

# General Assembly Retirement System of Illinois

GASB Statement Nos. 67 and 68 Accounting and  
Financial Reporting for Pensions as of June 30, 2019



December 3, 2019

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) Statement 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 Statement 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 Statement 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, 2019, 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 within this report is accurate and fairly represents the actuarial position of the General Assembly Retirement System of Illinois. All calculations have been made in conformity with generally accepted actuarial principles and practices as well as with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

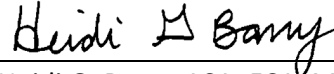
The signing actuaries are independent of the plan sponsor.

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

Respectfully submitted,

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

By   
Jeffrey T. Tebeau, FSA, EA, MAAA  
Consultant

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



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.



# Table of Contents

---

	<u>Page</u>
<b>Section A Executive Summary</b>	
Executive Summary .....	1
Discussion .....	2-5
<b>Section B Financial Statements</b>	
Statement of Fiduciary Net Position.....	1
Statement of Changes in Fiduciary Net Position .....	2
<b>Section C Required Supplementary Information</b>	
Schedule of Changes in Net Pension Liability and Related Ratios – Multiyear .....	1
Schedule of the Net Pension Liability – Multiyear .....	2
Schedule of Contributions – Multiyear.....	3
Notes to Schedule of Contributions .....	4
<b>Section D Notes to Financial Statements</b>	
Sensitivity of Net Pension Liability to the Single Discount Rate Assumption.....	1
Summary of Population Statistics.....	2
<b>Section E GASB Statement No. 68 Pension Expense</b>	
Schedule of Changes in Net Pension Liability and Related Ratios.....	1
Statement of Pension Expense for Plan Year Ended June 30, 2019, Applicable to Fiscal Year Ending June 30, 2020 .....	2
Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods for Plan Year Ended June 30, 2019.....	3
<b>Section F Summary of Retirement System Plan Provisions .....</b>	<b>1-4</b>
<b>Section G Actuarial Cost Method and Actuarial Assumptions</b>	
Valuation Methods, Entry Age Normal.....	1
Actuarial Assumptions, Input to Discount Rates, Mortality Assumptions, and Experience Studies.....	2-6
Miscellaneous and Technical Assumptions .....	7-9
<b>Section H Calculation of the Single Discount Rate</b>	
Calculation of the Single Discount Rate.....	1
Projection of Funded Status and Assignment of Assets .....	2
Current Member Projection of Assets and Assignment of Employer Contributions .....	3
Development of Single Discount Rate .....	4
Projection of Plan Net Position and Benefit Payments .....	5
<b>Section I Glossary of Terms .....</b>	<b>1-4</b>

# SECTION A



## EXECUTIVE SUMMARY

# Executive Summary as of June 30, 2019

	<b>2019</b>
Actuarial Valuation Date	June 30, 2019
Measurement Date of the Net Pension Liability	June 30, 2019
Plan's Fiscal Year Ending Date (Reporting Date) for GASB Statement No. 67	June 30, 2019
Employer's Fiscal Year Ending Date (Reporting Date) for GASB Statement No. 68	June 30, 2020

## Membership

Number of	
- Retirees and Beneficiaries	441
- Inactive, Nonretired Members	69
- Active Members	126
- Total	636
Covered Payroll <sup>a</sup>	\$ 10,159,312

## Net Pension Liability

Total Pension Liability	\$ 381,562,351
Plan Fiduciary Net Position	59,719,220
Net Pension Liability	\$ 321,843,131
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	15.65 %
Net Pension Liability as a Percentage of Covered Payroll	3,167.96 %

## Development of the Single Discount Rate

Single Discount Rate Beginning of Year	6.68 %
Single Discount Rate End of Year	6.41 %
Long-Term Expected Rate of Investment Return	6.50 %
Long-Term Municipal Bond Rate Beginning of Year <sup>a</sup>	3.62 %
Long-Term Municipal Bond Rate End of Year <sup>a</sup>	3.13 %
Last year ending June 30 in the 2019 to 2118 projection period for which projected benefit payments are fully funded	2072

**Total Pension Expense for Fiscal Year End June 30, 2019** \$ 21,177,397

## Deferred Outflows and Deferred Inflows of Resources by Source to be recognized in Future Pension Expenses as of June 30, 2019

	Deferred Outflows of Resources	Deferred (Inflows) of Resources
Difference between expected and actual non-investment experience	\$ 1,508,845	\$ -
Changes in assumptions	-	(3,106,962)
Net difference between projected and actual earnings on pension plan investments	1,131,683	(793,805)
Total	\$ 2,640,528	\$ (3,900,767)

<sup>a</sup> Covered payroll is based on the requirements of GASB Statement No. 82.

<sup>b</sup> Source: The rates at the beginning and end of the year are the rates for fixed-income municipal bonds with 20 years to maturity that include only federally tax-exempt municipal bonds as reported in Fidelity Index's "20-Year Municipal GO AA Index" as of June 29, 2018, and June 28, 2019, respectively. In describing this index, Fidelity notes that the municipal curves are constructed using option-adjusted analytics of a diverse population of over 10,000 tax exempt securities.

# Discussion

---

## Accounting Standard

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

The following discussion provides a summary of the information that is required to be disclosed under these accounting standards. A number of these disclosure items are provided in this report. However, certain 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, 2019.

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. The pension expense for fiscal year ending June 30, 2020 is based on the results of the actuarial valuation as of June 30, 2019.

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.



# Discussion

---

## 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 percent, 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.

## Discussion

---

### General Implications of GARS Statutory Funding Policy on Future and Expected Plan Contributions and Funded Status

Given the plan's statutorily defined funding policy, if all actuarial assumptions are met (including the assumption of the plan earning 6.50 percent on the actuarial value of assets), then the following outcomes are expected:

1. The unfunded liability is not expected to be fully amortized during the lifetimes of the current members.
2. The funded status of the plan is expected to increase gradually towards a 90 percent funded ratio at 2045 and then remain level at 90 percent funded thereafter.

This statutory funding policy results in an expected crossover date in 2072 and a GASB Single Discount Rate of 6.41 percent to measure the total pension liability as of June 30, 2019. The projections in this report are strictly for the purpose of determining the GASB Single Discount Rate and are different from a funding projection for the ongoing plan.

### Timing of the Valuation

An actuarial valuation to determine the total pension liability is required to be performed at least every two years. 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 provided in this report is based on a measurement date of June 30, 2019, but will be used for fiscal year ending June 30, 2020.

The GASB Statement No. 68 pension expense for fiscal year ended June 30, 2019, is based on the results of the actuarial valuation as of June 30, 2018 and is provided in the June 30, 2018 GASB Statement Nos. 67 and 68 actuarial valuation report.

The total pension liability shown in this report is based on an actuarial valuation performed as of June 30, 2019, and a measurement date of June 30, 2019.

### 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 as of the measurement date (to the extent that the contributions for use with the long-term expected rate of return are not met).

## Discussion

---

For the purpose of this valuation, the expected rate of return on pension plan investments is 6.50 percent; the municipal bond rate is 3.13 percent (based on the daily rate closest to but not later than the measurement date of the Fidelity “20-Year Municipal GO AA Index”); and the resulting Single Discount Rate is 6.41 percent.

### Recent Legislation

The following recently passed Public Acts impact GARS as follows.

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

### Changes in Assumptions

The actuarial valuation results summarized in this report involve actuarial calculations that require assumptions about future events. The actuarial assumptions used for the June 30, 2019, actuarial valuation are based on the Experience Study report for the three-year period from July 1, 2015, through June 30, 2018.

As a result of the 2018 experience review, the Board approved the following changes to the assumptions to be used in the June 30, 2019, actuarial valuation:

- Reduce the investment return assumption from 6.75 percent to 6.50 percent;
- Reduce the general (price) inflation assumption from 2.50 percent to 2.25 percent;
- Reduce the wage inflation assumption from 2.75 percent to 2.50 percent;
- Update the mortality tables to the Pub-2010 Above-Median Income General Healthy Retiree and Employee Mortality Tables with adjustments for the System’s credibility factors and future mortality improvements using scale MP-2018;
- Update the normal and early retirement rates to better reflect observed experience; and
- Update the turnover rates to better reflect observed experience.

