

**GENERAL ASSEMBLY RETIREMENT SYSTEM OF  
ILLINOIS**

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

**JUNE 30, 2016**

November 2, 2016

The Board of Trustees  
General Assembly 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) Statements Nos. 67 and 68 for the General Assembly Retirement System of Illinois (“GARS”). 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 General Assembly Retirement System of Illinois (“GARS”) only in its entirety and only with the permission of GARS.

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 GARS, 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 GARS 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 General Assembly Retirement System of Illinois. All

The Board of Trustees  
General Assembly Retirement System of Illinois  
November 2, 2016  
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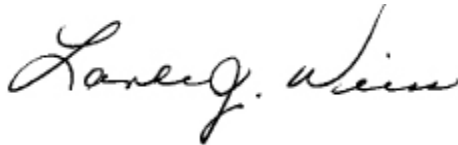
calculations have been made in conformity with generally accepted actuarial principles and practices as well as with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

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   
\_\_\_\_\_  
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Senior Consultant  
FSA, EA, MAAA, FCA

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Auditor's Note – This information is intended to assist in preparation of the financial statements of the General Assembly 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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**SECTION A**

EXECUTIVE SUMMARY

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## EXECUTIVE SUMMARY AS OF JUNE 30, 2016

	<b>2016</b>	
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	
<b>Membership</b>		
Number of		
- Retirees and Beneficiaries	415	
- Inactive, Nonretired Members	71	
- Active Members	141	
- Total	627	
Covered Payroll	\$	11,297,614
<b>Net Pension Liability</b>		
Total Pension Liability	\$	373,665,822
Plan Fiduciary Net Position	49,052,073	
Net Pension Liability	\$	324,613,749
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	13.13 %	
Net Pension Liability as a Percentage of Covered Payroll	2,873.29 %	
<b>Development of the Single Discount Rate</b>		
Single Discount Rate Beginning of Year	6.91 %	
Single Discount Rate End of Year	6.60 %	
Long-Term Expected Rate of Investment Return	6.75 %	
Long-Term Municipal Bond Rate Beginning of Year <sup>a</sup>	3.80 %	
Long-Term Municipal Bond Rate End of Year <sup>a</sup>	2.85 %	
Last year ending June 30 in the 2016 to 2115 projection period for which projected benefit payments are fully funded	2069	
<b>Total Pension Expense for Fiscal Year End June 30, 2016<sup>b</sup></b>	\$	(1,718,786)
<b>Total Pension Expense for Fiscal Year End June 30, 2017</b>	\$	12,652,061
<b>Deferred Outflows and Deferred Inflows of Resources by Source to be recognized in Future Pension Expenses as of June 30, 2017</b>		
	<b>Deferred Outflows of Resources</b>	<b>Deferred Inflows of Resources</b>
Difference between expected and actual experience	\$ 530,903	\$ 3,179,353
Changes in assumptions	24,796,760	15,827,847
Net difference between projected and actual earnings on pension plan investments	4,270,037	1,905,146
Total	\$ 29,597,700	\$ 20,912,346

<sup>a</sup> 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.

<sup>b</sup> 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 GARS 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 6.75 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 6.60 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. The most recent experience study performed for GARS prior to the passage of Public Act 99-0232 was for the period ending July 1, 2006, to June 30, 2012, with the actuarial assumptions adopted for use commencing with the June 30, 2013, actuarial valuation. In order to be compliant with Public Act 99-0232, at the Board's request, we performed an experience review for the period 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 actuarial valuations. The study was based on the information used to perform the actuarial valuations for the period from July 1, 2012, to June 30, 2015.

Following is a summary of 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 lowered from 7.00 percent to 6.75 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 3.00 percent, which reflects an underlying general price inflation assumption of 2.75 percent.
- **Salary increase:** The overall rates were decreased to better reflect observed experience.
- **Normal retirement rates:** The overall rates were increased to better reflect observed experience.
- **Turnover rates:** The current rates were increased for both Tier One and Tier Two members. For Tier Two members with less than five years of service, the turnover rate was increased to a flat rate of 10 percent.
- **Mortality rates:** The mortality tables used for the June 30, 2016, actuarial valuation were changed to the RP-2014 White Collar Total Healthy Annuitant Mortality table for post-retirement mortality and the RP-2014 White Collar Total Employee Mortality table for pre-retirement mortality. In addition to the change in mortality tables, generational mortality improvement factors were added to reflect future mortality improvement. The 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.

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

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## **SECTION B**

### **FINANCIAL STATEMENTS**

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Auditor's Note – This information is intended to assist in preparation of the financial statements of the General Assembly 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**

	<b>2016</b>	<b>2015</b>
<b>Assets</b>		
Cash	\$ 5,542,851	\$ 4,904,253
Receivables		
Contributions:		
Participants	\$ 312,728	\$ 63
Employing state agencies	669,710	658,709
Other Accounts	10,723	8,518
<b>Total Receivables</b>	<b>\$ 993,161</b>	<b>\$ 667,290</b>
Investments		
Held in the Illinois State Board of Investment		
Commingled Fund at fair value	\$ 42,604,441	\$ 49,165,676
Securities lending collateral with State Treasurer	1,359,000	2,174,000
<b>Total Investments</b>	<b>\$ 43,963,441</b>	<b>\$ 51,339,676</b>
Property and equipment, net of accumulated depreciation	\$ 15,773	\$ 9,118
<b>Total Assets</b>	<b>\$ 50,515,226</b>	<b>\$ 56,920,337</b>
<b>Liabilities</b>		
Payables		
Benefits payable	\$ 600	\$ 1,823
Refunds payable	-	38,627
Administrative expenses payable	42,492	36,918
Participants' deferred service credit accounts	-	-
Due to Judges' Retirement System of Illinois	61,061	94,705
Securities lending collateral with State Treasurer	1,359,000	2,174,000
<b>Total Liabilities</b>	<b>\$ 1,463,153</b>	<b>\$ 2,346,073</b>
<b>Net Position Restricted for Pensions</b>	<b>\$ 49,052,073</b>	<b>\$ 54,574,264</b>

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

	<b>2016</b>	<b>2015</b>
<b>Additions</b>		
Contributions		
Participants	\$ 1,309,697	\$ 1,487,346
Employing state agencies and appropriations	16,073,000	15,870,941
<b>Total Contributions</b>	<b>\$ 17,382,697</b>	<b>\$ 17,358,287</b>
Investment Income		
Net investments income	\$ 1,250,546	\$ 1,497,169
Interest earned on cash balances	21,741	21,614
Net appreciation in fair value of investments	(1,811,781)	769,133
<b>Net Investment Income</b>	<b>\$ (539,494)</b>	<b>\$ 2,287,916</b>
<b>Total Additions</b>	<b>\$ 16,843,203</b>	<b>\$ 19,646,203</b>
<b>Deductions</b>		
Benefits		
Retirement annuities	\$ 18,104,674	\$ 17,663,009
Survivors' annuities	3,736,563	3,611,940
Disability benefits	-	-
Lump-sum benefits	-	-
<b>Total Benefits</b>	<b>\$ 21,841,237</b>	<b>\$ 21,274,949</b>
Refunds	141,817	191,755
Administrative	382,340	394,695
<b>Total Deductions</b>	<b>\$ 22,365,394</b>	<b>\$ 21,861,399</b>
<b>Net Increase in Net Position</b>	<b>\$ (5,522,191)</b>	<b>\$ (2,215,196)</b>
<b>Net Position Restricted for Pensions</b>		
Beginning of Year	\$ 54,574,264	\$ 56,789,460
End of Year	<b>\$ 49,052,073</b>	<b>\$ 54,574,264</b>

