participants' deferred service credit accounts	316,145	266,753
Due to State of Illinois	86,668,485	3,713,173
Securities lending collateral with State Treasurer	64,256,000	64,779,000
Total Liabilities	$ 160,592,356	$ 77,832,709
Net Position Restricted for Pensions	$ 15,038,528,150	$ 15,258,866,572

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION
YEARS ENDED JUNE 30, 2016 AND 2015

	2016	2015
Additions		
Contributions		
Participants	$ 256,198,172	$ 266,139,156
Employing state agencies and appropriations	1,882,243,268	1,804,319,356
Total Contributions	$ 2,138,441,440	$ 2,070,458,512
Investment Income		
Net investments income	$ 410,795,035	$ 440,457,817
Interest earned on cash balances	756,489	622,012
Net appreciation in fair value of investments	(536,994,456)	240,297,223
Net Investment Income	$ (125,442,932)	$ 681,377,052
Total Additions	$ 2,012,998,508	$ 2,751,835,564
Deductions		
Benefits		
Retirement annuities	$ 1,977,598,561	$ 1,833,999,371
Survivors' annuities	128,689,627	121,930,337
Disability benefits	64,057,780	63,929,747
Lump-sum benefits	20,155,235	14,998,980
Total Benefits	$ 2,190,501,203	$ 2,034,858,435
Refunds	26,708,730	23,128,975
Administrative	16,126,997	16,547,823
Total Deductions	$ 2,233,336,930	$ 2,074,535,233
Net Increase in Net Position	$ (220,338,422)	$ 677,300,331
Net Position Restricted for Pensions		
Beginning of Year	$ 15,258,866,572	$ 14,581,566,241
End of Year	$ 15,038,528,150	$ 15,258,866,572

SECTION C

REQUIRED SUPPLEMENTARY INFORMATION

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

SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION
SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS – MULTIYEAR

Fiscal year ending June 30,	2016	2015	2014
Total Pension Liability			
Service Cost Including Pension Plan Administrative Expense	$ 843,376,643	$ 847,997,030	$ 776,487,959
Interest on the Total Pension Liability	2,989,387,125	2,912,736,360	2,754,121,665
Changes of Benefit Terms	-	-	-
Difference between Expected and Actual Experience	(730,622,389)	(464,942,210)	150,997,067
Changes of Assumptions	5,048,087,579	360,713,498	3,142,466,514
Benefit Payments, Including Refunds of Employee Contributions	(2,217,209,933)	(2,057,987,410)	(1,940,145,453)
Pension Plan Administrative Expense	(16,126,997)	(16,547,823)	(16,615,105)
Net Change in Total Pension Liability	5,916,892,028	1,581,969,445	4,867,312,648
Total Pension Liability - Beginning	43,267,055,628	41,685,086,183	36,817,773,535
Total Pension Liability - Ending (a)	$ 49,183,947,656	$ 43,267,055,628	$ 41,685,086,183
Plan Fiduciary Net Position			
Employer Contributions	$ 1,882,243,268	$ 1,804,319,356	$ 1,699,447,826
Employee Contributions	256,198,172	266,139,156	269,232,241
Pension Plan Net Investment Income	(125,442,932)	681,377,052	2,169,346,258
Benefit Payments, Including Refunds of Employee Contributions	(2,217,209,933)	(2,057,987,410)	(1,940,145,453)
Pension Plan Administrative Expense	(16,126,997)	(16,547,823)	(16,615,105)
Other	-	-	-
Net Change in Plan Fiduciary Net Position	(220,338,422)	677,300,331	2,181,265,767
Plan Fiduciary Net Position - Beginning	15,258,866,572	14,581,566,241	12,400,300,474
Plan Fiduciary Net Position - Ending (b)	15,038,528,150	15,258,866,572	$ 14,581,566,241
Net Pension Liability - Ending (a) - (b)	$ 34,145,419,506	$ 28,008,189,056	$ 27,103,519,942
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	30.58 %	35.27 %	34.98 %
Covered-Employee Payroll	$ 4,284,362,301	$ 4,453,683,664	$ 4,416,152,691
Net Pension Liability as a Percentage			

10 fiscal years will be built prospectively.
Please see the following page for additional notes relating to the Schedule of Changes in Net Pension Liability and Related Ratios – Multiyear.

SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION
ADDITIONAL NOTES TO THE SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS – MULTIYEAR

Beginning of year total pension liability for fiscal year 2016 uses a Single Discount Rate of 7.02 percent and the actuarial assumptions used in the June 30, 2015, funding actuarial valuation. The Single Discount Rate of 7.02 percent was based on a long-term expected rate of return on pension plan investments of 7.25 percent used in the June 30, 2015, funding actuarial valuation and a long-term municipal bond rate as of June 25, 2015, of 3.80 percent.

End of year total pension liability for fiscal year 2016 uses a Single Discount Rate of 6.64 percent and the actuarial assumptions in effect as of June 30, 2016, funding actuarial valuation. The Single Discount Rate of 6.64 percent was based on a long-term expected rate of return on pension plan investments of 7.00 percent used in the June 30, 2016, funding actuarial valuation and a long-term municipal bond rate as of June 30, 2016, of 2.85 percent.

The increase in total pension liability for fiscal year 2016 due to assumption changes includes (1) the impact of the change in assumptions used in the June 30, 2016, funding actuarial valuation, which was determined as part of an experience review for the period July 1, 2012, to June 30, 2015, and (2) the change in the long-term municipal bond rate of 3.80 percent as of June 25, 2015, to 2.85 percent as of June 30, 2016.

SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION
SCHEDULE OF THE NET PENSION LIABILITY -MULTIYEAR
Last 10 Fiscal Years (which may be built prospectively)

FY Ending June 30,	Total Pension Liability	Plan Net Position	Net Pension Liability	Plan Net Position as a % of Total Pension Liability	Covered Payroll[a]	Net Pension Liability as a % of Covered Payroll
2014	$ 41,685,086,183	$ 14,581,566,241	$ 27,103,519,942	34.98 %	$ 4,416,152,691	613.74 %
2015	43,267,055,628	15,258,866,572	28,008,189,056	35.27 %	4,453,683,664	628.88 %
2016	49,183,947,656	15,038,528,150	34,145,419,506	30.58 %	4,284,362,301	796.98 %

[a] *Covered payroll is the amount in force as of the valuation date and likely differs from actual payroll paid during the fiscal year.*

SCHEDULE OF CONTRIBUTIONS MULTIYEAR
LAST 10 FISCAL YEARS

Fiscal Year	Actuarially Determined Contribution[a]	Actual Contribution[b]	Contribution Deficiency (Excess)	Covered Payroll	Actual Contribution as a % of Covered Payroll	Statutory Contribution	Statutory Contribution Deficiency/(Excess)
7/1/06 - 6/30/07	$ 823,802,760	$ 358,786,650	$ 465,016,110	$ 3,762,000,000	9.54%	$ 361,039,140	$ 2,252,490
7/1/07 - 6/30/08	986,410,891	587,732,407	398,678,484	3,967,704,000	14.81%	576,626,422	(11,105,985)
7/1/08 - 6/30/09	1,003,432,849	774,910,344	228,522,505	4,027,263,000	19.24%	769,851,595	(5,058,749)
7/1/09 - 6/30/10	1,177,313,343	1,095,545,856	81,767,487	4,119,360,892	26.60%	1,168,951,040	73,405,184
7/1/10 - 6/30/11	1,289,002,005	1,127,886,796	161,115,209	4,211,186,269	26.78%	1,102,783,348	(25,103,448)
7/1/11 - 6/30/12	1,614,834,808	1,391,416,375	223,418,433	4,329,083,716	32.14%	1,396,216,080	4,799,705
7/1/12 - 6/30/13	1,741,286,416	1,531,932,137	209,354,279	4,236,191,257	36.16%	1,529,942,834	(1,989,303)
7/1/13 - 6/30/14	1,956,841,419	1,699,447,826	257,393,593	4,416,152,691	38.48%	1,697,348,287	(2,099,539)
7/1/14 - 6/30/15	2,045,354,223	1,804,319,356	241,034,867	4,453,683,664	40.51%	1,802,494,852	(1,824,504)
7/1/15 - 6/30/16	2,019,691,233	1,882,243,268	137,447,965	4,284,362,301	43.93%	1,879,978,178	(2,265,090)

[a] *The SERS Statutory Funding may not conform to Actuarial Standards of Practice, therefore, the actuarially determined contribution is equal to the normal cost plus an amount to amortize the unfunded actuarial accrued liability as a level percentage of total payroll. The amortization period for fiscal years 2007 through 2016 and beyond is 30 years. The Actuarially Determined Contribution (as a percent of payroll) for each fiscal year was determined as of the valuation two years prior and then applied to payroll in force as of the valuation date.*

[b] *The actual contributions for FYE 6/30/2005 through 6/30/2015 were obtained from the System's comprehensive annual financial reports. The actual contribution for FYE 6/30/2016 was provided by the System.*

NOTES TO SCHEDULE OF CONTRIBUTIONS

Valuation Date:	June 30, 2016
Notes	Actuarially determined contribution rates and Statutory contribution rates are calculated as of June 30, which is 12 months prior to the beginning of the fiscal year in which the contributions will be made.

