Judges' Retirement System of Illinois

GASB Statement Nos. 67 and 68 Accounting and Financial Reporting for Pensions as of June 30, 2017

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November 2, 2017

The Board of Trustees
Judges' 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 Judges' Retirement System of Illinois ("JRS"). 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 Judges' Retirement System of Illinois ("JRS") only in its entirety and only with the permission of JRS.

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 JRS, 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.

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This report complements the actuarial valuation report that was provided to JRS and should be considered in conjunction with that report. Please see the actuarial valuation report as of June 30, 2017, for additional discussion of the nature of actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions.

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

The signing actuaries are independent of the plan sponsor.

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

Respectfully submitted,

By Alex Rivera

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

By Lance J. Weiss

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

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SECTION A

EXECUTIVE SUMMARY

Executive Summary as of June 30, 2017

	2017
Actuarial Valuation Date	June 30, 2017
Measurement Date of the Net Pension Liability	June 30, 2017
Plan's Fiscal Year Ending Date (Reporting Date) for GASB Statement No. 67	June 30, 2017
Employer's Fiscal Year Ending Date (Reporting Date) for GASB Statement No. 68	June 30, 2018
Membership	
Number of	
- Retirees and Beneficiaries	1,175
- Inactive, Nonretired Members	23
- Active Members	953
- Total	2,151
Covered Payroll[a]	$ 139,737,508
Net Pension Liability	
Total Pension Liability	$ 2,713,027,855
Plan Fiduciary Net Position	941,803,532
Net Pension Liability	$ 1,771,224,323
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	34.71 %
Net Pension Liability as a Percentage of Covered Payroll	1,267.54 %
Development of the Single Discount Rate	
Single Discount Rate Beginning of Year	6.48 %
Single Discount Rate End of Year	6.58 %
Long-Term Expected Rate of Investment Return	6.75 %
Long-Term Municipal Bond Rate Beginning of Year[b]	2.85 %
Long-Term Municipal Bond Rate End of Year[b]	3.56 %
Last year ending June 30 in the 2017 to 2116 projection period for which projected benefit payments are fully funded	2062
Total Pension Expense for Fiscal Year End June 30, 2018	$ 207,239,812

Deferred Outflows and Deferred Inflows of Resources by Source to be recognized in Future Pension Expenses as of June 30, 2018

	Deferred Outflows of Resources	Deferred (Inflows) of Resources
Difference between expected and actual non-investment experience	$ 25,198,580	$ (1,653,818)
Changes in assumptions	106,718,221	(22,400,104)
Net difference between projected and actual earnings on pension plan investments	46,797,783	(45,612,320)
Total	$ 178,714,584	$ (69,666,242)

[a] *Covered payroll is based on the requirements of GASB Statement No. 82.*

[b] *Source:* *The rate at the beginning of the year is based on the rate as of June 30, 2016, from the "20-Bond GO Index" which is the Bond Buyer Index, general obligation, 20 years to maturity, mixed quality. In describing this index, the Bond Buyer notes that the bonds' average credit quality is roughly equivalent to Moody's Investors Service's Aa2 rating and Standard & Poor's Corp.s' AA.*

The rate at the end of the year is the rate 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 30, 2017. In describing this index, Fidelity notes that the municipal curves aer 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 JRS subsequent to the measurement date of June 30, 2017.

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, 2018, is based on the results of the actuarial valuation as of June 30, 2017.

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

Notes to Financial Statements

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

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

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

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

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

Required Supplementary Information

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

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

Discussion

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, 2017, but will be used for fiscal year ending June 30, 2018.

The GASB Statement No. 68 pension expense for fiscal year ended June 30, 2017, is based on the results of the actuarial valuation as of June 30, 2016, and is provided in the June 30, 2016, 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, 2017, and a measurement date of June 30, 2017.

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).

For the purpose of this valuation, the expected rate of return on pension plan investments is 6.75 percent; the municipal bond rate is 3.56 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 6.58 percent.

Effective Date and Transition

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

Recent Legislation

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.

Section B

Financial Statements

Auditor’s Note – This information is intended to assist in preparation of the financial statements of the Judges' 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, 2017, and 2016

	2017	2016
Assets		
Cash	$ 25,657,962	$ 49,540,595
Receivables		
Contributions:		
Participants	$ 25,234	$ 197
Employing state agencies	16,416,750	5,502,500
Other Accounts	181,355	201,284
Total Receivables	$ 16,623,339	$ 5,703,981
Investments		
Held in the Illinois State Board of Investment		
Commingled Fund at fair value	$ 899,652,118	$ 785,176,162
Securities lending collateral with State Treasurer	9,643,000	11,503,000
Total Investments	$ 909,295,118	$ 796,679,162
Property and equipment, net of accumulated depreciation	$ 55,839	$ 47,968
Total Assets	$ 951,632,258	$ 851,971,706
Liabilities		
Payables		
Benefits payable	$ -	$ -
Refunds payable	47,002	45,945
Administrative expenses payable	138,724	133,901
Participants' deferred service credit accounts	-	-
Due to State of Illinois	-	-
Securities lending collateral with State Treasurer	9,643,000	11,503,000
Total Liabilities	$ 9,828,726	$ 11,682,846
Net Position Restricted for Pensions	$ 941,803,532	$ 840,288,860