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## **SECTION C**

### **REQUIRED SUPPLEMENTARY INFORMATION**

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Auditor's Note – This information is intended to assist in preparation of the financial statements of the General Assembly 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
<b>Total Pension Liability</b>			
Service Cost Including Pension Plan Administrative Expense	\$ 3,577,188	\$ 5,957,132	\$ 5,383,133
Interest on the Total Pension Liability	22,395,292	19,911,100	20,110,452
Changes of Benefit Terms	-	-	-
Difference between Expected and Actual Experience	(5,400,812)	2,366,032	12,389,130
Changes of Assumptions	42,122,612	(70,538,690)	-
Benefit Payments, Including Refunds of Employee Contributions	(21,983,054)	(21,466,704)	(21,045,635)
Pension Plan Administrative Expense	(382,340)	(394,695)	(334,628)
<b>Net Change in Total Pension Liability</b>	40,328,886	(64,165,825)	16,502,452
<b>Total Pension Liability - Beginning</b>	333,336,936	397,502,761	381,000,309
<b>Total Pension Liability - Ending (a)</b>	<u>\$ 373,665,822</u>	<u>\$ 333,336,936</u>	<u>\$ 397,502,761</u>
<b>Plan Fiduciary Net Position</b>			
Employer Contributions	\$ 16,073,000	\$ 15,870,941	\$ 13,956,669
Employee Contributions	1,309,697	1,487,346	1,502,605
Pension Plan Net Investment Income	(539,494)	2,287,916	8,363,428
Benefit Payments, Including Refunds of Employee Contributions	(21,983,054)	(21,466,704)	(21,045,635)
Pension Plan Administrative Expense	(382,340)	(394,695)	(334,628)
Other	-	-	-
<b>Net Change in Plan Fiduciary Net Position</b>	(5,522,191)	(2,215,196)	2,442,439
<b>Plan Fiduciary Net Position - Beginning</b>	54,574,264	56,789,460	54,347,021
<b>Plan Fiduciary Net Position - Ending (b)</b>	<u>49,052,073</u>	<u>54,574,264</u>	<u>56,789,460</u>
<b>Net Pension Liability - Ending (a) - (b)</b>	<u>\$ 324,613,749</u>	<u>\$ 278,762,672</u>	<u>\$ 340,713,301</u>
<b>Plan Fiduciary Net Position as a Percentage</b>			
<b>of Total Pension Liability</b>	13.13 %	16.37 %	14.29 %
<b>Covered-Employee Payroll</b>	\$ 11,297,614	\$ 11,609,403	\$ 12,777,821
<b>Net Pension Liability as a Percentage</b>			
<b>of Covered-Employee Payroll</b>	2,873.29 %	2,401.18 %	2,666.44 %

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 6.91 percent and the actuarial assumptions used in the June 30, 2015, funding actuarial valuation. The Single Discount Rate of 6.91 percent was based on a long-term expected rate of return on pension plan investments of 7.00 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 6.60 percent and the actuarial assumptions in effect as of June 30, 2016, funding actuarial valuation. The Single Discount Rate of 6.60 percent was based on a long-term expected rate of return on pension plan investments of 6.75 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 <sup>a</sup>	Net Pension Liability as a % of Covered Payroll
2014	\$ 397,502,761	\$ 56,789,460	\$ 340,713,301	14.29 %	\$ 12,777,821	2,666.44 %
2015	333,336,936	54,574,264	278,762,672	16.37 %	11,609,403	2,401.18 %
2016	373,665,822	49,052,073	324,613,749	13.13 %	11,297,614	2,873.29 %

<sup>a</sup> 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**

<b>Fiscal Year</b>	<b>Actuarially Determined Contribution<sup>a</sup></b>	<b>Actual Contribution<sup>b</sup></b>	<b>Contribution Deficiency (Excess)</b>	<b>Covered Payroll<sup>c</sup></b>	<b>Actual Contribution as a % of Covered Payroll</b>	<b>Statutory Contribution</b>	<b>Statutory Contribution Deficiency/(Excess)</b>
7/1/06 - 6/30/07	\$ 10,125,503	\$ 5,470,429	\$ 4,655,074	\$ 12,701,000	43.07%	\$ 5,220,300	\$ (250,129)
7/1/07 - 6/30/08	10,672,535	6,809,800	3,862,735	12,871,000	52.91%	6,809,800	-
7/1/08 - 6/30/09	11,129,440	8,856,422	2,273,018	14,728,000	60.13%	8,847,000	(9,422)
7/1/09 - 6/30/10	12,064,078	10,411,274	1,652,804	14,775,000	70.47%	10,454,000	42,726
7/1/10 - 6/30/11	13,086,199	11,433,614	1,652,585	15,188,000	75.28%	11,039,000	(394,614)
7/1/11 - 6/30/12	13,365,820	10,502,000	2,863,820	15,275,000	68.75%	10,502,000	-
7/1/12 - 6/30/13	17,064,640	14,150,000	2,914,640	14,902,000	94.95%	14,150,000	-
7/1/13 - 6/30/14	17,110,135	13,956,669	3,153,466	12,777,821	109.23%	13,856,000	(100,669)
7/1/14 - 6/30/15	16,900,876	15,870,941	1,029,935	11,609,403	136.71%	15,809,000	(61,941)
7/1/15 - 6/30/16	17,140,656	16,073,000	1,067,656	11,297,614	142.27%	16,073,000	-

<sup>a</sup> The GARS 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 to 2016 is 30 years.

<sup>b</sup> The actual contributions for FYE 6/30/2007 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.

<sup>c</sup> Covered payroll shown is the amount in force as of the valuation date and likely differs from actual payroll paid during the fiscal year.

## 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 Statutory 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 Contributions are equal to the employer's normal cost plus a level percent of uncapped payroll amortization of the unfunded accrued liability. The amortization period for fiscal years 2007 to 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 20-year level percent of capped payroll closed-period amortization of the unfunded accrued liability. As of June 30, 2016, the remaining amortization period is 19 years.

**Asset Valuation Method:** 5-year smoothed market

**Inflation:** 2.75 percent

**Salary Increases:** A salary increase assumption of 3.00 percent per annum, compounded annually, was used. This 3.00 percent salary increase assumption includes an inflation component of 2.75 percent per annum, a productivity component of 0.25 percent per annum. Furthermore, salaries were assumed to remain at their current rate for fiscal year 2017.

**Postretirement Benefit Increases:** Postretirement benefit increases of 3.00 percent, compounded, for Tier 1 and 3.00 percent or the annual change in the Consumer Price Index, whichever is less, compounded, for Tier 2.

**Investment Rate of Return:** 6.75 percent as of the June 30, 2016, actuarial valuation.

**Retirement Age:** Age-based table of rates that are specific to the type of eligibility condition. Last updated for the June 30, 2016, actuarial valuation pursuant to an experience study of the period July 1, 2012, to June 30, 2015.

**Mortality:** For post-retirement, RP-2014 White Collar Total Healthy Annuitant mortality table, sex distinct. For pre-retirement, RP-2014 White Collar Total Employee mortality table, sex distinct. Both pre and post-retirement mortality tables include 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:** 6.91 percent as of the June 30, 2015, actuarial valuation.  
6.60 percent as of the June 30, 2016, actuarial valuation.

**Asset Valuation Method:** Market value

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## **SECTION D**

### **NOTES TO FINANCIAL STATEMENTS**

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Auditor's Note – This information is intended to assist in preparation of the financial statements of the General Assembly 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 6.60 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 6.75 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 2069. As a result, the long-term expected rate of return on pension plan investments was applied to projected benefit payments through the year 2069, 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 6.60 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	Current Single Discount Rate Assumption	1% Increase
5.60%	6.60%	7.60%
\$ 369,183,960	\$ 324,613,749	\$ 287,579,906

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**SUMMARY OF POPULATION STATISTICS**

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	415
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	71
Active Plan Members	<u>141</u>
Total Plan Members	627

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

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**SECTION E**

**GASB STATEMENT NO. 68 PENSION EXPENSE**

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## SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS

Fiscal Year End June 30,	2016	2015
<b>A. Total Pension Liability</b>		
1. Service Cost Including Pension Plan Administrative Expense	\$ 3,577,188	\$ 5,957,132
2. Interest on the Total Pension Liability	22,395,292	19,911,100
3. Changes of Benefit Terms	-	-
4. Difference Between Expected and Actual Experience of the Total Pension Liability	(5,400,812)	2,366,032
5. Changes of Assumptions	42,122,612	(70,538,690)
6. Benefit Payments, Including Refunds of Employee Contributions	(21,983,054)	(21,466,704)
7. Pension Plan Administrative Expense	(382,340)	(394,695)
<b>8. Net Change in Total Pension Liability</b>	<b>\$ 40,328,886</b>	<b>\$ (64,165,825)</b>
<b>9. Total Pension Liability – Beginning</b>	<b>333,336,936</b>	<b>397,502,761</b>
<b>10. Total Pension Liability – Ending</b>	<b>\$ 373,665,822</b>	<b>\$ 333,336,936</b>
<b>B. Plan Fiduciary Net Position</b>		
1. Contributions – Employer	\$ 16,073,000	\$ 15,870,941
2. Contributions – Employee	1,309,697	1,487,346
3. Net Investment Income	(539,494)	2,287,916
4. Benefit Payments, Including Refunds of Employee Contributions	(21,983,054)	(21,466,704)
5. Pension Plan Administrative Expense	(382,340)	(394,695)
6. Other	-	-
<b>7. Net Change in Plan Fiduciary Net Position</b>	<b>\$ (5,522,191)</b>	<b>\$ (2,215,196)</b>
<b>8. Plan Fiduciary Net Position – Beginning</b>	<b>54,574,264</b>	<b>56,789,460</b>
<b>9. Plan Fiduciary Net Position – Ending</b>	<b>\$ 49,052,073</b>	<b>\$ 54,574,264</b>
<b>C. Net Pension Liability</b>	<b>\$ 324,613,749</b>	<b>\$ 278,762,672</b>
<b>D. Plan Fiduciary Net Position as a Percentage of the Total Pension Liability</b>	<b>13.13%</b>	<b>16.37%</b>
<b>E. Covered-Employee Payroll</b>	<b>\$ 11,297,614</b>	<b>\$ 11,609,403</b>
<b>F. Net Pension Liability as a Percentage of Covered-Employee Payroll</b>	<b>2873.29%</b>	<b>2401.18%</b>

**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	\$ 5,957,132
2. Interest on the Total Pension Liability	19,911,100
3. Current-Period Benefit Changes	-
4. Employee Contributions (made negative for addition here)	(1,487,346)
5. Projected Earnings on Plan Investments (made negative for addition here)	(3,820,319)
6. Other Changes in Plan Fiduciary Net Position	-
7. Recognition of Outflow/(Inflow) of Resources due to Liabilities	(21,633,261)
8. Recognition of Outflow/(Inflow) of Resources due to Assets	(646,092)
<b>9. Total Pension Expense</b>	<b>\$ (1,718,786)</b>

**B. Reconciliation of Net Pension Liability**

<b>1. Net Pension Liability Beginning of Year</b>	<b>\$ 340,713,301</b>
2. Pension Expense	(1,718,786)
3. Employer Contributions (made negative for addition here)	(15,870,941)
4. Change in Liability Experience Outflows/(Inflows) Recognized in Current Liabilities	(3,356,129)
5. Change in Assumption Changes Experience Outflows/(Inflows) Recognized in Current Liabilities	(43,183,268)
6. Change in Investment Experience Outflows/(Inflows) Recognized in Current Assets	2,178,495
<b>7. Net Pension Liability End of Year</b>	<b>\$ 278,762,672</b>

**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 Inflows of Resources
2016	\$ 4,003,984	\$ 28,307,995	\$ (24,304,011)
2017	837,381	16,780,419	(15,943,038)
2018	306,481	952,574	(646,093)
2019	306,481	-	306,481
2020	-	-	-
<b>Total</b>	<b>\$ 5,454,327</b>	<b>\$ 46,040,988</b>	<b>\$ (40,586,661)</b>

Our understanding is that GARS 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	\$ 3,577,188
2. Interest on the Total Pension Liability	22,395,292
3. Current-Period Benefit Changes	-
4. Employee Contributions (made negative for addition here)	(1,309,697)
5. Projected Earnings on Plan Investments (made negative for addition here)	(3,648,754)
6. Other Changes in Plan Fiduciary Net Position	-
7. Recognition of Outflow/(Inflow) of Resources due to Liabilities	(8,553,526)
8. Recognition of Outflow/(Inflow) of Resources due to Assets	191,558
<b>9. Total Pension Expense</b>	<b>\$ 12,652,061</b>

**B. Reconciliation of Net Pension Liability**

<b>1. Net Pension Liability Beginning of Year</b>	<b>\$ 278,762,672</b>
2. Pension Expense	12,652,061
3. Employer Contributions (made negative for addition here)	(16,073,000)
4. Change in Liability Experience Outflows/(Inflows) Recognized in Current Liabilities	(6,876,856)
5. Change in Assumption Changes Experience Outflows/(Inflows) Recognized in Current Liabilities	52,152,182
6. Change in Investment Experience Outflows/(Inflows) Recognized in Current Assets	3,996,690
<b>7. Net Pension Liability End of Year</b>	<b>\$ 324,613,749</b>

**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 Inflows of Resources
2017	\$ 19,000,883	\$ 19,001,878	\$ (995)
2018	8,615,039	1,910,468	6,704,571
2019	1,144,131	-	1,144,131
2020	837,648	-	837,648
2021	-	-	-
<b>Total</b>	<b>\$ 29,597,701</b>	<b>\$ 20,912,346</b>	<b>\$ 8,685,355</b>

Our understanding is that GARS 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**  
**PLAN YEAR ENDED JUNE 30, 2014**

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

Experience (Gain)/Loss	Balance at Beginning of Year	Amortization Factor	Amortization	Balance at End of Year
1. Differences between expected and actual non-investment experience	\$ 12,389,130	2.5786	\$ 4,804,596	\$ 7,584,534
2. Assumption changes	-	2.5786	-	-
3. Difference between expected and actual investment earnings	(4,762,866)	5.0000	(952,573)	(3,810,293)
<b>4. Total</b>	<b>\$ 7,626,264</b>		<b>\$ 3,852,023</b>	<b>\$ 3,774,241</b>

**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	\$ 4,804,596	\$ -	\$ 4,804,596
2. Assumption changes	-	-	-
3. Difference between expected and actual investment earnings	-	952,573	(952,573)
<b>4. Total</b>	<b>\$ 4,804,596</b>	<b>\$ 952,573</b>	<b>\$ 3,852,023</b>

**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	\$ 7,584,534	\$ -	\$ 7,584,534
2. Assumption changes	-	-	-
3. Difference between expected and actual investment earnings	-	3,810,293	(3,810,293)
<b>4. Total</b>	<b>\$ 7,584,534</b>	<b>\$ 3,810,293</b>	<b>\$ 3,774,241</b>

**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 Inflows of Resources
	2015	\$ 4,804,596	\$ 952,573	\$ 3,852,023
	2016	2,779,938	952,573	1,827,365
	2017	-	952,573	(952,573)
	2018	-	952,574	(952,574)
	2019	-	-	-
	Thereafter	-	-	-
	<b>Total</b>	<b>\$ 7,584,534</b>	<b>\$ 3,810,293</b>	<b>\$ 3,774,241</b>

**STATEMENT OF OUTFLOWS AND INFLOWS ARISING FROM CURRENT AND PRIOR REPORTING PERIODS**  
**PLAN 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
<b>Experience (Gain)/Loss</b>				
1. Differences between expected and actual non-investment experience	\$ 2,366,032	2.5786	\$ 917,565	\$ 1,448,467
2. Assumption changes	(70,538,690)	2.5786	(27,355,422)	(43,183,268)
3. Difference between expected and actual investment earnings	1,532,403	5.0000	306,481	1,225,922
<b>4. Total</b>	<b>\$ (66,640,255)</b>		<b>\$ (26,131,376)</b>	<b>\$ (40,508,879)</b>

**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	\$ 917,565	\$ -	\$ 917,565
2. Assumption changes	-	27,355,422	(27,355,422)
3. Difference between expected and actual investment earnings	306,481	-	306,481
<b>4. Total</b>	<b>\$ 1,224,046</b>	<b>\$ 27,355,422</b>	<b>\$ (26,131,376)</b>

**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	\$ 1,448,467	\$ -	\$ 1,448,467
2. Assumption changes	-	43,183,268	(43,183,268)
3. Difference between expected and actual investment earnings	1,225,922	-	1,225,922
<b>4. Total</b>	<b>\$ 2,674,389</b>	<b>\$ 43,183,268</b>	<b>\$ (40,508,879)</b>

**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 Inflows of Resources
	2016	\$ 1,224,046	\$ 27,355,422	\$ (26,131,376)
	2017	837,381	15,827,846	(14,990,465)
	2018	306,481	-	306,481
	2019	306,481	-	306,481
	2020	-	-	-
	Thereafter	-	-	-
	<b>Total</b>	<b>\$ 2,674,389</b>	<b>\$ 43,183,268</b>	<b>\$ (40,508,879)</b>