Methods and Assumptions Used to Determine Contribution Rates:

Actuarial Cost Method	Projected Unit Credit
Amortization Method	**Statutory Contributions** — The Statutory Contribution is equal to the level percentage of pay contributions determined so that the Plan attains a 90 percent funded ratio by the end of 2045. An amortization payment is not directly calculated. The amortization payment is the difference between the total statutory contribution and the employer normal cost contribution. **Actuarially Determined Contributions** — The Actuarially Determined Contribution is equal to the employer's normal cost plus a level percent of capped payroll amortization of the unfunded accrued liability. The amortization period for fiscal years prior to 2007 is an open-period 40 years and the amortization period for fiscal years 2006 through 2016 is an open-period 30 years. The Board has adopted a policy to calculate the ADC for financial reporting purposes, effective for the valuation as of June 30, 2015. Under this policy, the ADC for fiscal years ending on and after June 30, 2017, is calculated as the employer's normal cost plus a 25-year level percent of capped payroll closed-period amortization of the unfunded accrued liability. As of June 30, 2016, the remaining amortization period is 24 years. The ADC is expressed as a percentage and applied to capped payroll for the fiscal year.
Asset Valuation Method	5-year smoothed market
Inflation	2.75 percent
Salary Increases	Salary increase rates based on age-related productivity and merit rates plus inflation.
Postretirement Benefit Increases	Postretirement benefit increases of 3.00 percent, compounded, for Tier 1 and 3.00 percent or one-half of the annual increase in the Consumer Price Index, whichever is less, simple, for Tier 2.
Investment Rate of Return	7.00 percent as of the June 30, 2016, actuarial valuation.
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition. Last updated for the June 30, 2014, valuation pursuant to an experience study of the period July 1, 2009, to June 30, 2013.
Mortality	105 percent of the RP-2014 Healthy Annuitant mortality table, sex distinct, with generational mortality improvements using the MP-2014 two-dimensional mortality improvement scales.

Other Information:

Notes	The statutory contribution for fiscal year ending June 30, 2016, was determined based on the results of the June 30, 2014, actuarial valuation. Similarly, the statutory contributions for fiscal years ending June 30, 2017, and June 30, 2018, were determined based on the results of the actuarial valuations performed two years prior. All other contributions are projected using current assumptions.

Methods and Assumptions Used for Accounting Purposes as of the Valuation Date:

Actuarial Cost Method	Entry Age Normal
Discount Rate	7.02 percent as of the June 30, 2015, actuarial valuation.
	6.64 percent as of the June 30, 2016, actuarial valuation.
Asset Valuation Method	Market value

SECTION D

NOTES TO FINANCIAL STATEMENTS

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

Single Discount Rate

A Single Discount Rate of 6.64 percent was used to measure the total pension liability. This Single Discount Rate was based on an expected rate of return on pension plan investments of **7.00** percent and a municipal bond rate of 2.85 percent. The projection of cash flows used to determine this Single Discount Rate assumed that plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the difference between statutory contribution rates and the member rate. Based on these assumptions, the pension plan's fiduciary net position and future contributions were sufficient to finance the benefit payments through the year 2072. As a result, the long-term expected rate of return on pension plan investments was applied to projected benefit payments through the year 2072, and the municipal bond rate was applied to all benefit payments after that date.

Regarding the sensitivity of the net pension liability to changes in the Single Discount Rate, the following presents the plan's net pension liability, calculated using a Single Discount Rate of 6.64 percent, as well as what the plan's net pension liability would be if it were calculated using a Single Discount Rate that is one percent lower or one percent higher:

SENSITIVITY OF NET PENSION LIABILITY TO THE SINGLE DISCOUNT RATE ASSUMPTION

1% Decrease 5.64%	Current Single Discount Rate Assumption 6.64%	1% Increase 7.64%
$ 41,210,301,546	$ 34,145,419,506	$ 28,380,269,649

SUMMARY OF POPULATION STATISTICS

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	70,031
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	26,333
Active Plan Members	61,317
Total Plan Members	157,681

Additional information about the member data used is included in the June 30, 2016, actuarial valuation report.

SECTION E

GASB NO. 68 PENSION EXPENSE

Schedule of Changes in Net Pension Liability and Related Ratios

Fiscal Year End 6/30	2016	2015
A. Total Pension Liability		
1. Service Cost Including Pension Plan Administrative Expense	$ 843,376,643	$ 847,997,030
2. Interest on the Total Pension Liability	2,989,387,125	2,912,736,360
3. Changes of Benefit Terms	-	-
4. Difference Between Expected and Actual Experience of the Total Pension Liability	(730,622,389)	(464,942,210)
5. Changes of Assumptions	5,048,087,579	360,713,498
6. Benefit Payments, Including Refunds of Employee Contributions	(2,217,209,933)	(2,057,987,410)
7. Pension Plan Administrative Expense	(16,126,997)	(16,547,823)
8. Net Change in Total Pension Liability	**$ 5,916,892,028**	**$ 1,581,969,445**
9. Total Pension Liability – Beginning	**43,267,055,628**	**41,685,086,183**
10. Total Pension Liability – Ending	**$ 49,183,947,656**	**$ 43,267,055,628**
B. Plan Fiduciary Net Position		
1. Contributions – Employer	$ 1,882,243,268	$ 1,804,319,356
2. Contributions – Employee	256,198,172	266,139,156
3. Net Investment Income	(125,442,932)	681,377,052
4. Benefit Payments, Including Refunds of Employee Contributions	(2,217,209,933)	(2,057,987,410)
5. Pension Plan Administrative Expense	(16,126,997)	(16,547,823)
6. Other	-	-
7. Net Change in Plan Fiduciary Net Position	**$ (220,338,422)**	**$ 677,300,331**
8. Plan Fiduciary Net Position – Beginning	**15,258,866,572**	**14,581,566,241**
9. Plan Fiduciary Net Position – Ending	**$ 15,038,528,150**	**$ 15,258,866,572**
C. Net Pension Liability	**$ 34,145,419,506**	**$ 28,008,189,056**
D. Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	**30.58%**	**35.27%**
E. Covered-Employee Payroll	**$ 4,284,362,301**	**$ 4,453,683,664**
F. Net Pension Liability as a Percentage of Covered-Employee Payroll	**796.98%**	**628.88%**

PENSION EXPENSE UNDER GASB STATEMENT NO. 68
PLAN YEAR ENDED JUNE 30, 2015
APPLICABLE TO FISCAL YEAR ENDED JUNE 30, 2016

A. Expense

1. Service Cost Including Pension Plan Administrative Expense	$ 847,997,030
2. Interest on the Total Pension Liability	2,912,736,360
3. Current-Period Benefit Changes	-
4. Employee Contributions (made negative for addition here)	(266,139,156)
5. Projected Earnings on Plan Investments (made negative for addition here)	(1,057,018,357)
6. Other Changes in Plan Fiduciary Net Position	-
7. Recognition of Outflow (Inflow) of Resources due to Liabilities	695,034,404
8. Recognition of Outflow (Inflow) of Resources due to Assets	(166,445,681)
9. Total Pension Expense	**$ 2,966,164,600**

B. Reconciliation of Net Pension Liability

1. Net Pension Liability Beginning of Year	**$ 27,103,519,942**
2. Pension Expense	2,966,164,600
3. Employer Contributions (made negative for addition here)	(1,804,319,356)
4. Change in Liability Experience Outflows/(Inflows) Recognized in Current Liabilities	(396,523,706)
5. Change in Assumption Changes Experience Outflows/(Inflows) Recognized in Current Liabilities	(402,739,410)
6. Change in Investment Experience Outflows/(Inflows) Recognized in Current Assets	542,086,986
7. Net Pension Liability End of Year	**$ 28,008,189,056**

C. Deferred Outflows and Deferred Inflows of Resources by Year to be recognized in Future Pension Expenses

Year Ending June 30	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows (Inflows) of Resources
2016	$ 871,488,170	$ 342,899,447	$ 528,588,723
2017	871,488,170	342,899,447	528,588,723
2018	576,206,186	342,899,445	233,306,741
2019	121,398,575	59,640,190	61,758,385
2020	-	-	-
Total	$ 2,440,581,101	$ 1,088,338,529	$ 1,352,242,572

Our understanding is that SERS is a single employer defined benefit pension plan. If the sponsor has component units, a proportionate share allocation of the pension expense and net pension liability under paragraph 342 of GASB Statement No. 68 may be required.