Pursuant to Public Act 99-0232, GARS is required to conduct an actuarial experience review once every three years.

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

## SECTION B

---

### **FINANCIAL STATEMENTS**

Auditor's Note – This information is intended to assist in preparation of the financial statements of the 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, 2019, and 2018

	<b>2019</b>	<b>2018</b>
<b>Assets</b>		
Cash	\$ 4,144,035	\$ 4,718,266
Receivables		
Contributions:		
Participants	\$ 70,197	\$ 20,419
Employing state agencies	967,540	651,300
Other Accounts	11,839	13,016
Total Receivables	\$ 1,049,576	\$ 684,735
Investments		
Held in the Illinois State Board of Investment Commingled Fund at fair value	\$ 54,604,432	\$ 51,487,943
Securities lending collateral with State Treasurer	863,000	1,949,000
Total Investments	\$ 55,467,432	\$ 53,436,943
Capital assets, net of accumulated depreciation	\$ 31,952	\$ 22,615
<b>Total Assets</b>	<b>\$ 60,692,995</b>	<b>\$ 58,862,559</b>
<b>Liabilities</b>		
Payables		
Benefits payable	\$ -	\$ -
Refunds payable	-	214
Administrative expenses payable	37,774	34,394
Participants' deferred service credit accounts	-	-
Due to State of Illinois	73,001	62,567
Securities lending collateral with State Treasurer	863,000	1,949,000
<b>Total Liabilities</b>	<b>\$ 973,775</b>	<b>\$ 2,046,175</b>
<b>Net Position Restricted for Pensions</b>	<b>\$ 59,719,220</b>	<b>\$ 56,816,384</b>

# Statement of Changes in Fiduciary Net Position Years Ended June 30, 2019, and 2018

	2019	2018
<b>Additions</b>		
Contributions		
Participants	\$ 1,317,187	\$ 1,255,232
Employing state agencies and appropriations	23,253,426	21,155,000
Total Contributions	\$ 24,570,613	\$ 22,410,232
Investment Income		
Net investments income	\$ 807,117	\$ 1,029,179
Interest earned on cash balances	72,927	93,666
Net appreciation in fair value of investments	2,569,372	2,610,659
Net Investment Income	\$ 3,449,416	\$ 3,733,504
<b>Total Additions</b>	\$ 28,020,029	\$ 26,143,736
<b>Deductions</b>		
Benefits		
Retirement annuities	\$ 20,590,350	\$ 19,188,301
Survivors' annuities	3,968,090	4,094,719
Disability benefits	-	-
Lump-sum benefits	-	-
Total Benefits	\$ 24,558,440	\$ 23,283,020
Refunds	168,920	44,856
Administrative	389,833	348,384
<b>Total Deductions</b>	\$ 25,117,193	\$ 23,676,260
<b>Net Increase in Net Position</b>	\$ 2,902,836	\$ 2,467,476
<b>Net Position Restricted for Pensions</b>		
Beginning of Year	\$ 56,816,384	\$ 54,348,908
End of Year	\$ 59,719,220	\$ 56,816,384

## SECTION C

---

### **REQUIRED SUPPLEMENTARY INFORMATION**

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,	2019	2018	2017	2016	2015	2014	2013
<b>Total Pension Liability</b>							
Service Cost Including Pension Plan Administrative Expense	\$ 3,280,072	\$ 3,535,911	\$ 3,879,813	\$ 3,577,188	\$ 5,957,132	\$ 5,383,133	
Interest on the Total Pension Liability	24,852,899	24,541,949	24,045,958	22,395,292	19,911,100	20,110,452	
Changes of Benefit Terms	-	-	-	-	-	-	
Difference between Expected and Actual Experience	4,007,760	1,197,364	2,093,742	(5,400,812)	2,366,032	12,389,130	
Changes of Assumptions <sup>a</sup>	(8,252,643)	(1,213,112)	(2,430,609)	42,122,612	(70,538,690)	-	
Benefit Payments, Including Refunds of Employee Contributions	(24,727,360)	(23,327,876)	(22,493,411)	(21,983,054)	(21,466,704)	(21,045,635)	
Pension Plan Administrative Expense	(389,833)	(348,384)	(355,711)	(382,340)	(394,695)	(334,628)	
<b>Net Change in Total Pension Liability</b>	<b>(1,229,105)</b>	<b>4,385,852</b>	<b>4,739,782</b>	<b>40,328,886</b>	<b>(64,165,825)</b>	<b>16,502,452</b>	
<b>Total Pension Liability - Beginning</b>	<b>382,791,456</b>	<b>378,405,604</b>	<b>373,665,822</b>	<b>333,336,936</b>	<b>397,502,761</b>	<b>381,000,309</b>	
<b>Total Pension Liability - Ending (a)</b>	<b>\$ 381,562,351</b>	<b>\$ 382,791,456</b>	<b>\$ 378,405,604</b>	<b>\$ 373,665,822</b>	<b>\$ 333,336,936</b>	<b>\$ 397,502,761</b>	
<b>Plan Fiduciary Net Position</b>							
Employer Contributions	\$ 23,253,426	\$ 21,155,000	\$ 21,721,000	\$ 16,073,000	\$ 15,870,941	\$ 13,956,669	
Employee Contributions	1,317,187	1,255,232	1,284,707	1,309,697	1,487,346	1,502,605	
Pension Plan Net Investment Income	3,449,416	3,733,504	5,140,250	(539,494)	2,287,916	8,363,428	
Benefit Payments, Including Refunds of Employee Contributions	(24,727,360)	(23,327,876)	(22,493,411)	(21,983,054)	(21,466,704)	(21,045,635)	
Pension Plan Administrative Expense	(389,833)	(348,384)	(355,711)	(382,340)	(394,695)	(334,628)	
Other	-	-	-	-	-	-	
<b>Net Change in Plan Fiduciary Net Position</b>	<b>2,902,836</b>	<b>2,467,476</b>	<b>5,296,835</b>	<b>(5,522,191)</b>	<b>(2,215,196)</b>	<b>2,442,439</b>	
<b>Plan Fiduciary Net Position - Beginning</b>	<b>56,816,384</b>	<b>54,348,908</b>	<b>49,052,073</b>	<b>54,574,264</b>	<b>56,789,460</b>	<b>54,347,021</b>	
<b>Plan Fiduciary Net Position - Ending (b)</b>	<b>59,719,220</b>	<b>56,816,384</b>	<b>54,348,908</b>	<b>49,052,073</b>	<b>54,574,264</b>	<b>56,789,460</b>	
<b>Net Pension Liability - Ending (a) - (b)</b>	<b>\$ 321,843,131</b>	<b>\$ 325,975,072</b>	<b>\$ 324,056,696</b>	<b>\$ 324,613,749</b>	<b>\$ 278,762,672</b>	<b>\$ 340,713,301</b>	
<b>Plan Fiduciary Net Position as a Percentage</b>							
<b>of Total Pension Liability</b>	15.65 %	14.84 %	14.36 %	13.13 %	16.37 %	14.29 %	
<b>Covered-Employee Payroll<sup>b</sup></b>	<b>\$ 10,159,312</b>	<b>\$ 10,711,024</b>	<b>\$ 10,996,284</b>	<b>\$ 11,297,614</b>	<b>\$ 11,587,285</b>	<b>\$ 12,754,356</b>	
<b>Net Pension Liability as a Percentage</b>							
<b>of Covered-Employee Payroll</b>	3,167.96 %	3,043.36 %	2,946.97 %	2,873.29 %	2,405.76 %	2,671.35 %	
<b>Single Discount Rate, Beginning of Year</b>	6.68 %	6.66 %	6.60 %	6.91 %	5.11 %	5.39 %	
<b>Single Discount Rate, End of Year</b>	6.41 %	6.68 %	6.66 %	6.60 %	6.91 %	5.11 %	5.39 %
<b>Long-Term Municipal Bond Rate</b>	3.13 %	3.62 %	3.56 %	2.85 %	3.80 %	4.29 %	4.63 %
<b>Long-Term Municipal Bond Rate Date</b>	June 28, 2019	June 29, 2018	June 30, 2017	June 30, 2016	June 25, 2015	June 26, 2014	June 27, 2013

<sup>a</sup> Fiscal year end 2019 change of assumptions from updates of an Experience Study for the three-year period ending June 30, 2018, and change in GASB 67/68 discount rate.