**STATEMENT OF OUTFLOWS AND INFLOWS ARISING FROM CURRENT AND PRIOR REPORTING PERIODS**  
**PLAN 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
<b>Experience (Gain)/Loss</b>				
1. Differences between expected and actual non-investment experience	\$ (5,400,812)	2.4312	\$ (2,221,459)	\$ (3,179,353)
2. Assumption changes	42,122,612	2.4312	17,325,852	24,796,760
3. Difference between expected and actual investment earnings	4,188,248	5.0000	837,650	3,350,598
<b>4. Total</b>	<u>\$ 40,910,047</u>		<u>\$ 15,942,043</u>	<u>\$ 24,968,005</u>

**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	\$ -	\$ 2,221,459	\$ (2,221,459)
2. Assumption changes	17,325,852	-	17,325,852
3. Difference between expected and actual investment earnings	837,650	-	837,650
<b>4. Total</b>	<u>\$ 18,163,502</u>	<u>\$ 2,221,459</u>	<u>\$ 15,942,043</u>

**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	\$ -	\$ 3,179,353	\$ (3,179,353)
2. Assumption changes	24,796,760	-	24,796,760
3. Difference between expected and actual investment earnings	3,350,598	-	3,350,598
<b>4. Total</b>	<u>\$ 28,147,358</u>	<u>\$ 3,179,353</u>	<u>\$ 24,968,005</u>

**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 Inflows of Resources
	2017	\$ 18,163,502	\$ 2,221,459	\$ 15,942,043
	2018	8,308,558	957,894	7,350,664
	2019	837,650	-	837,650
	2020	837,648	-	837,648
	2021	-	-	-
	Thereafter	-	-	-
	<b>Total</b>	<u>\$ 28,147,358</u>	<u>\$ 3,179,353</u>	<u>\$ 24,968,005</u>

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**SECTION F**

SUMMARY OF BENEFITS

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

1. **Participation.** A person eligible for membership must participate in the system as a condition of employment unless an "Election Not to Participate" is filed within 24 months from the date of assuming office.
2. **Member Contributions.** All members of the system are required to contribute to the system the following percentage of their salaries:

Retirement Annuity	8.5%
Automatic Annuity Increase	1.0
Survivor's Annuity	<u>2.0</u>
Total	11.5%

3. **Retirement Annuity – Eligibility.** A member who has at least 8 years of creditable service is entitled to a retirement annuity upon attainment of age 55. A member with at least 4 years of service but less than 8 years of service is entitled to a retirement annuity upon attainment of age 62.

A member with at least 8 years of service who becomes disabled while in service is entitled to a retirement annuity regardless of age.

4. **Retirement Annuity – Amount.** The retirement annuity is determined according to the following formula based upon the member's final rate of salary:
  - 3.0% for each of the first 4 years of service, plus
  - 3.5% for each of the next 2 years of service, plus
  - 4.0% for each of the next 2 years of service, plus
  - 4.5% for each of the next 4 years of service, plus
  - 5.0% for each year of service in excess of 12

The maximum retirement annuity is 85% of the final rate of salary.

5. **Automatic Increase In Retirement Annuity.** (a) Annual automatic increases of 3% of the current amount of retirement annuity are provided. The initial increase is effective in the month of January or July of the year next following the year in which the first anniversary of retirement occurs, but in no event prior to attainment of age 60.

- (b) Beginning January 1, 1990, for persons who become participants prior to August 8, 2003, and who remain in service after attaining 20 years of creditable service, 3% annual automatic increases begin to accrue on January 1 next following the date the participant attains age 55 or completes 20 years of creditable service, whichever occurs later. For any person who has service credit for the entire period from January 15, 1969, through December 31, 1992, the increases shall accrue from age 50 instead of age 55. However, such increases shall not become payable until the January 1 or July



1 next following the first anniversary of retirement, or the first of the month following attainment of age 60, whichever occurs later.

6. Survivor's Annuity – Eligibility. A surviving spouse without children is eligible for survivor benefits at age 50 or over provided marriage to the member had been in effect for at least 1 year immediately prior to the member's death.

A surviving spouse with unmarried eligible children is eligible for a survivor's annuity benefit at any age provided the above marriage requirements have been met. When all children are disqualified because of death, marriage or attainment of age 18 or age 22 in the case of a fulltime student, the spouse's benefit is suspended if the spouse is under age 50 until the attainment of such age.

An unmarried eligible child under age 18 or under age 22 and a full-time student or over age 18 and disabled may qualify for the survivor's annuity if there is no surviving spouse or if the spouse dies. Legally adopted children are eligible for survivor benefits on the same basis as other children.

If the member dies in service as a member, the member must have at least 2 years of service credit for survivor's annuity eligibility. If death occurs after termination of service but before retirement, the deceased member must have at least 4 years of service credit for survivor's annuity eligibility.

7. Survivor's Annuity – Amount. (a) A surviving spouse is entitled to a survivor's annuity of 66  $\frac{2}{3}$ % of the amount of retirement annuity to which the member was entitled on the date of death, without regard to whether the member had attained age 55 as of the time of death, subject to a minimum payment of 10% of salary.

(b) If a surviving spouse has in his or her care eligible children, the survivor's annuity shall be the greater of the following:

(1) 66  $\frac{2}{3}$ % of the amount of retirement annuity to which the member was entitled on the date of death, or (2) 30% of the member's salary increased by 10% of salary on account of each eligible child, subject to a total payment for the surviving spouse and children of 50% of salary. If only unmarried children survive, each such child shall be entitled to an annuity of 20% of salary, subject to a maximum total payment for all children of 50% of salary.

(c) Upon the death of a member after termination of service, or upon the death of an annuitant, the maximum total payment to a surviving spouse and eligible children, or eligible children alone if there is no surviving spouse, shall be 75% of the retirement annuity to which the member or annuitant was entitled.

(d) Survivor's annuities are subject to annual automatic increases of 3% of the current amount of annuity.

(e) The minimum survivor's annuity provided by the system is \$300 per month.

(f) In the case of a proportional survivor's annuity under the Retirement Systems Reciprocal Act, if the amount payable by the system on January 1, 1993, is less than \$300 per month, the amount shall be increased as of that date by \$2 per month for each full year elapsed since the annuity began.

8. Refund of Contributions. Upon termination of service, a member is entitled to a refund of his total contributions without interest.  
A member who has no eligible survivor's annuity beneficiaries, or is unmarried at the time of retirement, is entitled to a refund of his or her contributions for the survivor's annuity.
9. Retirement System Reciprocal Act. According to the provisions of the Retirement System Reciprocal Act provided in Illinois Compiled statutes 40 ILCS 5/20, a member who has pension credit in two or more participating systems may be entitled to a proportional retirement annuity if his or her combined pension credit satisfies the longest minimum retirement eligibility requirement of any such system.

In calculating the proportional retirement annuity, the earnings credits under all participating systems shall be considered in determining final average salary.

#### Persons Who First Become Participants On or After January 1, 2011

The following changes to the above provisions apply to persons who first become participants on or after January 1, 2011:

1. The highest salary for annuity purposes is equal to the average monthly salary obtained by dividing the participant's total salary during the 96 consecutive months of service within the last 120 months of service in which the total compensation was the highest by the number of months in that period.
2. Required contributions shall not exceed the contributions that would be due on the highest salary for annuity purposes.
3. For 2011, the final average salary is limited to the Social Security wage base of \$106,800. Limitations for future years shall automatically be increased or decreased, as applicable, by a percentage change in the Consumer Price Index-U during the preceding 12 month calendar year.
4. A participant is eligible to retire with unreduced benefits after attainment of age 67 with at least 8 years of service credit. However, a participant may elect to retire at age 62 with at least 8 years of service credit and receive a retirement annuity reduced by one-half of 1% for each month that his or her age is under 67.
5. The annual retirement annuity provided is equal to 3% of the participant's final average salary for each year of service. The maximum retirement annuity payable shall be 60% of the participant's final average salary.