Pension Expense Under GASB Statement No. 68
Plan Year Ended June 30, 2016
Applicable to Fiscal Year Ended June 30, 2017

A. Expense

1. Service Cost Including Pension Plan Administrative Expense	$	843,376,643
2. Interest on the Total Pension Liability		2,989,387,125
3. Current-Period Benefit Changes		-
4. Employee Contributions (made negative for addition here)		(256,198,172)
5. Projected Earnings on Plan Investments (made negative for addition here)		(1,102,888,052)
6. Other Changes in Plan Fiduciary Net Position		-
7. Recognition of Outflow (Inflow) of Resources due to Liabilities		1,628,116,721
8. Recognition of Outflow (Inflow) of Resources due to Assets		79,220,516
9. Total Pension Expense	**$**	**4,181,014,781**

B. Reconciliation of Net Pension Liability

1. Net Pension Liability Beginning of Year	**$**	**28,008,189,056**
2. Pension Expense		4,181,014,781
3. Employer Contributions (made negative for addition here)		(1,882,243,268)
4. Change in Liability Experience Outflows/(Inflows) Recognized in Current Liabilities		(504,303,172)
5. Change in Assumption Changes Experience Outflows/(Inflows) Recognized in Current Liabilities		3,193,651,641
6. Change in Investment Experience Outflows/(Inflows) Recognized in Current Assets		1,149,110,468
7. Net Pension Liability End of Year	**$**	**34,145,419,506**

C. Deferred Outflows and Deferred Inflows of Resources by Year to be recognized in Future Pension Expenses

Year Ending June 30		Deferred Outflows of Resources		Deferred Inflows of Resources		Net Deferred Outflows (Inflows) of Resources
2017	$	2,208,137,397	$	500,800,160	$	1,707,337,237
2018		1,912,855,413		500,800,158		1,412,055,255
2019		1,458,047,802		217,540,903		1,240,506,899
2020		929,821,655		99,019,537		830,802,118
2021		-		-		-
Total	$	6,508,862,267	$	1,318,160,758	$	5,190,701,509

Our understanding is that SERS is a single employer defined benefit pension plan. If the sponsor has component units, a proportionate share allocation of the pension expense and net pension liability under paragraph 342 of GASB Statement No. 68 may be required.

Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods
Fiscal Year Ended June 30, 2014

A. Change in Outflows and (Inflows) of Resources during Plan Year End June 30, 2014

	Balance at beginning of year	Amortization Factor	Amortization	Balance at end of year
Experience (Gain)/Loss				
1. Differences between expected and actual non-investment experience	$ 150,997,067	4.58860	$ 32,907,001	$ 118,090,066
2. Assumption changes	3,142,466,514	4.58860	684,842,112	2,457,624,402
3. Difference between expected and actual investment earnings	(1,207,869,708)	5.00000	(241,573,942)	(966,295,766)
4. Total	$ 2,085,593,873		$ 476,175,171	$ 1,609,418,702

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

	Outflows of Resources	Inflows of Resources	Net Outflows (Inflows) of Resources
1. Differences between expected and actual non-investment experience	$ 32,907,001	$ 0	$ 32,907,001
2. Assumption changes	684,842,112	-	684,842,112
3. Difference between expected and actual investment earnings	-	241,573,942	(241,573,942)
4. Total	$ 717,749,113	$ 241,573,942	$ 476,175,171

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

	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows (Inflows) of Resources
1. Differences between expected and actual non-investment experience	$ 118,090,066	$ 0	$ 118,090,066
2. Assumption changes	2,457,624,402	-	2,457,624,402
3. Difference between expected and actual investment earnings	-	966,295,766	(966,295,766)
4. Total	$ 2,575,714,468	$ 966,295,766	$ 1,609,418,702

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

Year Ending June 30	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows (Inflows) of Resources
2015	$ 717,749,113	$ 241,573,942	$ 476,175,171
2016	717,749,113	241,573,942	476,175,171
2017	717,749,113	241,573,942	476,175,171
2018	422,467,129	241,573,940	180,893,189
2019	-	-	-
Thereafter	-	-	-
Total	$ 2,575,714,468	$ 966,295,766	$ 1,609,418,702

Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods
Fiscal Year Ended June 30, 2015

A. Change in Outflows and (Inflows) of Resources during Plan Year End June 30, 2015

	Balance at beginning of year	Amortization Factor	Amortization	Balance at end of year
Experience (Gain)/Loss				
1. Differences between expected and actual non-investment experience	$ (464,942,210)	4.58860	$ (101,325,505)	$ (363,616,705)
2. Assumption changes	360,713,498	4.58860	78,610,796	282,102,702
3. Difference between expected and actual investment earnings	375,641,305	5.00000	75,128,261	300,513,044
4. Total	$ 271,412,593		$ 52,413,552	$ 218,999,041

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

	Outflows of Resources	Inflows of Resources	Net Outflows (Inflows) of Resources
1. Differences between expected and actual non-investment experience	$ 0	$ 101,325,505	$ (101,325,505)
2. Assumption changes	78,610,796	-	78,610,796
3. Difference between expected and actual investment earnings	75,128,261	-	75,128,261
4. Total	$ 153,739,057	$ 101,325,505	$ 52,413,552

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

	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows (Inflows) of Resources
1. Differences between expected and actual non-investment experience	$ 0	$ 363,616,705	$ (363,616,705)
2. Assumption changes	282,102,702	-	282,102,702
3. Difference between expected and actual investment earnings	300,513,044	-	300,513,044
4. Total	$ 582,615,746	$ 363,616,705	$ 218,999,041

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

Year Ending June 30	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows (Inflows) of Resources
2016	$ 153,739,057	$ 101,325,505	$ 52,413,552
2017	153,739,057	101,325,505	52,413,552
2018	153,739,057	101,325,505	52,413,552
2019	121,398,575	59,640,190	61,758,385
2020	-	-	-
Thereafter	-	-	-
Total	$ 582,615,746	$ 363,616,705	$ 218,999,041

STATEMENT OF OUTFLOWS AND INFLOWS ARISING FROM CURRENT AND PRIOR REPORTING PERIODS
FISCAL YEAR ENDED JUNE 30, 2016

A. Change in Outflows and (Inflows) of Resources during Plan Year End June 30, 2016

	Balance at beginning of year	Amortization Factor	Amortization	Balance at end of year
Experience (Gain)/Loss				
1. Differences between expected and actual non-investment experience	$ (730,622,389)	4.62710	$ (157,900,713)	$ (572,721,676)
2. Assumption changes	5,048,087,579	4.62710	1,090,983,030	3,957,104,549
3. Difference between expected and actual investment earnings	1,228,330,984	5.00000	245,666,197	982,664,787
4. Total	$ 5,545,796,174		$ 1,178,748,514	$ 4,367,047,660

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

	Outflows of Resources	Inflows of Resources	Net Outflows (Inflows) of Resources
1. Differences between expected and actual non-investment experience	$ 0	$ 157,900,713	$ (157,900,713)
2. Assumption changes	1,090,983,030	-	1,090,983,030
3. Difference between expected and actual investment earnings	245,666,197	-	245,666,197
4. Total	$ 1,336,649,227	$ 157,900,713	$ 1,178,748,514

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

	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows (Inflows) of Resources
1. Differences between expected and actual non-investment experience	$ 0	$ 572,721,676	$ (572,721,676)
2. Assumption changes	3,957,104,549	-	3,957,104,549
3. Difference between expected and actual investment earnings	982,664,787	-	982,664,787
4. Total	$ 4,939,769,336	$ 572,721,676	$ 4,367,047,660

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

Year Ending June 30	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows (Inflows) of Resources
2017	$ 1,336,649,227	$ 157,900,713	$ 1,178,748,514
2018	1,336,649,227	157,900,713	1,178,748,514
2019	1,336,649,227	157,900,713	1,178,748,514
2020	929,821,655	99,019,537	830,802,118
2021	-	-	-
Thereafter	-	-	-
Total	$ 4,939,769,336	$ 572,721,676	$ 4,367,047,660

SECTION F

SUMMARY OF BENEFITS

Summary of Retirement System Plan (As of June 30, 2016)

Purpose

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

Administration

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

Membership

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

Membership Service

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

Member Contributions

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

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

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

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

Retirement Pension

Qualification of Member

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

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

Members serving in a position in which service toward the Alternative Retirement Annuity may be earned are eligible to receive the alternative retirement annuity at age 50 with at least 25 years of pension credit or at age 55 with at least 20 years of pension credit in such a position. Security employees of the Department of Human Services were placed under the alternative formula effective January 1, 2001. Certain members of the Department of Transportation and the Toll Highway Authority were placed under the alternative formula effective August 1, 2001.