<sup>b</sup> Covered payroll is based on the requirements of GASB Statement No. 82.



## Schedules of Required Supplementary Information

### Schedule of the Net 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 %	\$ 12,754,356	2,671.35 %
2015	333,336,936	54,574,264	278,762,672	16.37 %	11,587,285	2,405.76 %
2016	373,665,822	49,052,073	324,613,749	13.13 %	11,297,614	2,873.29 %
2017	378,405,604	54,348,908	324,056,696	14.36 %	10,996,284	2,946.97 %
2018	382,791,456	56,816,384	325,975,072	14.84 %	10,711,024	3,043.36 %
2019	381,562,351	59,719,220	321,843,131	15.65 %	10,159,312	3,167.96 %

<sup>a</sup> Covered payroll is based on the requirements of GASB Statement No. 82.

# Schedules of Required Supplementary Information

## Schedule of Contributions – Multiyear

### Last 10 Fiscal Years

Fiscal Year	Actuarially Determined Contribution <sup>a</sup>	Actual Contribution <sup>b</sup>	Contribution Deficiency (Excess)	Covered Payroll <sup>c</sup>	Actual Contribution as a % of Covered Payroll	Statutory Contribution	Statutory Contribution Deficiency/(Excess)
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	15,263,164	68.81%	10,502,000	-
7/1/12 - 6/30/13	17,064,640	14,150,000	2,914,640	14,876,335	95.12%	14,150,000	-
7/1/13 - 6/30/14	17,110,135	13,956,669	3,153,466	12,754,356	109.43%	13,856,000	(100,669)
7/1/14 - 6/30/15	16,900,876	15,870,941	1,029,935	11,587,285	136.97%	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	-
7/1/16 - 6/30/17	26,984,621	21,721,000	5,263,621	10,996,284	197.53%	21,721,000	-
7/1/17 - 6/30/18	32,082,644	21,155,000	10,927,644	10,711,024	197.51%	21,155,000	-
7/1/18 - 6/30/19	32,650,450	23,253,426	9,397,024	10,159,312	228.89%	23,253,426	-

<sup>a</sup> The GARS statutory funding may not conform with 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 2009 through 2016 is an open 30-year period, and a closed 20-year period for fiscal years on and after 2017. The actuarially determined contribution for each fiscal year was determined as of the valuation two years prior.

<sup>b</sup> The actual contributions for FYE June 30, 2009 through June 30, 2017 were obtained from the System's comprehensive annual financial reports. The actual contributions for FYE June 30, 2018 and later were provided by the System.

<sup>c</sup> Covered payroll for fiscal years on and after June 30, 2012, were restated to comply with the requirements of GASB Statement No. 82. For fiscal years prior to June 30, 2012, covered payroll was not restated to comply with the requirements of GASB Statement No. 82 due to system limitations.

# Schedules of Required Supplementary Information

## Notes to Schedule of Contributions

---

<b>Actuarial Valuation Date:</b>	June 30, 2017
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.
<b>Methods and Assumptions Used to Determine Contribution Rates for Fiscal Year ended June 30, 2019:</b>	
Actuarial Cost Method	Projected Unit Credit
Amortization Method	<b>Statutory Contributions:</b> 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.  <b>Actuarially Determined Contributions (ADC):</b> 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, 2017, the remaining amortization period was 18 years.
Asset Valuation Method	5-year smoothed market
Inflation	2.75 percent
Salary Increases	Salary increase rates based on age-related productivity and merit rates plus inflation.
Postretirement Benefit Increases	Postretirement benefit increases of 3.00 percent, compounded, for Tier 1 and 3.00 percent or one-half of the annual increase in the Consumer Price Index, whichever is less, simple, for Tier 2.
Investment Rate of Return	6.75 percent
Retirement Age	Experience-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	Post-retirement: RP-2014 White Collar Healthy Annuitant mortality table, sex distinct, and generational mortality improvements using the MP-2014 two-dimensional mortality improvement scales.  Pre-retirement: RP-2014 White Collar Total Employee mortality table, sex distinct, and generational mortality improvement using MP-2014 two-dimensional mortality improvement scales.

## SECTION D

---

### NOTES TO FINANCIAL STATEMENTS

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.

# Sensitivity of Net Pension Liability to the Single Discount Rate Assumptions

---

## Single Discount Rate

A Single Discount Rate of 6.41 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 6.50 percent and a municipal bond rate of 3.13 percent. The projection of cash flows used to determine this Single Discount Rate assumed that plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the difference between statutory contribution rates and the member rate. Based on these assumptions, the pension plan's fiduciary net position and future contributions were sufficient to finance the benefit payments through the year 2072. As a result, the long-term expected rate of return on pension plan investments was applied to projected benefit payments through the year 2072, and the municipal bond rate was applied to all benefit payments after that date.

Regarding the sensitivity of the net pension liability to changes in the Single Discount Rate, the following presents the plan's net pension liability, calculated using a Single Discount Rate of 6.41 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
5.41%	6.41%	7.41%
\$ 364,537,251	\$ 321,843,131	\$ 286,146,808

## Summary of Population Statistics

---

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	441
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	69
Active Plan Members	<u>126</u>
Total Plan Members	636

*Additional information about the member data used is included in the June 30, 2019, actuarial valuation report.*

## SECTION E

---

### **GASB STATEMENT NO. 68 PENSION EXPENSE**

# Schedule of Changes in Net Pension Liability and Related Ratios

Fiscal year End 6/30	2019	2018
<b>A. Total Pension Liability</b>		
1. Service Cost Including Pension Plan Administrative Expense	\$ 3,280,072	\$ 3,535,911
2. Interest on the Total Pension Liability	24,852,899	24,541,949
3. Changes of Benefit Terms	-	-
4. Difference Between Expected and Actual Experience of the Total Pension Liability	4,007,760	1,197,364
5. Changes of Assumptions	(8,252,643)	(1,213,112)
6. Benefit Payments, Including Refunds of Employee Contributions	(24,727,360)	(23,327,876)
7. Pension Plan Administrative Expense	(389,833)	(348,384)
<b>8. Net Change in Total Pension Liability</b>	<b>\$ (1,229,105)</b>	<b>\$ 4,385,852</b>
<b>9. Total Pension Liability – Beginning</b>	<b>382,791,456</b>	<b>378,405,604</b>
<b>10. Total Pension Liability – Ending</b>	<b>\$ 381,562,351</b>	<b>\$ 382,791,456</b>
<b>B. Plan Fiduciary Net Position</b>		
1. Contributions – Employer	\$ 23,253,426	\$ 21,155,000
2. Contributions – Employee	1,317,187	1,255,232
3. Net Investment Income	3,449,416	3,733,504
4. Benefit Payments, Including Refunds of Employee Contributions	(24,727,360)	(23,327,876)
5. Pension Plan Administrative Expense	(389,833)	(348,384)
6. Other	-	-
<b>7. Net Change in Plan Fiduciary Net Position</b>	<b>\$ 2,902,836</b>	<b>\$ 2,467,476</b>
<b>8. Plan Fiduciary Net Position – Beginning</b>	<b>56,816,384</b>	<b>54,348,908</b>
<b>9. Plan Fiduciary Net Position – Ending</b>	<b>\$ 59,719,220</b>	<b>\$ 56,816,384</b>
<b>C. Net Pension Liability</b>	<b>\$ 321,843,131</b>	<b>\$ 325,975,072</b>
<b>D. Plan Fiduciary Net Position as a Percentage of the Total Pension Liability</b>	<b>15.65%</b>	<b>14.84%</b>
<b>E. Covered-Employee Payroll</b>	<b>\$ 10,159,312</b>	<b>\$ 10,711,024</b>
<b>F. Net Pension Liability as a Percentage of Covered-Employee Payroll</b>	<b>3167.96%</b>	<b>3043.36%</b>