6. Automatic annual increases are provided in the retirement annuity then being paid equal to 3% or the annual change in the Consumer Price Index for all Urban Consumers, whichever is less. Such increases are payable in the January or July next following the first anniversary of retirement, and in the same month of each year thereafter.
7. Automatic annual increases are provided in the survivor annuity then being paid equal to 3% or the annual change in the Consumer Price Index for all Urban Consumers, whichever is less. Such increases are payable (1) on each January 1 occurring on or after the commencement of the annuity if the deceased member died while receiving a retirement annuity, or (2) in other cases, on each January 1 occurring on or after the first anniversary of the commencement of the annuity.
8. The retirement annuity being paid is suspended when an annuitant accepts full time employment in a position covered under the General Assembly Retirement System or any other Article of the Illinois Pension Code. Upon termination of the employment, the retirement annuity shall resume and, if appropriate, be recalculated.
9. Salary and COLA development for members hired on or after January 1, 2011, are shown in the table below:

<b>Year Ending</b>	<b>CPI-U</b>	<b>COLA</b>	<b>Maximum Annual Pensionable Earnings</b>
2011		3.00%	\$106,800.00
2012	3.90%	3.00%	\$110,004.00
2013	2.00%	2.00%	\$112,204.08
2014	1.20%	1.20%	\$113,550.53
2015	1.70%	1.70%	\$115,480.89
2016	0.00%	0.00%	\$115,480.89

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## **SECTION G**

### **ACTUARIAL COST METHOD AND ACTUARIAL ASSUMPTIONS**

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## 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 review of the General Assembly Retirement System for the three-year period ending June 30, 2015. All actuarial assumptions are expectations of future experience, not market measures.

### **Mortality**

#### *Post-Retirement Mortality*

RP-2014 White Collar Total Healthy Annuitant mortality table, sex distinct, with rates set forward one year for males and set back one year for females and generational mortality improvement using MP-2014 two-dimensional mortality improvement scales recently released by the SOA. This assumption provides a margin for mortality improvements.

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

RP-2014 White Collar Total Employee mortality table, sex distinct and generational mortality improvement using MP-2014 two-dimensional mortality improvement scales recently released by the SOA, to reflect that experience shows active members having lower mortality rates than retirees of the same age.

**Interest**

6.75 percent per annum, compounded annually.

**General Inflation**

2.75 percent per annum, compounded annually.

This assumption serves as the basis for the determination of Tier Two pay cap growth and annual increases that are equal to the lesser of 3.0 percent or the annual change in the consumer price index-u during the preceding 12-month calendar year.

**Marriage Assumption**

75.0 percent of active and retired participants are assumed to be married.

**Termination**

Rates of withdrawal are assumed to be equal to five percent for all ages 20 through 65.

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**

A salary increase assumption of 3.00 percent per annum, compounded annually, was used. This 3.00 percent salary increase assumption includes an inflation component of 2.75 percent per annum, and a productivity component of 0.25 percent per annum. Furthermore, salaries were assumed to remain at their current rate for fiscal year 2017.

**Load for Inactive Members Eligible for Deferred Vested Pension Benefits**

Deferred vested liability is increased by ten percent to account for increases in final average salary due to participation in a reciprocal system.

**Disability**

No assumption for disability was assumed.

## Population Projection

For purposes of determining the annual appropriation as a percent of total covered payroll, the size of the active group is projected to decrease from 141 members as of the valuation date, to 72 members in 2045, and ultimately reach 71 members in 2049, due to the assumption that 50 percent of future members will elect to opt out of the pension system. New entrants are assumed to enter with an average age and average pay as disclosed below. The new entrant profile is based on the averages for all current active members. New entrant pay is assumed to increase by the salary scale assumption, and is limited by the projected statutory salary cap.

<b>New Entrant Profile</b>			
<b>Age Group</b>	<b>No.</b>	<b>Uncapped Salary</b>	<b>Capped Salary</b>
<b>Under 20</b>			
<b>20-24</b>			
<b>25-29</b>	10	\$ 791,019	\$ 791,019
<b>30-34</b>	22	1,888,084	1,826,836
<b>35-39</b>	29	2,377,623	2,377,623
<b>40-44</b>	24	1,849,156	1,849,156
<b>45-49</b>	22	1,812,521	1,771,461
<b>50-54</b>	15	1,148,336	1,148,336
<b>55-59</b>	15	1,138,877	1,138,877
<b>60-64</b>			
<b>65-69</b>			
<b>70 &amp; Over</b>			
<b>Total</b>	137	\$ 11,005,616	\$ 10,903,308
<b>Avg. Salary</b>		\$ 80,333	\$ 79,586
<b>Avg. Age</b>			41.84
<b>Percent Male</b>			70.80%

## 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	
Age	Male & Female
55	5.00%
56-59	15.00%
60-74	20.00%
75	100.00%

### **Assets**

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

### **Expenses**

As estimated and advised by GARS staff, based on current expenses and are expected to increase in relation to the projected capped payroll. Expenses are included in the service cost.

### **Spouse's Age**

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

### **Decrement Timing**

All decrements are assumed to occur beginning of year.

### **Decrement Relativity**

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

### **Decrement Operation**

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.

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

No explicit assumption is made with respect to these items.

### Assumptions as a Result of Public Act 96-0889

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.

Retirement rates for tier two members to account for the change in retirement age, as follows:

Retirement Rates for Tier Two Members	
Age	Males and Females
67	40.00%
68-70	30.00%
71-74	20.00%
75	100.00%
Early Retirement Rates for Tier Two Members	
Age	Males and Females
62	25.00%
63	12.00%
64	14.00%
65	16.00%
66	18.00%

Rates of withdrawal for Tier Two members are assumed to be equal to five percent for all ages 20 through 65. For Tier Two members with less than five years of service, rates of withdrawal are assumed to be equal to ten percent for all ages 20 to 65.

## **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.

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**SECTION H**

CALCULATION OF THE SINGLE DISCOUNT RATE

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## 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 6.75 percent; the municipal bond rate is 2.85 percent; and the resulting Single Discount Rate is 6.60 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 2069.