Amount of Pension

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

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

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

- 1.67 percent of final average salary per year of credited service for members covered by Social Security.

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

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

- 2.50 percent of final average salary per year of credited service for members covered by Social Security.

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

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

Optional Forms of Payment

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

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

Annual Increases in Pension

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

Survivors Annuity

Qualification of Survivor

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

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

Amount of Payment

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

An eligible spouse receives a monthly annuity equal to 30 percent of the member's final average compensation subject to a maximum of $400. If children of the member are under the care of the spouse, the annuity is increased for each child, subject to a monthly maximum of $600 or 80 percent of final average compensation. If only eligible children survive, the monthly annuity may not exceed the lesser of $600 or 80 percent of final average compensation. The maximum combined monthly payment to parents may not exceed $400. If the member's death occurs after retirement or after termination of State employment but before the member receives a pension, the monthly benefit is further limited to 80 percent of the pension received or earned by the member. Monthly benefits payable to survivors of a member who was covered by Social Security as a State employee are reduced by one-half of the Social Security benefits for which the survivors are eligible. For benefits granted on or after January 1, 1992, the reduction may not exceed 50 percent of the amount of 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 full-time student). However, the monthly annuity will continue for a child who at age 18, is physically or mentally disabled and unable to accept gainful employment.

Annual Increases in Annuity

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

Widow's Annuity Option

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

Qualification of Widow

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

Amount of Payment

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

Duration of Payment

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

Annual Increases in Annuity

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

Occupational Death Benefit

Qualification of Survivors

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

Amount and Duration of Payment

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

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

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

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

Annual Increases in Annuity

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

Reductions

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

Other Death Benefits

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

Before Retirement

If the member's death occurred while in State service the benefit consists of: (1) a refund of all contributions plus interest credited to the member's account; and (2) a payment equal to one month's salary for each full year of pension credit not to exceed six month's salary. The minimum payment is equal to one month's salary.

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

After Retirement

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

Non-Occupational Disability Benefits

Qualification and Amount of Payment

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

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

Duration of Payment

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

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

Annual Increases in Annuity

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

Occupational Disability Benefit

Qualification and Amount of Payment

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

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

Duration of Payment

Monthly benefits are payable until the occurrence of any of the following events: (1) disability ceases; (2) resumption of gainful employment; or (3) attainment of age 65 if the benefit commences prior to age 60, or payment for 5 years if the benefit commences after age 60.

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

Annual Increases in Annuity

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

Temporary Disability Benefit

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

Separation Benefits

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

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

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

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

Salary and COLA Development for Members Hired After December 31, 2010

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

SECTION G

ACTUARIAL COST METHOD AND ACTUARIAL ASSUMPTIONS

Valuation Methods — Calculation of the Total Pension Liability

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

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

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

Valuation Methods — Calculation of the Statutory Contributions, Actuarial Cost Method Adopted June 30, 1989, by Statute

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 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 value of the projected pensions at that time less the 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 valuation purposes, as well as projection purposes, an actuarial value of assets is used.

Appropriation Requirements Under P.A. 88-0593

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.

Actuarial Assumptions Adopted June 30, 2016

Actuarial assumptions are set by the Board of Trustees. Additional information regarding the rationale for the assumptions may be found in the experience study report of the State Employees' Retirement System for the period from July 1, 2012, to 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 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 95 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.

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.

Termination

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

Service Based Withdrawal				
	Regular Formula Employees		Alternate Formula Employees	
Service (Beginning of Year)	Males	Females	Males	Females
0	0.2300	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.

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. Furthermore, wage inflation for fiscal years 2017 and 2018 was assumed to remain flat at 0.0 percent, as advised by SERS staff.

Disability

Because members who receive disability benefits typically spend less than one year on disability, they are considered active members. Therefore a load of 1.51% 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 valuation date as experience emerges.

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

No explicit assumption is made with respect to these items.

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 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 Entrant Benefit Groups													
Age Group	New Entrants Eligible for Regular Formula Benefits that are Covered by Social Security		New Entrants Eligible for Regular Formula Benefits that are not Covered by Social Security		New Entrants in Positions Formerly Eligible for Alternate Formula Benefits that are Covered by Social Security that are now Eligible for Regular Formula Benefits		New Entrants Eligible for Alternate Formula Benefits that are Covered by Social Security		New Entrants in Positions Formerly Eligible for Alternate Formula Benefits that are not Covered by Social Security that are now Eligible for Regular Formula Benefits		New Entrants Eligible for Alternate Formula Benefits that are not Covered by Social Security		Total	
	No.	Salary	No.	Salary	No.	Salary	No.	Salary	No.	Salary	No.	Salary	No.	Salary
Under 20	80	2,358,446			14	690,023	17	780,785			1	36,934	112	3,866,188
20-24	2,182	85,476,855	8	289,273	587	29,624,728	843	42,684,464	218	13,929,071	73	4,422,404	3,911	176,426,795
25-29	3,788	171,209,790	28	1,507,166	814	42,939,907	1,016	55,143,162	355	23,295,236	129	8,107,343	6,130	302,202,604
30-34	3,359	166,218,047	27	1,519,642	571	32,634,270	766	44,917,258	169	11,839,114	60	4,055,243	4,952	261,183,574
35-39	2,912	152,253,060	8	409,630	454	26,583,379	563	34,534,786	73	5,046,495	17	1,209,947	4,027	220,037,297
40-44	2,856	154,770,274	15	827,662	431	25,834,477	417	26,931,594	29	2,125,886	2	125,244	3,750	210,615,137
45-49	2,350	129,772,966	12	726,104	317	19,072,924	285	19,364,613	14	906,632	3	214,488	2,981	170,057,727
50-54	1,962	108,959,941	7	433,206	231	14,816,904	155	10,787,405	11	798,398	1	50,964	2,367	135,846,818
55-59	1,234	67,843,687	10	644,644	137	8,846,704	53	3,537,563	8	593,711			1,442	81,466,309
60-64	432	22,392,766	3	223,522	44	2,863,177	15	1,148,446	3	234,394			497	26,862,305
65-69	38	2,264,329			4	261,762	1	77,852					43	2,603,943
70 & Over														
Total	21,193	$ 1,063,520,161	118	$ 6,580,849	3,604	$ 204,168,255	4,131	$ 239,907,928	880	$ 58,768,937	286	$ 18,222,567	30,212	$ 1,591,168,697
Avg. Salary		$ 50,183		$ 55,770		$ 56,650		$ 58,075		$ 66,783		$ 63,715		$ 52,667
Avg. Age		37.69		37.57		34.95		32.52		29.21		27.83		36.31
Percent Male		43%		73%		78%		75%		91%		84%		53%

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		
	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%

Retirement Rates for Alternate Formula Employees				
	Eligible for Alternate Formula Benefits Only		Eligible for Regular Formula Benefits Only	
Age	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

The Plan Fiduciary Net Position is used for GASB reporting purposes. The asset method used to project contributions is prescribed by statute. A description of this method can be found in the June 30, 2016, actuarial valuation report.

Expenses

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

Spouse's Age

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

Children

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

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

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

Overtime and Shift Differentials

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

Load for Inactive Members Eligible for Deferred Vested Pension Benefits

Load of 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 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.

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 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, 2014, and 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%		

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%

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

Service Based Withdrawal				
	Regular Formula Employees		Alternate Formula Employees	
Service (Beginning of Year)	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

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.
    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.

Following the above legislation we have calculated the required contribution and the results are shown in the summary section of the June 30, 2016, actuarial valuation report.

SECTION H

CALCULATION OF THE SINGLE DISCOUNT RATE

CALCULATION OF THE SINGLE DISCOUNT RATE

GASB Statements Nos. 67 and 68 include a specific requirement for the discount rate that is used for the purpose of the measurement of the Total Pension Liability. This rate considers the ability of the Fund to meet benefit obligations in the future. To make this determination, employer contributions, employee contributions, benefit payments, expenses and investment returns are projected into the future. The Plan Net Position (assets) in future years can then be determined and compared to its obligation to make benefit payments in those years. As long as assets are projected to be on hand in a future year, the assumed valuation discount rate is used. In years where assets are not projected to be sufficient to meet benefit payments, the use of a municipal bond rate is required, as described in the following paragraph.