# Statement of Pension Expense under GASB Statement No. 68

## Plan Year Ended June 30, 2019

### Applicable to Fiscal Year Ending June 30, 2020

---

#### A. Expense

1. Service Cost Including Pension Plan Administrative Expense	\$	3,280,072
2. Interest on the Total Pension Liability		24,852,899
3. Current-Period Benefit Changes		-
4. Employee Contributions (made negative for addition here)		(1,317,187)
5. Projected Earnings on Plan Investments (made negative for addition here)		(3,816,960)
6. Other Changes in Plan Fiduciary Net Position		-
7. Recognition of Outflow/(Inflow) of Resources due to Liabilities		2,962,330
8. Recognition of Outflow/(Inflow) of Resources due to Assumption Changes		(5,615,191)
9. Recognition of Outflow/(Inflow) of Resources due to Assets		831,434
<b>10. Total Pension Expense*</b>	<b>\$</b>	<b>21,177,397</b>

#### B. Reconciliation of Net Pension Liability

<b>1. Net Pension Liability Beginning of Year</b>	<b>\$</b>	<b>325,975,072</b>
2. Total Pension Expense		21,177,397
3. Employer Contributions (made negative for addition here)		(23,253,426)
4. Change in Deferred Liability Experience (Inflows)/Outflows		1,045,430
5. Change in Deferred Assumption Changes Experience (Inflows)/Outflows		(2,637,452)
6. Change in Deferred Investment Experience (Inflows)/Outflows		(463,890)
<b>7. Net Pension Liability End of Year*</b>	<b>\$</b>	<b>321,843,131</b>

*\*Totals may not add due to rounding*

The pension expense is based on a measurement date of June 30, 2019, but will be used for fiscal year ending June 30, 2020. 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, 2019\*

### A. Outflows and (Inflows) of Resources Recognized in Current and Future Pension Expenses as of Plan Year End June 30, 2019

Experience (Gain)/Loss	Original Balance	Date Established	Original Recognition Period/ Amortization Factor	Amount Recognized in Past Pension Expenses	Amount Recognized in Current Pension Expense	Deferred (Inflows)	Deferred Outflows
						to be Recognized in Future Pension Expenses	to be Recognized in Future Pension Expenses
1. Differences Between Expected and Actual Non-Investment Experience	\$ 4,007,760	June 30, 2019	1.6038	\$ -	\$ 2,498,915	\$ -	\$ 1,508,845
	1,197,364	June 30, 2018	1.6314	733,949	463,415	-	-
	2,093,742	June 30, 2017	1.6625	2,093,742	-	-	-
	(5,400,812)	June 30, 2016	2.4312	(5,400,812)	-	-	-
	2,366,032	June 30, 2015	2.5786	2,366,032	-	-	-
	<u>\$ 4,264,086</u>		<u>1.9815</u>	<u>\$ (207,089)</u>	<u>\$ 2,962,330</u>	<u>\$ -</u>	<u>\$ 1,508,845</u>
2. Assumption Changes	\$ (8,252,643)	June 30, 2019	1.6038	\$ -	\$ (5,145,681)	\$ (3,106,962)	\$ -
	(1,213,112)	June 30, 2018	1.6314	(743,602)	(469,510)	-	-
	(2,430,609)	June 30, 2017	1.6625	(2,430,609)	-	-	-
	42,122,612	June 30, 2016	2.4312	42,122,612	-	-	-
	(70,538,690)	June 30, 2015	2.5786	(70,538,690)	-	-	-
	<u>\$ (40,312,442)</u>		<u>1.9815</u>	<u>\$ (31,590,289)</u>	<u>\$ (5,615,191)</u>	<u>\$ (3,106,962)</u>	<u>\$ -</u>
3. Difference Between Expected and Actual Investment Earnings	\$ 367,544	June 30, 2019	5.0000	\$ -	\$ 73,509	\$ -	\$ 294,035
	(106,983)	June 30, 2018	5.0000	(21,397)	(21,397)	(64,189)	-
	(1,824,037)	June 30, 2017	5.0000	(729,614)	(364,807)	(729,616)	-
	4,188,248	June 30, 2016	5.0000	2,512,950	837,650	-	837,648
	1,532,403	June 30, 2015	5.0000	1,225,924	306,479	-	-
	<u>\$ 4,157,175</u>		<u>5.0000</u>	<u>\$ 2,987,863</u>	<u>\$ 831,434</u>	<u>\$ (793,805)</u>	<u>\$ 1,131,683</u>
<b>4. Total</b>	<b>\$ (31,891,181)</b>			<b>\$ (28,809,515)</b>	<b>\$ (1,821,427)</b>	<b>\$ (3,900,767)</b>	<b>\$ 2,640,528</b>

### B. Deferred Outflows and Deferred (Inflows) of Resources by Year to be Recognized in Future Pension Expenses

Year Ending June 30	Differences Between Expected and Actual		Differences Between Expected and Actual Investment Experience	Year Ending June 30	Deferred Outflows of Resources	Deferred (Inflows) of Resources	Net Deferred Outflows/ (Inflows) of Resources
	Non-Investment Experience	Assumption Changes					
2020	\$ 1,508,845	\$ (3,106,962)	\$ 524,953	2020	\$ 2,420,002	\$ (3,493,166)	\$ (1,073,165)
2021	-	-	(312,697)	2021	73,509	(386,206)	(312,697)
2022	-	-	52,114	2022	73,509	(21,395)	52,114
2023	-	-	73,508	2023	73,508	-	73,508
2024	-	-	-	2024	-	-	-
Thereafter	-	-	-	Thereafter	-	-	-
<b>Total</b>	<b>\$ 1,508,845</b>	<b>\$ (3,106,962)</b>	<b>\$ 337,878</b>	<b>Total</b>	<b>\$ 2,640,528</b>	<b>\$ (3,900,767)</b>	<b>\$ (1,260,239)</b>

\*Based on a measurement date of June 30, 2019, but will be used for employer's fiscal year ending June 30, 2020. Employer's proportionate share of calculations of the net pension liability, pension expense and deferred inflows and outflows are outside the scope of this report. Numbers may not add due to rounding.

## **SECTION F**

---

### **SUMMARY OF RETIREMENT SYSTEM PLAN PROVISIONS**

# Summary of Retirement System Plan Provisions (as of June 30, 2019)

---

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 eight years of creditable service is entitled to a retirement annuity upon attainment of age 55. A member with at least four years of service but less than eight years of service is entitled to a retirement annuity upon attainment of age 62.

A member with at least eight 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.

## Summary of Retirement System Plan Provisions (as of June 30, 2019)

---

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 one 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 two 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 four 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.

## Summary of Retirement System Plan Provisions (as of June 30, 2019)

---

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 eight years of service credit. However, a participant may elect to retire at age 62 with at least eight 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.

## Summary of Retirement System Plan Provisions (as of June 30, 2019)

---

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:

Year Ending	CPI-U	COLA	Maximum Annual Pensionable Earnings
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
2017	1.50%	1.50%	\$117,213.10
2018	2.20%	2.20%	\$119,791.79
2019	2.30%	2.30%	\$122,547.00

## **SECTION G**

---

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



## Valuation Methods, Entry Age Normal

---

### 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 value thereof 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 value so determined 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, Input to Discount Rates, Mortality Assumptions, and Experience Studies

---

## Most Actuarial Assumptions Adopted June 30, 2019

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, 2018. All actuarial assumptions are expectations of future experience, not market measures.

### Mortality

#### *Post-Retirement Mortality*

Pub-2010 Above-Median Income General Healthy Retiree Mortality tables, sex distinct, with scaling factors of 99 percent for males and females, and the MP-2018 two-dimensional generational mortality improvement scale. This assumption provides a margin for future mortality improvements.