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	\$ 367,674,023	\$ 367,674,023	\$ -	\$ 49,052,073	\$ -	\$ 49,052,073	13.34%	0.00%
2017	371,816,994	371,816,995	-	51,503,124	-	51,503,124	13.85%	0.00%
2018	374,917,116	374,799,521	117,596	58,200,145	117,596	58,082,550	15.50%	100.00%
2019	377,198,703	376,864,912	333,792	63,778,809	333,792	63,445,017	16.83%	100.00%
2020	378,667,286	378,019,298	647,989	68,708,516	647,989	68,060,528	18.00%	100.00%
2021	379,362,204	378,319,745	1,042,460	72,903,629	1,042,460	71,861,169	18.99%	100.00%
2022	379,274,997	377,741,502	1,533,495	76,456,232	1,533,495	74,922,737	19.83%	100.00%
2023	378,430,049	376,313,725	2,116,324	79,441,808	2,116,324	77,325,484	20.55%	100.00%
2024	376,716,382	373,905,084	2,811,298	81,544,257	2,811,298	78,732,959	21.06%	100.00%
2025	374,283,707	370,666,701	3,617,006	82,783,292	3,617,006	79,166,286	21.36%	100.00%
2026	371,247,460	366,696,824	4,550,636	83,620,141	4,550,636	79,069,504	21.56%	100.00%
2027	367,604,802	361,988,565	5,616,238	84,355,565	5,616,238	78,739,327	21.75%	100.00%
2028	363,347,034	356,545,112	6,801,922	84,588,383	6,801,922	77,786,461	21.82%	100.00%
2029	358,463,001	350,339,004	8,123,996	84,617,836	8,123,996	76,493,840	21.83%	100.00%
2030	353,117,646	343,534,346	9,583,301	84,541,820	9,583,301	74,958,519	21.82%	100.00%
2031	347,343,625	336,143,892	11,199,733	84,755,393	11,199,733	73,555,661	21.88%	100.00%
2032	341,199,218	328,245,991	12,953,227	85,116,681	12,953,227	72,163,454	21.98%	100.00%
2033	334,716,296	319,848,566	14,867,731	86,158,740	14,867,731	71,291,009	22.29%	100.00%
2034	327,854,504	310,914,844	16,939,660	89,046,317	16,939,660	72,106,656	23.19%	100.00%
2035	320,745,828	301,573,605	19,172,223	92,864,061	19,172,223	73,691,838	24.44%	100.00%
2036	313,453,185	291,884,420	21,568,765	97,752,562	21,568,765	76,183,797	26.10%	100.00%
2037	305,968,557	281,838,835	24,129,722	103,789,348	24,129,722	79,659,625	28.26%	100.00%
2038	298,343,188	271,491,261	26,851,927	111,113,341	26,851,927	84,261,414	31.04%	100.00%
2039	290,682,013	260,943,032	29,738,981	119,923,515	29,738,981	90,184,534	34.56%	100.00%
2040	283,042,750	250,231,744	32,811,006	130,790,183	32,811,006	97,979,178	39.16%	100.00%
2041	275,521,426	239,475,529	36,045,897	143,545,762	36,045,897	107,499,865	44.89%	100.00%
2042	268,144,903	228,709,371	39,435,533	158,341,074	39,435,533	118,905,541	51.99%	100.00%
2043	260,990,873	217,984,712	43,006,161	175,816,945	43,006,161	132,810,783	60.93%	100.00%
2044	254,137,560	207,379,409	46,758,151	196,251,916	46,758,151	149,493,766	72.09%	100.00%
2045	247,495,190	196,840,034	50,655,156	219,289,112	50,655,156	168,633,956	85.67%	100.00%
2046	241,204,498	186,479,447	54,725,051	213,553,164	54,725,051	158,828,113	85.17%	100.00%
2047	235,290,722	176,332,620	58,958,102	208,142,577	58,958,102	149,184,476	84.60%	100.00%
2048	229,744,679	166,394,599	63,350,079	203,056,796	63,350,079	139,706,716	83.96%	100.00%
2049	224,610,943	156,711,067	67,899,876	198,335,196	67,899,876	130,435,320	83.23%	100.00%
2050	219,887,505	147,320,902	72,566,603	193,986,899	72,566,603	121,420,296	82.42%	100.00%
2051	215,616,173	138,241,088	77,375,085	190,040,898	77,375,085	112,665,813	81.50%	100.00%
2052	211,805,378	129,481,983	82,323,394	186,504,138	82,323,394	104,180,744	80.46%	100.00%
2053	208,368,939	120,970,996	87,397,942	183,298,071	87,397,942	95,900,129	79.28%	100.00%
2054	205,319,670	112,722,907	92,596,763	180,433,031	92,596,763	87,836,268	77.92%	100.00%
2055	202,688,432	104,770,922	97,917,511	177,937,259	97,917,511	80,019,748	76.38%	100.00%
2056	200,487,397	97,139,797	103,347,600	175,822,728	103,347,600	72,475,128	74.61%	100.00%
2057	198,720,000	89,830,940	108,889,060	174,092,296	108,889,060	65,203,236	72.58%	100.00%
2058	197,377,674	82,846,047	114,531,626	172,739,291	114,531,626	58,207,665	70.26%	100.00%
2059	196,461,942	76,187,974	120,273,968	171,765,370	120,273,968	51,491,402	67.58%	100.00%
2060	195,973,211	69,858,845	126,114,366	171,170,830	126,114,366	45,056,464	64.50%	100.00%
2061	195,911,095	63,858,570	132,052,525	170,955,201	132,052,525	38,902,676	60.92%	100.00%
2062	196,275,867	58,188,424	138,087,443	171,118,616	138,087,443	33,031,173	56.77%	100.00%
2063	197,070,150	52,849,555	144,220,595	171,663,446	144,220,595	27,442,851	51.93%	100.00%
2064	198,292,866	47,841,623	150,451,243	172,588,868	150,451,243	22,137,625	46.27%	100.00%
2065	199,941,914	43,162,370	156,779,545	173,893,052	156,779,545	17,113,507	39.65%	100.00%
2066	202,014,926	38,808,079	163,206,847	175,573,677	163,206,847	12,366,830	31.87%	100.00%
2067	204,507,794	34,773,115	169,734,679	177,626,968	169,734,679	7,892,289	22.70%	100.00%
2068	207,414,703	31,049,669	176,365,034	180,047,668	176,365,034	3,682,634	11.86%	100.00%
2069	210,728,258	27,627,694	183,100,563	182,828,984	182,828,984	-	0.00%	99.85%
2070	214,440,852	24,495,372	189,945,480	185,963,936	185,963,936	-	0.00%	97.90%
2071	218,539,108	21,639,296	196,899,812	189,440,194	189,440,194	-	0.00%	96.21%
2072	223,015,206	19,044,960	203,970,246	193,250,565	193,250,565	-	0.00%	94.74%
2073	227,859,288	16,696,871	211,162,416	197,386,035	197,386,035	-	0.00%	93.48%
2074	233,058,620	14,579,103	218,479,517	201,834,841	201,834,841	-	0.00%	92.38%
2075	238,603,166	12,675,823	225,927,342	206,587,679	206,587,679	-	0.00%	91.44%

*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 (bo)	Member Contributions	Administrative Expenses	Benefit Payments	Assigned Employer Contribution	Income on Cash Flow	Income on Assigned Contribution	Total Investment Income	Assets (eo)
2017	\$ 49,052,073	\$ 1,281,331	\$ 418,800	\$ 23,415,862	\$ 21,721,000	\$ 2,562,269	\$ 721,114	\$ 3,283,382	\$ 51,503,124
2018	51,503,124	1,119,547	365,921	24,370,003	26,619,637	2,692,423	883,743	3,576,166	58,082,550
2019	58,082,550	1,022,069	334,061	25,177,829	25,885,385	3,107,537	859,367	3,966,903	63,445,017
2020	63,445,017	942,968	308,207	25,926,159	25,613,671	3,442,892	850,346	4,293,238	68,060,528
2021	68,060,528	864,695	282,624	26,553,764	25,203,743	3,731,854	836,737	4,568,591	71,861,169
2022	71,861,169	784,761	256,497	27,192,712	24,932,874	3,965,398	827,744	4,793,143	74,922,737
2023	74,922,737	717,866	234,633	27,752,309	24,699,834	4,151,981	820,008	4,971,989	77,325,484
2024	77,325,484	650,794	212,711	28,398,676	24,271,084	4,291,209	805,774	5,096,983	78,732,959
2025	78,732,959	585,306	191,306	28,866,279	23,747,974	4,369,226	788,407	5,157,633	79,166,286
2026	79,166,286	529,703	173,132	29,221,100	23,598,838	4,385,453	783,456	5,168,909	79,069,504
2027	79,069,504	485,113	158,558	29,539,367	23,727,548	4,367,358	787,729	5,155,087	78,739,327
2028	78,739,327	441,292	144,235	29,819,853	23,456,422	4,334,780	778,728	5,113,508	77,786,461
2029	77,786,461	401,000	131,066	30,093,986	23,491,092	4,260,460	779,879	5,040,339	76,493,840
2030	76,493,840	364,822	119,241	30,170,900	23,441,907	4,169,846	778,246	4,948,092	74,958,519
2031	74,958,519	331,189	108,248	30,208,791	23,730,948	4,064,202	787,842	4,852,044	73,555,661
2032	73,555,661	300,855	98,334	30,139,733	23,784,269	3,971,124	789,612	4,760,736	72,163,454
2033	72,163,454	272,019	88,909	30,042,470	24,300,432	3,879,735	806,748	4,686,483	71,291,009
2034	71,291,009	246,180	80,463	29,954,468	25,920,671	3,823,189	860,538	4,683,727	72,106,656
2035	72,106,656	222,595	72,755	29,705,524	26,379,125	3,885,983	875,758	4,761,741	73,691,838
2036	73,691,838	197,056	64,407	29,382,071	26,846,941	4,003,150	891,289	4,894,439	76,183,797
2037	76,183,797	175,134	57,242	29,047,626	27,316,707	4,181,970	906,885	5,088,856	79,659,625
2038	79,659,625	154,171	50,390	28,644,420	27,790,313	4,429,506	922,608	5,352,115	84,261,414
2039	84,261,414	135,355	44,241	28,127,778	28,264,571	4,756,859	938,353	5,695,212	90,184,534
2040	90,184,534	119,018	38,901	27,562,092	29,134,306	5,175,084	967,227	6,142,312	97,979,178
2041	97,979,178	100,753	32,931	26,883,688	29,629,548	5,723,337	983,669	6,707,006	107,499,865
2042	107,499,865	88,589	28,955	26,167,892	30,124,364	6,389,475	1,000,096	7,389,571	118,905,541
2043	118,905,541	76,215	24,911	25,407,408	31,046,313	7,184,329	1,030,704	8,215,033	132,810,783
2044	132,810,783	65,377	21,368	24,576,016	32,002,257	8,150,292	1,062,440	9,212,732	149,493,766
2045	149,493,766	56,200	18,369	23,805,473	32,526,228	9,301,769	1,079,836	10,381,605	168,633,956
2046	168,633,956	47,001	15,362	22,932,625	3,393,188	10,622,504	79,451	10,701,955	158,828,113
2047	158,828,113	39,882	13,035	22,041,090	2,304,065	9,990,049	76,492	10,066,541	149,184,476
2048	149,184,476	34,485	11,271	21,167,812	2,224,997	9,367,974	73,867	9,441,842	139,706,716
2049	139,706,716	27,569	9,011	20,264,886	2,145,651	8,758,047	71,233	8,829,281	130,435,320
2050	130,435,320	21,910	7,161	19,344,341	2,082,760	8,162,663	69,145	8,231,808	121,420,296
2051	121,420,296	18,107	5,918	18,427,364	2,009,473	7,584,506	66,712	7,651,218	112,665,813
2052	112,665,813	15,156	4,954	17,521,330	1,938,124	7,023,592	64,344	7,087,935	104,180,744
2053	104,180,744	12,748	4,167	16,705,581	1,876,219	6,477,878	62,288	6,540,166	95,900,129
2054	95,900,129	9,136	2,986	15,891,669	1,815,509	5,945,877	60,273	6,006,150	87,836,268
2055	87,836,268	6,116	1,999	15,064,638	1,756,725	5,428,955	58,321	5,487,276	80,019,748
2056	80,019,748	4,245	1,387	14,233,379	1,700,550	4,928,895	56,456	4,985,352	72,475,128
2057	72,475,128	2,867	937	13,421,879	1,646,841	4,446,543	54,673	4,501,217	65,203,236
2058	65,203,236	1,923	629	12,630,197	1,598,316	3,981,953	53,062	4,035,015	58,207,665
2059	58,207,665	1,391	455	11,857,359	1,553,198	3,535,397	51,565	3,586,962	51,491,402
2060	51,491,402	1,135	371	11,103,867	1,510,944	3,107,059	50,162	3,157,220	45,056,464
2061	45,056,464	924	302	10,371,745	1,471,482	2,697,001	48,852	2,745,853	38,902,676
2062	38,902,676	445	145	9,659,999	1,435,306	2,305,239	47,651	2,352,890	33,031,173
2063	33,031,173	127	42	8,968,832	1,402,027	1,931,851	46,546	1,978,397	27,442,851
2064	27,442,851	-	-	8,299,735	1,372,106	1,576,850	45,552	1,622,403	22,137,625
2065	22,137,625	-	-	7,654,443	1,345,486	1,240,170	44,669	1,284,839	17,113,507
2066	17,113,507	-	-	7,034,222	1,322,022	921,633	43,890	965,523	12,366,830
2067	12,366,830	-	-	6,440,686	1,301,983	620,937	43,224	664,162	7,892,289
2068	7,892,289	-	-	5,875,569	1,285,568	337,667	42,679	380,346	3,682,634
2069	3,682,634	-	-	5,340,527	1,535,634	171,278	50,981	122,259	0
2070	0	-	-	4,836,622	4,836,622	(160,571)	160,571	0	0
2071	0	-	-	4,364,613	4,364,613	(144,900)	144,900	0	0
2072	0	-	-	3,924,693	3,924,693	(130,296)	130,296	0	0
2073	0	-	-	3,516,867	3,516,867	(116,756)	116,756	0	0
2074	0	-	-	3,140,545	3,140,545	(104,263)	104,263	0	0
2075	0	-	-	2,794,592	2,794,592	(92,777)	92,777	0	0