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

For the purpose of this valuation, the expected rate of return on pension plan investments is **7.00** percent; the municipal bond rate is 2.85 percent; and the resulting Single Discount Rate is 6.64 percent.

The sponsor finances benefit using a funding policy defined in state statute. Sponsor contributions are calculated as a level percentage of capped payroll contributions needed to attain a funded status of 90 percent in 2045 under the Projected Unit Credit cost method. After 2045, the sponsor makes a contribution such that the funded status remains at 90 percent. The statutory contribution does not explicitly separate projected employer contributions between current and future plan members.

For purposes of developing the Single Discount Rate, we have projected actuarial liabilities on an Entry Age Normal basis, and compared against projected market value of assets. We have assumed the actuarial liability for future members will be fully financed, to the extent that assets are available, and any remaining asset will be assigned to current plan members. Based on this assignment of assets and employer contributions, plan assets assigned to current plan members are projected to be depleted by **2072**.

The tables in this section provide background for the development of the Single Discount Rate.

The following tables show the assignment of assets and employer contributions and the projection of assets for current members as of the valuation date. Our projections assume the sponsor will make the required statutory contributions. The projections are based on the statutory funding projections performed during the **June 30, 2016**, actuarial valuation.

Total administrative expenses are assumed to increase at the same rate of projected capped payroll increases. Total administrative expenses are allocated between current and future hires by total payroll.

PROJECTION OF FUNDED STATUS AND ASSIGNMENT OF ASSETS

PYE 6/30	Open Group EAN Actuarial Liability	Closed Group EAN Actuarial Liability	Future Member EAN Actuarial Liability	Open Group Assets	Future Member Assigned Assets	Closed Group Assigned Assets	Funded Ratio Current Members	Funded Ratio Future Members
	(a)	(b)	(c)=(a)-(b)	(d)	(e)=min[(c),(d)]	(f)=(d)-(e)	(g)=(f)/(b)	(h)=(e)/(c)
2016	$ 46,975,576,549	$ 46,975,576,549	$ -	$ 15,038,528,150	$ -	$ 15,038,528,150	32.01%	0.00%
2017	48,721,926,703	48,721,926,704	-	16,040,414,270	-	16,040,414,270	32.92%	0.00%
2018	50,453,074,665	50,430,411,702	22,662,963	17,289,782,841	22,662,963	17,267,119,879	34.24%	100.00%
2019	52,164,617,681	52,096,662,216	67,955,465	18,541,290,382	67,955,465	18,473,334,917	35.46%	100.00%
2020	53,848,251,278	53,710,028,003	138,223,275	19,792,429,018	138,223,275	19,654,205,743	36.59%	100.00%
2021	55,496,204,726	55,260,918,440	235,286,286	21,057,136,177	235,286,286	20,821,849,891	37.68%	100.00%
2022	57,099,273,126	56,737,260,117	362,013,008	22,325,785,465	362,013,008	21,963,772,457	38.71%	100.00%
2023	58,648,514,791	58,127,320,796	521,193,995	23,578,072,894	521,193,995	23,056,878,899	39.67%	100.00%
2024	60,133,593,039	59,417,902,176	715,690,863	24,805,145,891	715,690,863	24,089,455,028	40.54%	100.00%
2025	61,549,123,027	60,597,897,666	951,225,361	26,006,657,611	951,225,361	25,055,432,250	41.35%	100.00%
2026	62,891,185,123	61,660,187,889	1,230,997,234	27,191,646,780	1,230,997,234	25,960,649,546	42.10%	100.00%
2027	64,160,990,210	62,602,504,147	1,558,486,063	28,368,876,944	1,558,486,063	26,810,390,882	42.83%	100.00%
2028	65,355,613,243	63,418,974,673	1,936,638,570	29,536,867,183	1,936,638,570	27,600,228,614	43.52%	100.00%
2029	66,477,271,833	64,109,488,367	2,367,783,466	30,708,282,178	2,367,783,466	28,340,498,712	44.21%	100.00%
2030	67,527,192,396	64,671,969,861	2,855,222,534	31,888,094,108	2,855,222,534	29,032,871,574	44.89%	100.00%
2031	68,505,157,519	65,103,095,581	3,402,061,938	33,086,941,997	3,402,061,938	29,684,880,059	45.60%	100.00%
2032	69,409,467,765	65,397,376,290	4,012,091,475	34,318,294,753	4,012,091,475	30,306,203,278	46.34%	100.00%
2033	70,242,967,500	65,553,937,407	4,689,030,092	35,599,929,958	4,689,030,092	30,910,899,865	47.15%	100.00%
2034	71,009,828,643	65,573,484,969	5,436,343,674	37,222,607,785	5,436,343,674	31,786,264,112	48.47%	100.00%
2035	71,710,164,193	65,452,072,545	6,258,091,648	38,945,924,245	6,258,091,648	32,687,832,597	49.94%	100.00%
2036	72,344,490,682	65,185,701,472	7,158,789,210	40,783,928,608	7,158,789,210	33,625,139,398	51.58%	100.00%
2037	72,918,648,887	64,777,778,672	8,140,870,215	42,756,899,283	8,140,870,215	34,616,029,068	53.44%	100.00%
2038	73,439,884,440	64,234,494,291	9,205,390,149	44,887,932,477	9,205,390,149	35,682,542,328	55.55%	100.00%
2039	73,915,673,093	63,561,614,129	10,354,058,964	47,200,113,712	10,354,058,964	36,846,054,748	57.97%	100.00%
2040	74,354,661,612	62,766,431,247	11,588,230,365	49,717,827,322	11,588,230,365	38,129,596,957	60.75%	100.00%
2041	74,766,142,466	61,857,177,219	12,908,965,247	52,467,102,026	12,908,965,247	39,558,136,779	63.95%	100.00%
2042	75,159,755,950	60,842,520,600	14,317,235,350	55,475,624,553	14,317,235,350	41,158,389,203	67.65%	100.00%
2043	75,544,886,317	59,731,002,860	15,813,883,457	58,772,642,114	15,813,883,457	42,958,758,657	71.92%	100.00%
2044	75,929,736,655	58,530,368,821	17,399,367,834	62,387,660,834	17,399,367,834	44,988,293,000	76.86%	100.00%
2045	76,321,188,321	57,247,248,576	19,073,939,745	66,349,684,356	19,073,939,745	47,275,744,611	82.58%	100.00%
2046	76,724,628,911	55,887,236,638	20,837,392,273	66,635,312,486	20,837,392,273	45,797,920,213	81.95%	100.00%
2047	77,144,716,993	54,455,533,997	22,689,182,996	66,940,739,831	22,689,182,996	44,251,556,835	81.26%	100.00%
2048	77,585,724,849	52,957,231,463	24,628,493,387	67,269,149,850	24,628,493,387	42,640,656,464	80.52%	100.00%
2049	78,050,931,338	51,396,851,452	26,654,079,886	67,623,608,756	26,654,079,886	40,969,528,870	79.71%	100.00%
2050	78,542,922,515	49,778,977,494	28,763,945,021	68,006,350,615	28,763,945,021	39,242,405,594	78.83%	100.00%
2051	79,063,745,412	48,108,704,641	30,955,040,771	68,419,057,281	30,955,040,771	37,464,016,511	77.87%	100.00%
2052	79,615,067,688	46,391,745,395	33,223,322,293	68,862,874,985	33,223,322,293	35,639,552,693	76.82%	100.00%
2053	80,198,072,035	44,634,246,494	35,563,825,541	69,338,350,462	35,563,825,541	33,774,524,921	75.67%	100.00%
2054	80,813,342,957	42,842,963,074	37,970,379,883	69,845,396,994	37,970,379,883	31,875,017,111	74.40%	100.00%
2055	81,460,377,269	41,024,794,102	40,435,583,167	70,382,874,013	40,435,583,167	29,947,290,846	73.00%	100.00%
2056	82,138,880,971	39,187,332,895	42,951,548,075	70,949,861,133	42,951,548,075	27,998,313,058	71.45%	100.00%
2057	82,848,417,705	37,338,244,193	45,510,173,512	71,545,305,834	45,510,173,512	26,035,132,322	69.73%	100.00%
2058	83,588,436,738	35,484,841,705	48,103,595,032	72,167,987,036	48,103,595,032	24,064,392,004	67.82%	100.00%
2059	84,359,309,445	33,634,857,620	50,724,451,826	72,817,708,040	50,724,451,826	22,093,256,215	65.69%	100.00%
2060	85,162,118,326	31,796,102,882	53,366,015,444	73,495,071,764	53,366,015,444	20,129,056,320	63.31%	100.00%
2061	85,998,414,680	29,976,298,170	56,022,116,510	74,201,225,521	56,022,116,510	18,179,109,011	60.64%	100.00%
2062	86,869,588,985	28,182,307,730	58,687,281,255	74,937,196,395	58,687,281,255	16,249,915,140	57.66%	100.00%
2063	87,776,963,361	26,420,150,284	61,356,813,077	75,703,967,794	61,356,813,077	14,347,154,717	54.30%	100.00%
2064	88,721,988,118	24,695,335,667	64,026,652,452	76,502,718,355	64,026,652,452	12,476,065,904	50.52%	100.00%
2065	89,706,143,945	23,012,751,737	66,693,392,208	77,334,712,267	66,693,392,208	10,641,320,059	46.24%	100.00%
2066	90,730,972,187	21,376,822,087	69,354,150,100	78,201,338,826	69,354,150,100	8,847,188,725	41.39%	100.00%
2067	91,798,006,081	19,791,556,075	72,006,450,006	79,104,040,628	72,006,450,006	7,097,590,622	35.86%	100.00%
2068	92,908,658,474	18,260,564,282	74,648,094,192	80,044,191,685	74,648,094,192	5,396,097,493	29.55%	100.00%
2069	94,064,108,727	16,787,072,634	77,277,036,093	81,022,979,326	77,277,036,093	3,745,943,233	22.31%	100.00%
2070	95,265,257,988	15,373,888,139	79,891,369,848	82,041,347,788	79,891,369,848	2,149,977,940	13.98%	100.00%
2071	96,512,762,604	14,023,438,525	82,489,324,079	83,100,026,835	82,489,324,079	610,702,756	4.35%	100.00%
2072	97,807,039,964	12,737,809,135	85,069,230,829	84,199,535,871	84,199,535,871	-	0.00%	98.98%
2073	99,148,290,561	11,518,725,724	87,629,564,837	85,340,204,258	85,340,204,258	-	0.00%	97.39%
2074	100,536,518,116	10,367,555,785	90,168,962,331	86,522,191,820	86,522,191,820	-	0.00%	95.96%
2075	101,971,480,952	9,285,283,903	92,686,197,049	87,745,434,961	87,745,434,961	-	0.00%	94.67%