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

Pub-2010 Above-Median Income General Employee Mortality tables, sex distinct, with no scaling factors, and the MP-2018 two-dimensional generational mortality improvement scale. This assumption provides a margin for future mortality improvements.

Future mortality improvements are reflected by projecting the base mortality tables forward from the year 2010 using the MP-2018 projection scale.

### Interest

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

### General Inflation

2.25 percent per year, compounded annually.

This assumption serves as the basis for the determination of Tier Two 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 six 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.

# Actuarial Assumptions, Input to Discount Rates, Mortality Assumptions, and Experience Studies

## Salary Increases

A salary increase assumption of 2.50 percent per annum, compounded annually, was used. This 2.50 percent salary increase assumption includes an inflation component of 2.25 percent per year, and a productivity/merit/promotion component of 0.25 percent per annum.

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

Deferred vested liability is increased by 10 percent to account for increases in final average salary due to participation in a reciprocal system. This assumption was developed based on the average increase in actuarial liability due to reciprocal salary increases of inactive members over the period July 1, 2013, to June 30, 2018, and will be reviewed during the next experience study. Below is the analysis used to develop this assumption:

Impact of Reciprocal Salary Increases of Inactive Members					
Valuation Date	Estimated Benefits of Inactive Members who Retired During Year	Actual Benefits of Inactive Members who Retired during Year	Increase in Benefits		
6/30/2013	\$ 243,726	\$ 257,156	5.5%		
6/30/2014	122,961	137,838	12.1%		
6/30/2015	97,204	106,026	9.1%		
6/30/2016	181,647	190,816	5.0%		
6/30/2017	118,439	122,802	3.7%		
6/30/2018	160,213	199,518	24.5%		
Total	\$ 924,190	\$ 1,014,157			
			<b>Geometric Average</b>	<b>9.8%</b>	

## Disability

No assumption for disability was assumed.

# Actuarial Assumptions, Input to Discount Rates, Mortality Assumptions, and Experience Studies

## 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 126 members as of the valuation date, to 66 members in 2045, and ultimately reach 63 members in 2054, 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.

New Entrant Profile			
Age Group	No.	Uncapped Salary	Capped Salary
<b>Under 20</b>			
<b>20-24</b>			
<b>25-29</b>	10	\$ 837,494	\$ 837,494
<b>30-34</b>	16	1,443,784	1,417,540
<b>35-39</b>	18	1,464,509	1,464,509
<b>40-44</b>	18	1,444,003	1,410,009
<b>45-49</b>	15	1,291,178	1,257,184
<b>50-54</b>	13	1,104,590	1,091,468
<b>55-59</b>	11	867,528	867,528
<b>60-64</b>			
<b>65-69</b>			
<b>70 &amp; Over</b>			
<b>Total</b>	<b>101</b>	<b>\$ 8,453,086</b>	<b>\$ 8,345,732</b>
<b>Avg. Salary</b>		<b>\$ 83,694</b>	<b>\$ 82,631</b>
<b>Avg. Age</b>			<b>41.85</b>
<b>Percent Male</b>			<b>64.36%</b>

# Actuarial Assumptions, Input to Discount Rates, Mortality Assumptions, and Experience Studies

---

## 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	Males & Females
55	5.00%
56-64	15.00%
65-74	20.00%
75	100.00%

## Assets

The Fiduciary Net Position is used for GASB reporting purposes. The asset valuation method is to project contributions is prescribed by statute, a description for this method can be found in the June 30, 2018, actuarial valuation report.

## 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.

# Actuarial Assumptions, Input to Discount Rates, Mortality Assumptions, and Experience Studies

---

## 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	Male & Female
67	35.00%
68-70	25.00%
71-74	20.00%
75	100.00%

Early Retirement Rates for Tier Two Members	
Age	Males and Females
62	20.00%
63	10.00%
64	12.00%
65	14.00%
66	16.00%

Rates of withdrawal for Tier Two members are assumed to be equal to 6.00 percent for all ages 20 through 65.

## Miscellaneous and Technical Assumptions

---

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

#### State Contributions under P.A. 93-0002

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

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 year 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 year 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 5/2-124:

(c) Notwithstanding any other provision of this Article, the total State contribution for fiscal year 2006 is \$4,157,000.

Notwithstanding any other provision of this Article, the total State contribution for fiscal year 2007 is \$5,220,300.

## Miscellaneous and Technical Assumptions

---

For each State fiscal years 2008 through 2010, the State contribution to the System, as a percentage of the applicable payroll, shall be increased in equal annual increments from the required State contribution for State fiscal year 2007, so that by State fiscal year 2011, the State is contributing at a rate otherwise required under this Section.

### State Contributions under P.A. 96-0043

The following is an excerpt from the Illinois Compiled statutes 40 ILCS 5/2-124:

- (d) 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 5-year period following that fiscal year.

- (e) For purposes of determining the required State contribution to the system for a particular year, the actuarial value of assets shall be assumed to earn a rate of return equal to the system's actuarially assumed rate of return.

### State Contributions under P.A. 100-0023

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



# Miscellaneous and Technical Assumptions

## Phase-In of the Financial Impact of Assumption Changes

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

1. Beginning with the June 30, 2013, actuarial valuation, there were changes to the economic and demographic assumptions.
2. Beginning with the June 30, 2015, actuarial valuation, there were changes to the new entrant population assumptions.
3. Beginning with the June 30, 2016, actuarial valuation, there were changes to the economic and demographic assumptions.
4. Beginning with the June 30, 2018, actuarial valuation, there were changes to the economic assumptions.
5. Beginning with the June 30, 2019, actuarial valuation, there were changes to the economic and demographic assumptions.

Valuation Year Ending June 30,	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Applicable Fiscal Year Ending June 30,	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
\$ in Millions											
After Impact of GOB Proceeds											
Contribution Before Assumption Change											
(1) Contribution Dollar	\$ 14.562	\$ -	\$ 16.207	\$ 23.261	\$ -	\$ 25.578	\$ 27.643				
(2) Contribution Rate	108.440%	0.000%	140.241%	221.533%	0.000%	255.977%	282.677%				
Contribution After Assumption Change											
(3) Contribution Dollar	\$ 15.809	\$ -	\$ 21.721	\$ 26.679	\$ -	\$ 26.088	\$ 26.825				
(4) Contribution Rate	122.168%	0.000%	194.949%	255.539%	0.000%	261.122%	273.142%				
(5) Assumption Change Impact as a Percentage of Capped Payroll [(4) - (2)]	13.728%	0.000%	54.708%	34.006%	0.000%	5.145%	-9.535%				
(6) Assumption Change Impact Recognized This Year (5-year Recognition)											
(6a) From This Year	2.746%	0.000%	10.942%	6.801%	0.000%	1.029%	-1.907%				
(6b) From One Year Ago	0.000%	2.746%	0.000%	10.942%	6.801%	0.000%	1.029%	-1.907%			
(6c) From Two Years Ago	0.000%	0.000%	2.746%	0.000%	10.942%	6.801%	0.000%	1.029%	-1.907%		
(6d) From Three Years Ago	0.000%	0.000%	0.000%	2.746%	0.000%	10.942%	6.801%	0.000%	1.029%	-1.907%	
(6e) From Four Years Ago	0.000%	0.000%	0.000%	0.000%	2.744%	0.000%	10.940%	6.802%	0.000%	1.029%	-1.907%
(6f) Total Recognized Assumption Change Impact	2.746%	2.746%	13.688%	20.489%	20.487%	18.772%	16.863%	5.924%	-0.878%	-0.878%	-1.907%

## SECTION H

---

### **CALCULATION OF THE SINGLE DISCOUNT RATE**

## Calculation of the Single Discount Rate

---

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

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

For the purpose of this valuation, the expected rate of return on pension plan investments is 6.50 percent; the municipal bond rate is 3.13 percent; and the resulting Single Discount Rate is 6.41 percent.

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

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

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

The following tables show the assignment of assets and employer contributions and the projection of assets for current members as of the valuation date. Our projections assume the sponsor will make the required statutory contributions. The projections are based on the statutory funding projections performed during the June 30, 2019 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.