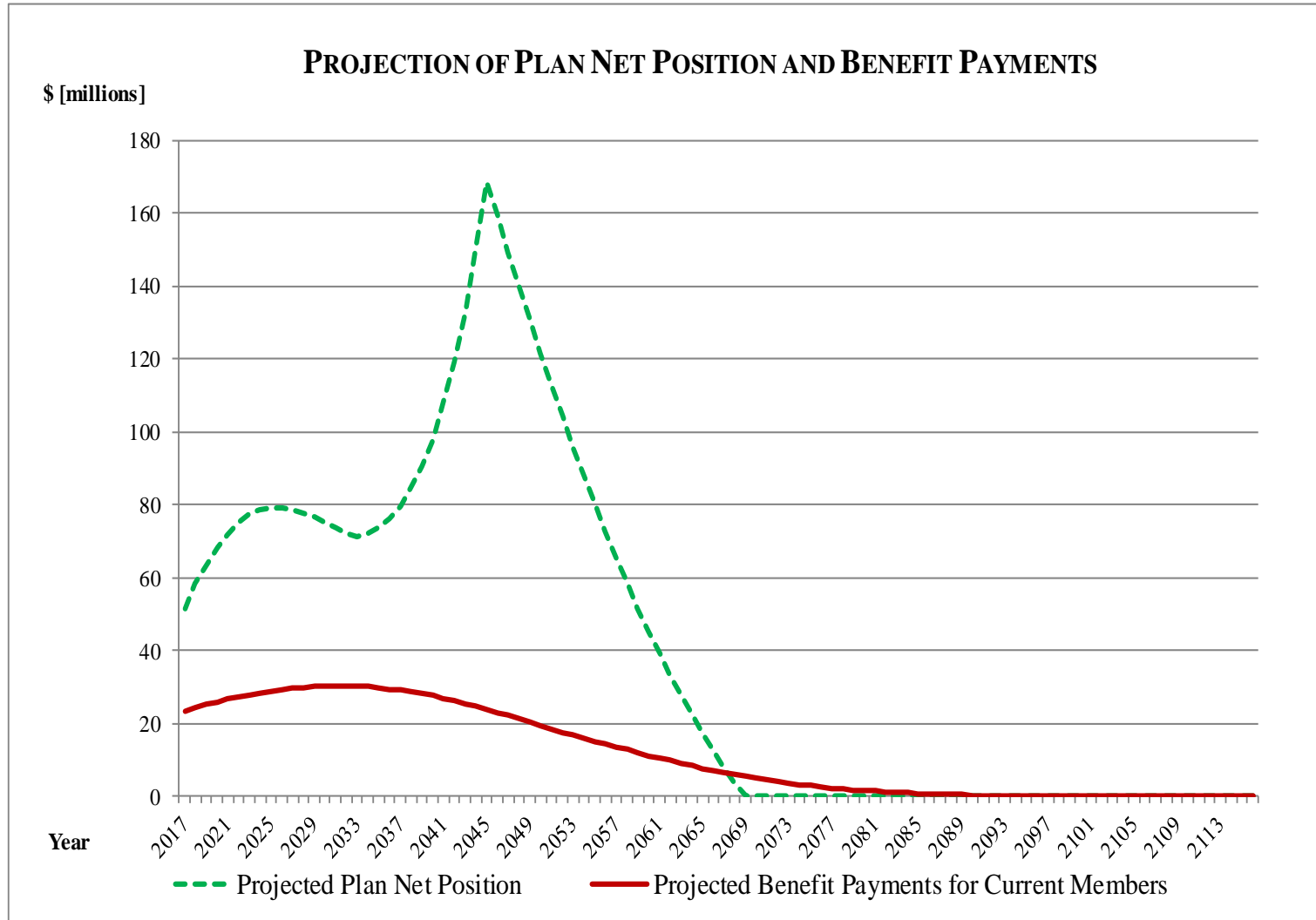
*The projections in this report are strictly for the purpose of determining the GASB Single Discount Rate and are different from a funding projection for the ongoing plan.*