The projections in this report are strictly for the purpose of determining the GASB Single Discount Rate and are different from a funding projection for the ongoing plan.

CURRENT MEMBER PROJECTION OF ASSETS AND ASSIGNMENT OF EMPLOYER CONTRIBUTIONS

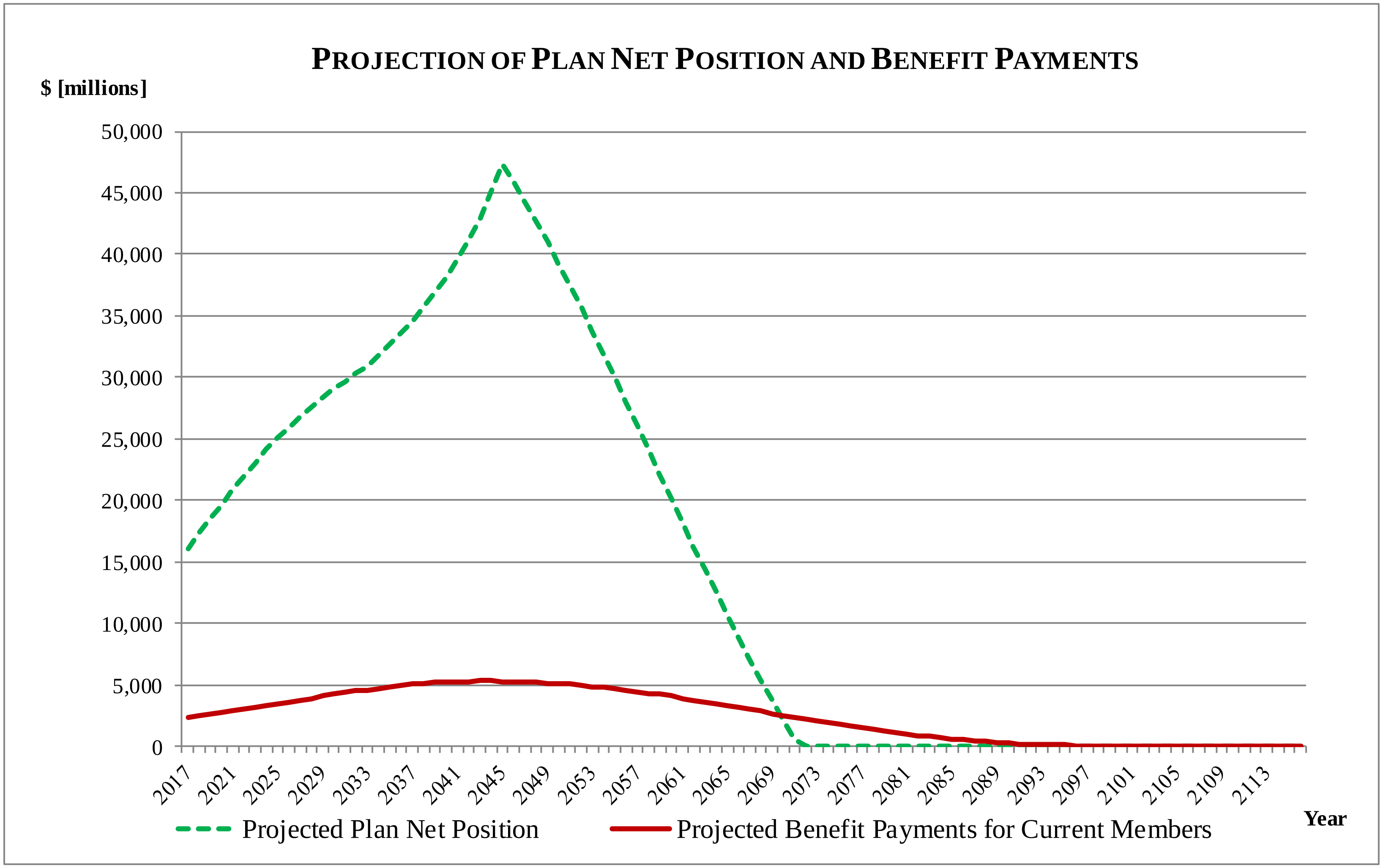
PYE 6/30	Assets (boy)	Member Contributions	Administrative Expenses	Benefit Payments	Assigned Employer Contribution	Income on Cash Flow	Income on Assigned Contribution	Total Investment Income	Assets (eoy)
2017	$ 15,038,528,150	$ 254,598,458	$ 18,217,681	$ 2,299,962,480	$ 2,014,461,000	$ 981,693,162	$ 69,313,661	$ 1,051,006,823	$ 16,040,414,270
2018	16,040,414,270	228,628,378	16,304,425	2,423,612,842	2,311,710,199	1,046,742,875	79,541,425	1,126,284,300	17,267,119,879
2019	17,267,119,879	221,822,839	15,792,520	2,555,018,463	2,346,587,394	1,127,874,306	80,741,481	1,208,615,786	18,473,334,917
2020	18,473,334,917	214,592,886	15,274,673	2,692,856,356	2,385,009,774	1,207,335,676	82,063,520	1,289,399,195	19,654,205,743
2021	19,654,205,743	207,385,813	14,767,981	2,834,974,512	2,441,130,233	1,284,876,079	83,994,515	1,368,870,594	20,821,849,891
2022	20,821,849,891	199,412,685	14,227,868	2,982,084,671	2,491,791,122	1,361,293,641	85,737,657	1,447,031,298	21,963,772,457
2023	21,963,772,457	190,828,692	13,666,615	3,133,718,093	2,526,979,281	1,435,734,765	86,948,412	1,522,683,177	23,056,878,899
2024	23,056,878,899	181,889,330	13,090,534	3,290,226,821	2,559,362,216	1,506,579,292	88,062,646	1,594,641,938	24,089,455,028
2025	24,089,455,028	172,168,675	12,483,615	3,449,585,802	2,593,575,307	1,573,062,805	89,239,851	1,662,302,656	25,055,432,250
2026	25,055,432,250	162,639,933	11,889,198	3,608,285,614	2,637,101,427	1,634,913,248	90,737,500	1,725,650,748	25,960,649,546
2027	25,960,649,546	152,925,017	11,291,610	3,760,944,405	2,683,989,450	1,692,712,059	92,350,825	1,785,062,884	26,810,390,882
2028	26,810,390,882	143,325,691	10,703,165	3,913,087,123	2,729,728,732	1,746,648,972	93,924,624	1,840,573,597	27,600,228,614
2029	27,600,228,614	134,773,750	10,165,196	4,059,165,435	2,782,452,629	1,796,635,600	95,738,750	1,892,374,350	28,340,498,712
2030	28,340,498,712	126,474,800	9,638,684	4,200,146,422	2,834,806,819	1,843,336,192	97,540,156	1,940,876,348	29,032,871,574
2031	29,032,871,574	118,770,746	9,131,591	4,336,493,680	2,892,475,376	1,886,863,217	99,524,418	1,986,387,635	29,684,880,059
2032	29,684,880,059	110,847,028	8,618,210	4,468,827,273	2,958,432,311	1,927,695,496	101,793,867	2,029,489,363	30,306,203,278
2033	30,306,203,278	102,767,169	8,099,869	4,593,540,895	3,032,587,972	1,966,636,792	104,345,418	2,070,982,210	30,910,899,865
2034	30,910,899,865	95,246,076	7,601,639	4,709,548,781	3,376,362,265	2,004,732,306	116,174,019	2,120,906,325	31,786,264,112
2035	31,786,264,112	87,846,642	7,109,855	4,819,593,548	3,459,410,018	2,061,983,699	119,031,530	2,181,015,229	32,687,832,597
2036	32,687,832,597	79,994,275	6,600,354	4,923,416,195	3,544,114,523	2,121,268,506	121,946,046	2,243,214,551	33,625,139,398
2037	33,625,139,398	72,302,092	6,097,529	5,016,043,281	3,632,302,475	2,183,445,493	124,980,421	2,308,425,914	34,616,029,068
2038	34,616,029,068	65,595,591	5,635,812	5,095,721,764	3,724,278,781	2,249,851,318	128,145,145	2,377,996,464	35,682,542,328
2039	35,682,542,328	59,382,369	5,197,460	5,162,896,048	3,818,827,953	2,321,997,209	131,398,397	2,453,395,606	36,846,054,748
2040	36,846,054,748	53,913,214	4,793,563	5,216,754,514	3,915,052,161	2,401,415,628	134,709,284	2,536,124,912	38,129,596,957
2041	38,129,596,957	49,058,259	4,420,413	5,256,702,094	4,012,796,731	2,489,734,855	138,072,484	2,627,807,338	39,558,136,779
2042	39,558,136,779	44,805,934	4,076,713	5,282,858,218	4,112,190,808	2,588,698,173	141,492,439	2,730,190,612	41,158,389,203