**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.**

# Projection of Funded Status and Assignment of Assets

PYE 6/30	Open Group EAN	Closed Group EAN	Future Member EAN		Future Member	Closed Group Assigned	Funded Ratio	Funded Ratio
	Actuarial Liability	Actuarial Liability	Actuarial Liability	Open Group Assets	Assigned Assets	Assets	Current Members	Future Members
	(a)	(b)	(c)=(a)-(b)	(d)	(e)=min((c),(d))	(f)=(d)-(e)	(g)=(f)/(b)	(h)=(e)/(c)
2019	\$ 378,087,476	\$ 378,087,476	\$ -	\$ 59,719,220	\$ -	\$ 59,719,220	15.80%	0.00%
2020	377,647,969	377,647,969	-	63,455,166	-	63,455,166	16.80%	0.00%
2021	376,590,799	376,493,885	96,914	68,555,285	96,914	68,458,371	18.18%	100.00%
2022	374,538,601	374,272,057	266,544	73,105,441	266,544	72,838,897	19.46%	100.00%
2023	371,774,593	371,258,697	515,895	76,785,158	515,895	76,269,263	20.54%	100.00%
2024	368,196,129	367,338,440	857,690	79,757,550	857,690	78,899,861	21.48%	100.00%
2025	363,945,160	362,660,436	1,284,724	81,818,946	1,284,724	80,534,223	22.21%	100.00%
2026	359,132,755	357,329,216	1,803,539	83,543,240	1,803,539	81,739,701	22.88%	100.00%
2027	353,805,698	351,402,922	2,402,775	84,994,252	2,402,775	82,591,477	23.50%	100.00%
2028	347,921,672	344,848,673	3,072,999	85,712,787	3,072,999	82,639,788	23.96%	100.00%
2029	341,500,177	337,641,403	3,858,774	86,308,737	3,858,774	82,449,963	24.42%	100.00%
2030	334,669,437	329,925,891	4,743,546	86,526,297	4,743,546	81,782,751	24.79%	100.00%
2031	327,478,050	321,738,032	5,740,018	86,691,488	5,740,018	80,951,470	25.16%	100.00%
2032	320,006,249	313,158,715	6,847,534	87,016,853	6,847,534	80,169,319	25.60%	100.00%
2033	312,238,730	304,172,894	8,065,837	87,604,965	8,065,837	79,539,128	26.15%	100.00%
2034	304,172,877	294,779,733	9,393,144	89,680,811	9,393,144	80,287,667	27.24%	100.00%
2035	295,958,461	285,114,665	10,843,796	92,617,163	10,843,796	81,773,367	28.68%	100.00%
2036	287,634,406	275,233,384	12,401,022	96,168,650	12,401,022	83,767,628	30.44%	100.00%
2037	279,216,167	265,130,966	14,085,201	100,748,220	14,085,201	86,663,019	32.69%	100.00%
2038	270,730,626	254,832,663	15,897,963	106,443,706	15,897,963	90,545,744	35.53%	100.00%
2039	262,333,496	244,498,691	17,834,804	113,478,323	17,834,804	95,643,519	39.12%	100.00%
2040	253,996,428	234,107,364	19,889,064	121,902,335	19,889,064	102,013,270	43.58%	100.00%
2041	245,833,349	223,771,467	22,061,882	131,901,520	22,061,882	109,839,638	49.09%	100.00%
2042	237,861,078	213,512,430	24,348,648	143,589,042	24,348,648	119,240,395	55.85%	100.00%
2043	230,145,760	203,371,306	26,774,454	157,540,712	26,774,454	130,766,258	64.30%	100.00%
2044	222,746,541	193,437,954	29,308,587	173,535,060	29,308,587	144,226,473	74.56%	100.00%
2045	215,639,363	183,690,804	31,948,559	191,654,601	31,948,559	159,706,043	86.94%	100.00%
2046	208,894,710	174,176,218	34,718,492	185,552,986	34,718,492	150,834,494	86.60%	100.00%
2047	202,526,941	164,910,639	37,616,302	179,778,740	37,616,302	142,162,438	86.21%	100.00%
2048	196,436,620	155,829,662	40,606,958	174,254,477	40,606,958	133,647,519	85.77%	100.00%
2049	190,701,201	146,982,544	43,718,657	169,042,232	43,718,657	125,323,574	85.26%	100.00%
2050	185,299,404	138,381,202	46,918,202	164,131,810	46,918,202	117,213,608	84.70%	100.00%
2051	180,301,722	130,071,014	50,230,708	159,580,190	50,230,708	109,349,483	84.07%	100.00%
2052	175,722,895	122,079,494	53,643,401	155,401,933	53,643,401	101,758,532	83.35%	100.00%
2053	171,433,322	114,282,427	57,150,895	151,479,768	57,150,895	94,328,873	82.54%	100.00%
2054	167,453,074	106,702,815	60,750,259	147,830,292	60,750,259	87,080,032	81.61%	100.00%
2055	163,766,394	99,361,304	64,405,090	144,448,127	64,405,090	80,043,038	80.56%	100.00%
2056	160,452,918	92,320,373	68,132,545	141,398,198	68,132,545	73,265,653	79.36%	100.00%
2057	157,516,481	85,585,047	71,931,434	138,683,953	71,931,434	66,752,519	78.00%	100.00%
2058	154,949,751	79,157,523	75,792,227	136,299,592	75,792,227	60,507,365	76.44%	100.00%
2059	152,693,417	72,984,752	79,708,665	134,191,438	79,708,665	54,482,772	74.65%	100.00%
2060	150,780,091	67,100,763	83,679,328	132,389,002	83,679,328	48,709,674	72.59%	100.00%
2061	149,223,397	61,527,413	87,695,984	130,904,358	87,695,984	43,208,374	70.23%	100.00%
2062	148,023,266	56,267,642	91,755,624	129,737,153	91,755,624	37,981,529	67.50%	100.00%
2063	147,172,513	51,322,393	95,850,120	128,882,013	95,850,120	33,031,893	64.36%	100.00%
2064	146,672,857	46,691,202	99,981,656	128,340,812	99,981,656	28,359,156	60.74%	100.00%
2065	146,518,855	42,369,611	104,149,244	128,108,671	104,149,244	23,959,426	56.55%	100.00%
2066	146,702,921	38,351,190	108,351,731	128,178,648	108,351,731	19,826,918	51.70%	100.00%
2067	147,215,220	34,625,862	112,589,359	128,541,774	112,589,359	15,952,415	46.07%	100.00%
2068	148,046,832	31,183,720	116,863,112	129,189,972	116,863,112	12,326,860	39.53%	100.00%
2069	149,184,020	28,012,848	121,171,172	130,110,868	121,171,172	8,939,696	31.91%	100.00%
2070	150,614,147	25,099,552	125,514,595	131,293,101	125,514,595	5,778,507	23.02%	100.00%
2071	152,322,150	22,429,408	129,892,742	132,722,987	129,892,742	2,830,245	12.62%	100.00%
2072	154,295,487	19,987,544	134,307,943	134,389,148	134,307,943	81,205	0.41%	100.00%
2073	156,519,959	17,758,712	138,761,247	136,278,815	136,278,815	-	0.00%	98.21%