**DEVELOPMENT OF SINGLE DISCOUNT RATE**

PYE 6/30	Benefit Payments	Discount Rate	Discounted Benefit Payment	Single Discount Rate	Discounted Benefit Payment
2017	\$ 23,415,862	6.75%	\$ 22,663,460	6.60%	\$ 22,679,059
2018	24,370,003	6.75%	22,095,496	6.60%	22,141,153
2019	25,177,829	6.75%	21,384,474	6.60%	21,458,172
2020	25,926,159	6.75%	20,627,690	6.60%	20,727,284
2021	26,553,764	6.75%	19,791,131	6.60%	19,914,072
2022	27,192,712	6.75%	18,985,812	6.60%	19,130,059
2023	27,752,309	6.75%	18,151,306	6.60%	18,314,399
2024	28,398,676	6.75%	17,399,588	6.60%	17,580,103
2025	28,866,279	6.75%	16,567,760	6.60%	16,762,697
2026	29,221,100	6.75%	15,710,922	6.60%	15,917,668
2027	29,539,367	6.75%	14,877,789	6.60%	15,094,330
2028	29,819,853	6.75%	14,069,376	6.60%	14,293,807
2029	30,093,986	6.75%	13,300,904	6.60%	13,531,686
2030	30,170,900	6.75%	12,491,709	6.60%	12,725,951
2031	30,208,791	6.75%	11,716,531	6.60%	11,952,675
2032	30,139,733	6.75%	10,950,582	6.60%	11,186,673
2033	30,042,470	6.75%	10,225,053	6.60%	10,459,886
2034	29,954,468	6.75%	9,550,446	6.60%	9,783,240
2035	29,705,524	6.75%	8,872,201	6.60%	9,100,978
2036	29,382,071	6.75%	8,220,698	6.60%	8,444,288
2037	29,047,626	6.75%	7,613,231	6.60%	7,831,069
2038	28,644,420	6.75%	7,032,837	6.60%	7,244,030
2039	28,127,778	6.75%	6,469,311	6.60%	6,672,758
2040	27,562,092	6.75%	5,938,365	6.60%	6,133,550
2041	26,883,688	6.75%	5,425,949	6.60%	5,612,009
2042	26,167,892	6.75%	4,947,522	6.60%	5,124,223
2043	25,407,408	6.75%	4,499,989	6.60%	4,667,125
2044	24,576,016	6.75%	4,077,507	6.60%	4,234,775
2045	23,805,473	6.75%	3,699,918	6.60%	3,847,915
2046	22,932,625	6.75%	3,338,883	6.60%	3,477,220
2047	22,041,090	6.75%	3,006,164	6.60%	3,135,027
2048	21,167,812	6.75%	2,704,504	6.60%	2,824,320
2049	20,264,886	6.75%	2,425,426	6.60%	2,536,366
2050	19,344,341	6.75%	2,168,852	6.60%	2,271,179
2051	18,427,364	6.75%	1,935,402	6.60%	2,029,507
2052	17,521,330	6.75%	1,723,881	6.60%	1,810,190
2053	16,705,581	6.75%	1,539,692	6.60%	1,619,006
2054	15,891,669	6.75%	1,372,062	6.60%	1,444,728
2055	15,064,638	6.75%	1,218,415	6.60%	1,284,710
2056	14,233,379	6.75%	1,078,392	6.60%	1,138,634
2057	13,421,879	6.75%	952,608	6.60%	1,007,208
2058	12,630,197	6.75%	839,736	6.60%	889,090
2059	11,857,359	6.75%	738,504	6.60%	782,985
2060	11,103,867	6.75%	647,845	6.60%	687,812
2061	10,371,745	6.75%	566,867	6.60%	602,666
2062	9,659,999	6.75%	494,582	6.60%	526,541
2063	8,968,832	6.75%	430,159	6.60%	458,586
2064	8,299,735	6.75%	372,898	6.60%	398,088
2065	7,654,443	6.75%	322,160	6.60%	344,396
2066	7,034,222	6.75%	277,336	6.60%	296,886
2067	6,440,686	6.75%	237,878	6.60%	254,997
2068	5,875,569	6.75%	203,284	6.60%	218,214
2069	5,340,527	6.75%	173,089	6.60%	186,058
2070	4,836,622	2.85%	1,075,505	6.60%	158,065
2071	4,364,613	2.85%	943,651	6.60%	133,804
2072	3,924,693	2.85%	825,025	6.60%	112,865
2073	3,516,867	2.85%	718,809	6.60%	94,872
2074	3,140,545	2.85%	624,106	6.60%	79,473
2075	2,794,592	2.85%	539,967	6.60%	66,338
2085	679,455	2.85%	99,121	6.60%	8,509
2095	81,972	2.85%	9,029	6.60%	542
2105	4,370	2.85%	363	6.60%	15
2115	55	2.85%	3	6.60%	0
<b>Total Present Value</b>			<b>\$ 393,728,657</b>		<b>\$ 393,728,657</b>

*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.*



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**SECTION I**

**GLOSSARY OF TERMS**

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## GLOSSARY OF TERMS

<i><b>Accrued Service</b></i>	Service credited under the system that was rendered before the date of the actuarial valuation.
<i><b>Actuarial Accrued Liability (AAL)</b></i>	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."
<i><b>Actuarial Assumptions</b></i>	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.
<i><b>Actuarial Cost Method</b></i>	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.
<i><b>Actuarial Equivalent</b></i>	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.
<i><b>Actuarial Gain (Loss)</b></i>	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.
<i><b>Actuarial Present Value (APV)</b></i>	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.
<i><b>Actuarial Valuation</b></i>	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.
<i><b>Actuarial Valuation Date</b></i>	The date as of which an actuarial valuation is performed.
<i><b>Actuarially Determined Contribution (ADC) or Annual Required Contribution (ARC)</b></i>	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

<b><i>Amortization Method</i></b>	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).
<b><i>Amortization Payment</i></b>	The amortization payment is the periodic payment required to pay off an interest-discounted amount with payments of interest and principal.
<b><i>Cost-of-Living Adjustments</i></b>	Postemployment benefit changes intended to adjust benefit payments for the effects of inflation.
<b><i>Cost-Sharing Multiple-Employer Defined Benefit Pension Plan (cost-sharing pension plan)</i></b>	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.
<b><i>Covered-Employee Payroll</i></b>	The payroll of employees that are provided with pensions through the pension plan.
<b><i>Deferred Inflows and Outflows</i></b>	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.
<b><i>Deferred Retirement Option Program (DROP)</i></b>	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.
<b><i>Discount Rate</i></b>	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: <ol style="list-style-type: none"> <li>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</li> <li>2. The present value of the benefit payments not in (1) above, discounted using the municipal bond rate.</li> </ol>

## GLOSSARY OF TERMS

<b><i>Entry Age Actuarial Cost Method (EAN)</i></b>	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.
<b><i>Fiduciary Net Position</i></b>	The fiduciary net position is the market value of the assets of the trust dedicated to the defined benefit provisions.
<b><i>GASB</i></b>	The Governmental Accounting Standards Board is an organization that exists in order to promulgate accounting standards for governmental entities.
<b><i>Long-Term Expected Rate of Return</i></b>	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.
<b><i>Money-Weighted Rate of Return</i></b>	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.
<b><i>Multiple-Employer Defined Benefit Pension Plan</i></b>	A multiple-employer plan is a defined benefit pension plan that is used to provide pensions to the employees of more than one employer.
<b><i>Municipal Bond Rate</i></b>	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.
<b><i>Net Pension Liability (NPL)</i></b>	The NPL is the liability of employers and non-employer contributing entities to plan members for benefits provided through a defined benefit pension plan.
<b><i>Non-Employer Contributing Entities</i></b>	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.
<b><i>Normal Cost</i></b>	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

<b><i>Other Postemployment Benefits (OPEB)</i></b>	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.
<b><i>Real Rate of Return</i></b>	The real rate of return is the rate of return on an investment after adjustment to eliminate inflation.
<b><i>Service Cost</i></b>	The service cost is the portion of the actuarial present value of projected benefit payments that is attributed to a valuation year.
<b><i>Total Pension Expense</i></b>	The total pension expense is the sum of the following items that are recognized at the end of the employer's fiscal year: <ol style="list-style-type: none"> <li>1. Service Cost</li> <li>2. Interest on the Total Pension Liability</li> <li>3. Current-Period Benefit Changes</li> <li>4. Employee Contributions (made negative for addition here)</li> <li>5. Projected Earnings on Plan Investments (made negative for addition here)</li> <li>6. Pension Plan Administrative Expense</li> <li>7. Other Changes in Plan Fiduciary Net Position</li> <li>8. Recognition of Outflow/(Inflow) of Resources due to Liabilities</li> <li>9. Recognition of Outflow/(Inflow) of Resources due to Assets</li> </ol>
<b><i>Total Pension Liability (TPL)</i></b>	The TPL is the portion of the actuarial present value of projected benefit payments that is attributed to past periods of member service.
<b><i>Unfunded Actuarial Accrued Liability (UAAL)</i></b>	The UAAL is the difference between actuarial accrued liability and valuation assets.
<b><i>Valuation Assets</i></b>	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.