2043	41,158,389,203	41,107,901	3,762,182	5,295,631,040	4,213,515,999	2,700,159,935	144,978,841	2,845,138,776	42,958,758,657
2044	42,958,758,657	37,813,963	3,476,261	5,295,874,128	4,316,475,364	2,826,073,933	148,521,471	2,974,595,404	44,988,293,000
2045	44,988,293,000	34,793,402	3,207,349	5,284,801,529	4,420,150,705	2,968,427,645	152,088,737	3,120,516,381	47,275,744,611
2046	47,275,744,611	31,980,778	2,955,122	5,263,600,336	606,684,795	3,129,190,651	20,874,837	3,150,065,487	45,797,920,213
2047	45,797,920,213	29,226,202	2,708,150	5,232,839,774	612,179,377	3,026,715,072	21,063,894	3,047,778,966	44,251,556,835
2048	44,251,556,835	26,607,799	2,469,605	5,192,899,331	616,873,339	2,919,762,022	21,225,405	2,940,987,426	42,640,656,464
2049	42,640,656,464	23,986,406	2,233,482	5,144,459,190	621,606,747	2,808,583,654	21,388,272	2,829,971,925	40,969,528,870
2050	40,969,528,870	21,341,455	1,994,264	5,087,714,310	626,222,333	2,693,474,426	21,547,085	2,715,021,511	39,242,405,594
2051	39,242,405,594	18,740,857	1,757,433	5,022,558,075	630,746,454	2,574,736,362	21,702,751	2,596,439,114	37,464,016,511
2052	37,464,016,511	16,230,456	1,526,696	4,948,731,626	635,003,894	2,452,710,911	21,849,241	2,474,560,153	35,639,552,693
2053	35,639,552,693	13,791,870	1,300,092	4,866,174,373	638,908,273	2,327,762,968	21,983,583	2,349,746,551	33,774,524,921
2054	33,774,524,921	11,459,926	1,083,185	4,774,818,576	642,543,729	2,200,281,624	22,108,672	2,222,390,296	31,875,017,111
2055	31,875,017,111	9,320,547	882,174	4,675,055,152	645,981,508	2,070,682,046	22,226,960	2,092,909,005	29,947,290,846
2056	29,947,290,846	7,406,785	702,835	4,566,777,074	649,345,464	1,939,407,166	22,342,707	1,961,749,873	27,998,313,058
2057	27,998,313,058	5,801,748	551,660	4,450,413,086	652,595,187	1,806,932,553	22,454,523	1,829,387,077	26,035,132,322
2058	26,035,132,322	4,405,146	419,533	4,326,698,236	655,688,178	1,673,723,180	22,560,947	1,696,284,127	24,064,392,004
2059	24,064,392,004	3,250,920	310,205	4,195,742,716	658,758,300	1,540,241,328	22,666,584	1,562,907,912	22,093,256,215
2060	22,093,256,215	2,333,796	222,748	4,057,962,577	661,902,833	1,406,974,020	22,774,781	1,429,748,801	20,129,056,320
2061	20,129,056,320	1,646,367	157,180	3,913,939,237	665,200,308	1,274,414,192	22,888,241	1,297,302,433	18,179,109,011
2062	18,179,109,011	1,158,646	110,683	3,764,920,705	668,642,072	1,143,030,135	23,006,665	1,166,036,800	16,249,915,140
2063	16,249,915,140	792,792	75,749	3,612,074,063	672,232,076	1,013,234,331	23,130,190	1,036,364,522	14,347,154,717
2064	14,347,154,717	533,575	51,090	3,456,254,746	676,028,173	885,394,469	23,260,807	908,655,275	12,476,065,904
2065	12,476,065,904	349,106	33,480	3,298,376,918	680,070,765	759,844,778	23,399,904	783,244,682	10,641,320,059
2066	10,641,320,059	219,613	21,107	3,139,185,668	684,420,268	636,885,998	23,549,562	660,435,560	8,847,188,725
2067	8,847,188,725	132,990	12,825	2,979,355,187	689,131,683	516,793,563	23,711,673	540,505,236	7,097,590,622
2068	7,097,590,622	77,831	7,497	2,819,518,680	694,247,864	399,819,643	23,887,711	423,707,353	5,396,097,493
2069	5,396,097,493	44,863	4,322	2,660,274,343	699,807,162	286,193,385	24,078,995	310,272,380	3,745,943,233
2070	3,745,943,233	26,685	2,572	2,502,228,828	705,833,030	176,120,058	24,286,333	200,406,392	2,149,977,940
2071	2,149,977,940	14,001	1,349	2,345,927,511	712,349,023	69,780,116	24,510,536	94,290,652	610,702,756
2072	610,702,756	6,802	658	2,191,863,740	1,560,141,754	(32,668,338)	53,681,425	21,013,087	-
2073	-	2,340	226	2,040,523,364	2,040,521,251	(70,210,344)	70,210,344	-	-
2074	-	541	52	1,892,368,848	1,892,368,359	(65,112,692)	65,112,692	-	-
2075	-	78	8	1,747,860,436	1,747,860,365	(60,140,455)	60,140,455	-	-

The projections in this report are strictly for the purpose of determining the GASB Single Discount Rate and are different from a funding projection for the ongoing plan.