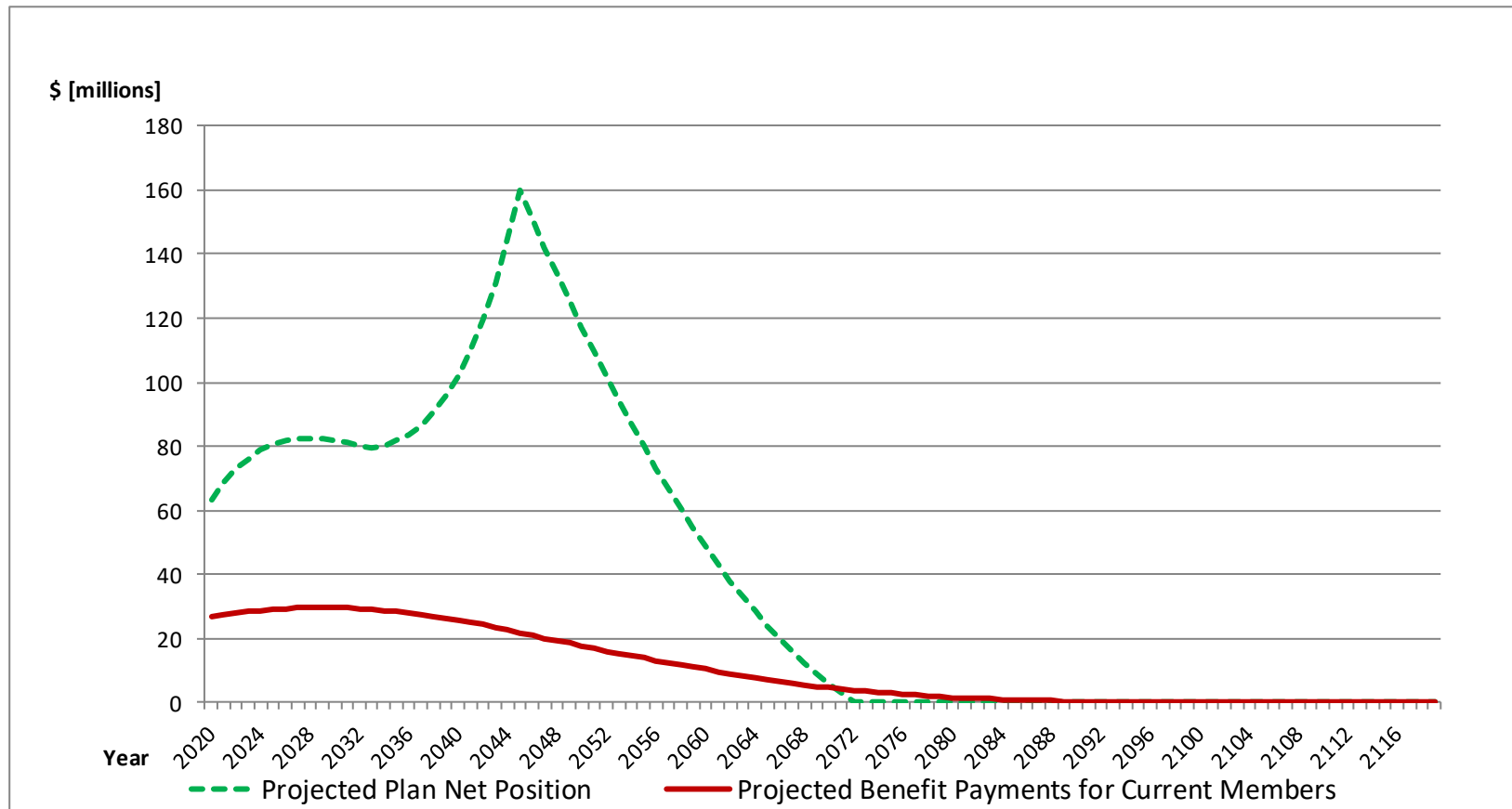
# Current Member Projection of Assets and Assignment of Employer Contributions

PYE 6/30	Member Assets (bo)	Administrative Contributions	Benefit Expenses	Assigned Employer Contribution	Income on Cash Flow	Income on Assigned Contribution	Total Investment Income	Assets (eo)	
2020	\$ 59,719,220	\$ 1,148,924	\$ 395,450	\$ 26,648,658	\$ 25,753,900	\$ 3,053,405	\$ 823,825	\$ 3,877,230	\$ 63,455,166
2021	63,455,166	1,063,589	366,078	27,094,692	27,248,567	3,280,183	871,637	4,151,820	68,458,371
2022	68,458,371	985,461	339,187	27,846,799	27,133,404	3,579,694	867,953	4,447,647	72,838,897
2023	72,838,897	912,248	313,988	28,271,891	26,409,894	3,849,294	844,810	4,694,103	76,269,263
2024	76,269,263	840,499	289,293	28,755,359	25,949,375	4,055,297	830,078	4,885,375	78,899,861
2025	78,899,861	764,323	263,074	29,088,767	25,201,696	4,214,023	806,161	5,020,184	80,534,223
2026	80,534,223	705,715	242,901	29,301,631	24,934,465	4,312,218	797,613	5,109,831	81,739,701
2027	81,739,701	656,220	225,865	29,409,437	24,656,065	4,386,087	788,707	5,174,794	82,591,477
2028	82,591,477	603,804	207,824	29,527,470	23,976,263	4,436,577	766,962	5,203,539	82,639,788
2029	82,639,788	555,824	191,310	29,634,397	23,880,857	4,435,290	763,910	5,199,200	82,449,963
2030	82,449,963	508,890	175,156	29,567,492	23,394,099	4,424,107	748,339	5,172,446	81,782,751
2031	81,782,751	466,010	160,397	29,451,135	23,188,905	4,383,561	741,775	5,125,336	80,951,470
2032	80,951,470	427,796	147,244	29,228,935	23,091,731	4,335,834	738,667	5,074,501	80,169,319
2033	80,169,319	390,995	134,577	29,012,097	23,095,541	4,291,158	738,789	5,029,947	79,539,128
2034	79,539,128	357,485	123,043	28,779,989	24,261,096	4,256,918	776,073	5,032,991	80,287,667
2035	80,287,667	328,361	113,019	28,388,526	24,555,897	4,317,484	785,503	5,102,987	81,773,367
2036	81,773,367	296,902	102,191	27,935,750	24,522,973	4,427,878	784,450	5,212,328	83,767,628
2037	83,767,628	269,021	92,595	27,470,976	24,824,072	4,571,788	794,082	5,365,869	86,663,019
2038	86,663,019	240,304	82,710	26,979,469	25,125,760	4,775,108	803,732	5,578,840	90,545,744
2039	90,545,744	215,314	74,109	26,328,640	25,424,154	5,047,780	813,277	5,861,057	95,643,519
2040	95,643,519	194,888	67,079	25,694,565	25,714,938	5,398,990	822,579	6,221,569	102,013,270
2041	102,013,270	172,905	59,513	24,956,754	26,001,809	5,836,164	831,756	6,667,919	109,839,638
2042	109,839,638	154,818	53,287	24,203,743	26,293,303	6,368,586	841,080	7,209,666	119,240,395
2043	119,240,395	137,468	47,315	23,420,060	26,988,125	7,004,340	863,306	7,867,646	130,766,258
2044	130,766,258	121,393	41,782	22,559,016	27,286,057	7,780,727	872,837	8,653,564	144,226,473
2045	144,226,473	107,597	37,034	21,734,740	27,579,794	8,681,719	882,233	9,563,952	159,706,043
2046	159,706,043	94,508	32,529	20,879,746	2,162,089	9,714,966	69,162	9,784,128	150,834,494
2047	150,834,494	82,976	28,560	20,027,579	2,069,572	9,165,333	66,202	9,231,535	142,162,438
2048	142,162,438	73,817	25,407	19,249,001	1,995,477	8,626,363	63,832	8,690,195	133,647,519
2049	133,647,519	61,160	21,051	18,437,996	1,914,142	8,098,570	61,230	8,159,801	125,323,574
2050	125,323,574	51,381	17,685	17,633,510	1,847,700	7,583,043	59,105	7,642,148	117,213,608
2051	117,213,608	42,936	14,778	16,802,469	1,771,225	7,082,302	56,659	7,138,960	109,349,483
2052	109,349,483	36,421	12,536	15,965,378	1,698,438	6,597,774	54,330	6,652,104	101,758,532
2053	101,758,532	31,593	10,874	15,267,678	1,638,314	6,126,579	52,407	6,178,986	94,328,873
2054	94,328,873	25,593	8,809	14,559,919	1,577,662	5,666,166	50,467	5,716,632	87,080,032
2055	87,080,032	19,694	6,779	13,847,866	1,531,326	5,217,645	48,985	5,266,629	80,043,038
2056	80,043,038	15,301	5,267	13,090,991	1,472,122	4,784,359	47,091	4,831,450	73,265,653
2057	73,265,653	11,825	4,070	12,348,949	1,415,295	4,367,493	45,273	4,412,766	66,752,519
2058	66,752,519	9,286	3,196	11,624,274	1,362,188	3,967,267	43,574	4,010,841	60,507,365
2059	60,507,365	7,065	2,432	10,971,197	1,317,646	3,582,176	42,149	3,624,326	54,482,772
2060	54,482,772	5,298	1,823	10,301,679	1,272,445	3,211,957	40,703	3,252,661	48,709,674
2061	48,709,674	4,079	1,404	9,628,740	1,227,299	2,858,207	39,259	2,897,466	43,208,374
2062	43,208,374	2,482	854	8,973,090	1,185,144	2,521,562	37,911	2,559,473	37,981,529
2063	37,981,529	1,488	512	8,336,597	1,147,135	2,202,156	36,695	2,238,851	33,031,893
2064	33,031,893	884	304	7,720,683	1,111,686	1,900,120	35,561	1,935,681	28,359,156
2065	28,359,156	721	248	7,128,886	1,078,853	1,615,319	34,511	1,649,830	23,959,426
2066	23,959,426	588	202	6,562,853	1,048,964	1,347,440	33,555	1,380,995	19,826,918
2067	19,826,918	479	165	6,025,512	1,021,990	1,096,013	32,692	1,128,705	15,952,416
2068	15,952,416	142	49	5,516,363	998,329	860,450	31,935	892,385	12,326,860
2069	12,326,860	-	-	5,036,698	978,116	640,130	31,288	671,418	8,939,695
2070	8,939,695	-	-	4,587,389	961,118	434,337	30,745	465,082	5,778,506
2071	5,778,506	-	-	4,168,278	947,443	242,266	30,307	272,573	2,830,244
2072	2,830,244	-	-	3,778,896	936,803	63,085	29,967	93,052	81,204
2073	81,204	-	-	3,418,665	3,334,862	(104,079)	106,677	2,598	-

# Development of Single Discount Rate

PYE 6/30	Benefit Payments	Discount Rate	Discounted Benefit Payment	Single Discount Rate	Discounted Benefit Payment
2020	\$ 26,648,658	6.50%	\$ 25,822,634	6.41%	\$ 25,833,665
2021	27,094,692	6.50%	24,652,434	6.41%	24,684,041
2022	27,846,799	6.50%	23,790,373	6.41%	23,841,230
2023	28,271,891	6.50%	22,679,383	6.41%	22,747,287
2024	28,755,359	6.50%	21,659,357	6.41%	21,742,772
2025	29,088,767	6.50%	20,573,230	6.41%	20,670,110
2026	29,301,631	6.50%	19,458,947	6.41%	19,567,287
2027	29,409,437	6.50%	18,338,536	6.41%	18,456,396
2028	29,527,470	6.50%	17,288,391	6.41%	17,414,370
2029	29,634,397	6.50%	16,292,016	6.41%	16,424,758
2030	29,567,492	6.50%	15,263,130	6.41%	15,400,639
2031	29,451,135	6.50%	14,275,179	6.41%	14,416,095
2032	29,228,935	6.50%	13,302,795	6.41%	13,445,593
2033	29,012,097	6.50%	12,398,222	6.41%	12,542,018
2034	28,779,989	6.50%	11,548,387	6.41%	11,692,309
2035	28,388,526	6.50%	10,696,062	6.41%	10,838,617
2036	27,935,750	6.50%	9,883,069	6.41%	10,023,346
2037	27,470,976	6.50%	9,125,485	6.41%	9,262,918
2038	26,979,469	6.50%	8,415,223	6.41%	8,549,260
2039	26,328,640	6.50%	7,711,007	6.41%	7,840,520
2040	25,694,565	6.50%	7,066,011	6.41%	7,190,831
2041	24,956,754	6.50%	6,444,237	6.41%	6,563,678
2042	24,203,743	6.50%	5,868,355	6.41%	5,982,229
2043	23,420,060	6.50%	5,331,780	6.41%	5,439,887
2044	22,559,016	6.50%	4,822,306	6.41%	4,924,287
2045	21,734,740	6.50%	4,362,540	6.41%	4,458,605
2046	20,879,746	6.50%	3,935,144	6.41%	4,025,234
2047	20,027,579	6.50%	3,544,168	6.41%	3,628,405
2048	19,249,001	6.50%	3,198,485	6.41%	3,277,305
2049	18,437,996	6.50%	2,876,738	6.41%	2,950,148
2050	17,633,510	6.50%	2,583,305	6.41%	2,651,491
2051	16,802,469	6.50%	2,311,322	6.41%	2,374,356
2052	15,965,378	6.50%	2,062,134	6.41%	2,120,183
2053	15,267,678	6.50%	1,851,659	6.41%	1,905,410
2054	14,559,919	6.50%	1,658,050	6.41%	1,707,638
2055	13,847,866	6.50%	1,480,716	6.41%	1,526,304
2056	13,090,991	6.50%	1,314,352	6.41%	1,355,976
2057	12,348,949	6.50%	1,164,179	6.41%	1,202,073
2058	11,624,274	6.50%	1,028,978	6.41%	1,063,379
2059	10,971,197	6.50%	911,894	6.41%	943,187
2060	10,301,679	6.50%	803,987	6.41%	832,287
2061	9,628,740	6.50%	705,604	6.41%	731,065
2062	8,973,090	6.50%	617,424	6.41%	640,250
2063	8,336,597	6.50%	538,618	6.41%	559,008
2064	7,720,683	6.50%	468,380	6.41%	486,526
2065	7,128,886	6.50%	406,083	6.41%	422,176
2066	6,562,853	6.50%	351,023	6.41%	365,246
2067	6,025,512	6.50%	302,613	6.41%	315,144
2068	5,516,363	6.50%	260,134	6.41%	271,137
2069	5,036,698	6.50%	223,018	6.41%	232,650
2070	4,587,389	6.50%	190,726	6.41%	199,133
2071	4,168,278	6.50%	162,724	6.41%	170,042
2072	3,778,896	6.50%	138,519	6.41%	144,873
2073	3,418,665	3.13%	657,292	6.41%	123,168
2074	3,086,391	3.13%	575,397	6.41%	104,500
2075	2,780,344	3.13%	502,609	6.41%	88,468
2076	2,498,708	3.13%	437,988	6.41%	74,717
2077	2,239,882	3.13%	380,703	6.41%	62,944
2087	591,994	3.13%	73,931	6.41%	8,938
2097	71,552	3.13%	6,566	6.41%	580
2107	3,081	3.13%	208	6.41%	13
2112	342	3.13%	20	6.41%	1
2118	9	3.13%	0	6.41%	0
<b>Total Present Value</b>			<b>\$ 396,799,415</b>		<b>\$ 396,799,415</b>

## Projection of Plan Net Position and Benefit Payments



## **SECTION I**

---

### **GLOSSARY OF TERMS**



## Glossary of Terms

---

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

---

### ***Entry Age Actuarial Cost Method (EAN)***

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

### ***Fiduciary Net Position***

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

### ***GASB***

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

### ***Long-Term Expected Rate of Return***

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

### ***Money-Weighted Rate of Return***

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

### ***Multiple-Employer Defined Benefit Pension Plan***

A multiple-employer plan is a defined benefit pension plan that is used to provide pensions to the employees of more than one employer.

### ***Municipal Bond Rate***

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

### ***Net Pension Liability (NPL)***

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

### ***Non-Employer Contributing Entities***

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

### ***Normal Cost***

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

## Glossary of Terms

---

### ***Other Postemployment Benefits (OPEB)***

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

### ***Real Rate of Return***

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

### ***Service Cost***

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

### ***Total Pension Expense***

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

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

### ***Total Pension Liability (TPL)***

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

### ***Unfunded Actuarial Accrued Liability (UAAL)***

The UAAL is the difference between actuarial accrued liability and valuation assets.

### ***Valuation Assets***

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