DEVELOPMENT OF SINGLE DISCOUNT RATE

PYE 6/30	Benefit Payments	Discount Rate	Discounted Benefit Payment	Single Discount Rate	Discounted Benefit Payment
2017	$ 2,299,962,480	7.00%	$ 2,223,457,653	6.64%	$ 2,227,189,355
2018	2,423,612,842	7.00%	2,189,714,925	6.64%	2,200,758,650
2019	2,555,018,463	7.00%	2,157,419,493	6.64%	2,175,584,704
2020	2,692,856,356	7.00%	2,125,053,977	6.64%	2,150,145,865
2021	2,834,974,512	7.00%	2,090,846,543	6.64%	2,122,641,622
2022	2,982,084,671	7.00%	2,055,460,773	6.64%	2,093,728,040
2023	3,133,718,093	7.00%	2,018,670,191	6.64%	2,063,160,458
2024	3,290,226,821	7.00%	1,980,831,372	6.64%	2,031,288,924
2025	3,449,585,802	7.00%	1,940,907,514	6.64%	1,997,034,628
2026	3,608,285,614	7.00%	1,897,383,060	6.64%	1,958,810,089
2027	3,760,944,405	7.00%	1,848,277,803	6.64%	1,914,525,348
2028	3,913,087,123	7.00%	1,797,239,992	6.64%	1,867,912,404
2029	4,059,165,435	7.00%	1,742,366,573	6.64%	1,816,964,834
2030	4,200,146,422	7.00%	1,684,936,087	6.64%	1,762,978,364
2031	4,336,493,680	7.00%	1,625,825,539	6.64%	1,706,844,870
2032	4,468,827,273	7.00%	1,565,831,461	6.64%	1,649,383,645
2033	4,593,540,895	7.00%	1,504,233,496	6.64%	1,589,821,932
2034	4,709,548,781	7.00%	1,441,329,216	6.64%	1,528,456,130
2035	4,819,593,548	7.00%	1,378,511,924	6.64%	1,466,752,626
2036	4,923,416,195	7.00%	1,316,081,805	6.64%	1,405,030,628
2037	5,016,043,281	7.00%	1,253,123,379	6.64%	1,342,311,461
2038	5,095,721,764	7.00%	1,189,746,639	6.64%	1,278,705,436
2039	5,162,896,048	7.00%	1,126,570,521	6.64%	1,214,873,244
2040	5,216,754,514	7.00%	1,063,853,006	6.64%	1,151,093,943
2041	5,256,702,094	7.00%	1,001,868,708	6.64%	1,087,668,410
2042	5,282,858,218	7.00%	940,984,835	6.64%	1,025,002,410
2043	5,295,631,040	7.00%	881,551,341	6.64%	963,488,271
2044	5,295,874,128	7.00%	823,917,577	6.64%	903,522,868
2045	5,284,801,529	7.00%	768,406,479	6.64%	845,479,259
2046	5,263,600,336	7.00%	715,255,925	6.64%	789,641,498
2047	5,232,839,774	7.00%	664,556,971	6.64%	736,134,677
2048	5,192,899,331	7.00%	616,340,784	6.64%	685,018,853
2049	5,144,459,190	7.00%	570,646,229	6.64%	636,363,305
2050	5,087,714,310	7.00%	527,431,622	6.64%	590,147,947
2051	5,022,558,075	7.00%	486,614,042	6.64%	546,305,953
2052	4,948,731,626	7.00%	448,094,687	6.64%	504,751,537
2053	4,866,174,373	7.00%	411,793,779	6.64%	465,419,094
2054	4,774,818,576	7.00%	377,628,890	6.64%	428,238,970
2055	4,675,055,152	7.00%	345,550,319	6.64%	393,177,658
2056	4,566,777,074	7.00%	315,464,572	6.64%	360,151,051
2057	4,450,413,086	7.00%	287,314,357	6.64%	329,115,230
2058	4,326,698,236	7.00%	261,053,688	6.64%	300,038,540
2059	4,195,742,716	7.00%	236,591,042	6.64%	272,836,248
2060	4,057,962,577	7.00%	213,852,193	6.64%	247,442,354
2061	3,913,939,237	7.00%	192,768,457	6.64%	223,796,279
2062	3,764,920,705	7.00%	173,298,159	6.64%	201,867,962
2063	3,612,074,063	7.00%	155,385,677	6.64%	181,610,516
2064	3,456,254,746	7.00%	138,955,680	6.64%	162,953,192
2065	3,298,376,918	7.00%	123,933,029	6.64%	145,824,398
2066	3,139,185,668	7.00%	110,235,127	6.64%	130,142,664
2067	2,979,355,187	7.00%	97,778,081	6.64%	115,823,785
2068	2,819,518,680	7.00%	86,478,953	6.64%	102,783,459
2069	2,660,274,343	7.00%	76,256,716	6.64%	90,938,432
2070	2,502,228,828	7.00%	67,033,966	6.64%	80,208,582
2071	2,345,927,511	7.00%	58,735,234	6.64%	70,514,947
2072	2,191,863,740	7.00%	51,287,779	6.64%	61,780,715
2073	2,040,523,364	2.85%	417,060,295	6.64%	53,932,895
2074	1,892,368,848	2.85%	376,061,408	6.64%	46,901,932
2075	1,747,860,436	2.85%	337,718,953	6.64%	40,622,297
2085	589,491,197	2.85%	85,996,949	6.64%	7,202,162
2095	85,337,600	2.85%	9,399,466	6.64%	548,092
2105	4,077,967	2.85%	339,128	6.64%	13,768
2115	175,992	2.85%	11,050	6.64%	312
Total Present Value			**$ 56,748,037,346**		**$ 56,748,037,346**

The projections in this report are strictly for the purpose of determining the GASB Single Discount Rate and are different from a funding projection for the ongoing plan.



The projections in this report are strictly for the purpose of determining the GASB Single Discount Rate and are different from a funding projection for the ongoing plan.

SECTION I

GLOSSARY OF TERMS

GLOSSARY OF TERMS

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

GLOSSARY OF TERMS

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

Glossary of Terms

Entry Age Actuarial Cost Method (EAN) The EAN is a cost method for allocating the costs of the plan between the normal cost and the accrued liability. The actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis (either level dollar or level percent of pay) over the earnings or service of the individual between entry age and assumed exit ages(s). The portion of the actuarial present value allocated to a valuation year is the normal cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future normal costs is the actuarial accrued liability. The sum of the accrued liability plus the present value of all future normal costs is the present value of all benefits.

Fiduciary Net Position The fiduciary net position is the market value of the assets of the trust dedicated to the defined benefit provisions.

GASB The Governmental Accounting Standards Board is an organization that exists in order to promulgate accounting standards for governmental entities.

Long-Term Expected Rate of Return The long-term rate of return is the expected return to be earned over the entire trust portfolio based on the asset allocation of the portfolio.

Money-Weighted Rate of Return The money-weighted rate of return is a method of calculating the returns that adjusts for the changing amounts actually invested. For purposes of GASB Statement No. 67, money-weighted rate of return is calculated as the internal rate of return on pension plan investments, net of pension plan investment expense.

Multiple-Employer Defined Benefit Pension Plan A multiple-employer plan is a defined benefit pension plan that is used to provide pensions to the employees of more than one employer.

Municipal Bond Rate The Municipal Bond Rate is the discount rate to be used for those benefit payments that occur after the assets of the trust have been depleted.

Net Pension Liability (NPL) The NPL is the liability of employers and non-employer contributing entities to plan members for benefits provided through a defined benefit pension plan.

Non-Employer Contributing Entities Non-employer contributing entities are entities that make contributions to a pension plan that is used to provide pensions to the employees of other entities. For purposes of the GASB accounting statements, plan members are not considered non-employer contributing entities.

Normal Cost The portion of the actuarial present value allocated to a valuation year is called the normal cost. For purposes of application to the requirements of this Statement, the term normal cost is the equivalent of service cost.

GLOSSARY OF TERMS

Other Postemployment Benefits (OPEB) All postemployment benefits other than retirement income (such as death benefits, life insurance, disability and long-term care) that are provided separately from a pension plan, as well as postemployment healthcare benefits regardless of the manner in which they are provided. Other post-employment benefits do not include termination benefits.

Real Rate of Return The real rate of return is the rate of return on an investment after adjustment to eliminate inflation.

Service Cost The service cost is the portion of the actuarial present value of projected benefit payments that is attributed to a valuation year.

Total Pension Expense The total pension expense is the sum of the following items that are recognized at the end of the employer's fiscal year:

1. Service Cost
2. Interest on the Total Pension Liability
3. Current-Period Benefit Changes
4. Employee Contributions (made negative for addition here)
5. Projected Earnings on Plan Investments (made negative for addition here)
6. Pension Plan Administrative Expense
7. Other Changes in Plan Fiduciary Net Position
8. Recognition of Outflow (Inflow) of Resources due to Liabilities
9. Recognition of Outflow (Inflow) of Resources due to Assets

Total Pension Liability (TPL) The TPL is the portion of the actuarial present value of projected benefit payments that is attributed to past periods of member service.

Unfunded Actuarial Accrued Liability (UAAL) The UAAL is the difference between actuarial accrued liability and valuation assets.

Valuation Assets The valuation assets are the assets used in determining the unfunded liability of the plan. For purposes of GASB Statement Nos. 67 and 68, the valuation assets are equal to the market value of assets.