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

	2017	2016
Additions		
Contributions		
Participants	$ 14,770,467	$ 14,962,055
Employing state agencies and appropriations	131,334,000	132,060,000
Total Contributions	$ 146,104,467	$ 147,022,055
Investment Income		
Net investments income	$ 19,881,567	$ 21,875,864
Interest earned on cash balances	320,522	150,116
Net appreciation in fair value of investments	77,594,390	(28,496,533)
Net Investment Income	$ 97,796,479	$ (6,470,553)
Total Additions	$ 243,900,946	$ 140,551,502
Deductions		
Benefits		
Retirement annuities	$ 116,611,033	$ 109,011,315
Survivors' annuities	23,845,754	23,560,481
Disability benefits	40,417	-
Lump-sum benefits	-	-
Total Benefits	$ 140,497,204	$ 132,571,796
Refunds	974,665	658,051
Administrative	914,405	942,950
Total Deductions	$ 142,386,274	$ 134,172,797
Net Increase in Net Position	$ 101,514,672	$ 6,378,705
Net Position Restricted for Pensions		
Beginning of Year	$ 840,288,860	$ 833,910,155
End of Year	$ 941,803,532	$ 840,288,860

SECTION C

REQUIRED SUPPLEMENTARY INFORMATION

Auditor’s Note – This information is intended to assist in preparation of the financial statements of the Judges' 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,	2017	2016	2015	2014	2013
Total Pension Liability					
Service Cost Including Pension Plan Administrative Expense	$ 56,166,214	$ 58,041,274	$ 59,619,744	$ 57,138,961	
Interest on the Total Pension Liability	168,163,770	158,611,299	151,431,750	145,993,903	
Changes of Benefit Terms	-	-	-	-	
Difference between Expected and Actual Experience	23,042,316	(3,260,012)	28,713,856	4,490,010	
Changes of Assumptions	(29,511,474)	205,404,829	9,482,302	-	
Benefit Payments	(140,497,204)	(132,571,796)	(125,654,349)	(118,590,965)	
Refunds of Employee Contributions	(974,665)	(658,051)	(945,807)	(687,923)	
Pension Plan Administrative Expense	(914,405)	(942,950)	(982,656)	(831,652)	
Net Change in Total Pension Liability	75,474,552	284,624,593	121,664,840	87,512,334	
Total Pension Liability - Beginning	2,637,553,303	2,352,928,710	2,231,263,870	2,143,751,536	
Total Pension Liability - Ending (a)	$ 2,713,027,855	$ 2,637,553,303	$ 2,352,928,710	$ 2,231,263,870	
Plan Fiduciary Net Position					
Employer Contributions	$ 131,334,000	$ 132,060,000	$ 134,039,684	$ 126,815,881	
Employee Contributions	14,770,467	14,962,055	15,431,105	15,918,732	
Pension Plan Net Investment Income	97,796,479	(6,470,553)	36,009,150	110,058,987	
Benefit Payments	(140,497,204)	(132,571,796)	(125,654,349)	(118,590,965)	
Refunds of Employee Contributions	(974,665)	(658,051)	(945,807)	(687,923)	
Pension Plan Administrative Expense	(914,405)	(942,950)	(982,656)	(831,652)	
Other	-	-	-	-	
Net Change in Plan Fiduciary Net Position	101,514,672	6,378,705	57,897,127	132,683,060	
Plan Fiduciary Net Position - Beginning	840,288,860	833,910,155	776,013,028	643,329,968	
Plan Fiduciary Net Position - Ending (b)	941,803,532	840,288,860	833,910,155	776,013,028	
Net Pension Liability - Ending (a) - (b)	$ 1,771,224,323	$ 1,797,264,443	$ 1,519,018,555	$ 1,455,250,842	
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	34.71 %	31.86 %	35.44 %	34.78 %	
Covered-Employee Payroll[a]	$ 139,737,508	$ 139,537,967	$ 145,903,074	$ 150,280,023	
Net Pension Liability as a Percentage of Covered-Employee Payroll	1,267.54 %	1,288.01 %	1,041.11 %	968.36 %	
Single Discount Rate, Beginning of Year	6.48 %	6.85 %	6.89 %	6.91 %	
Single Discount Rate, End of Year	6.58 %	6.48 %	6.85 %	6.89 %	6.91 %
Long-Term Municipal Bond Rate, Beginning of Year	3.56 %	2.85 %	3.80 %	4.29 %	4.63 %
Long-Term Municipal Bond Rate Date	June 30, 2017	June 30, 2016	June 25, 2015	June 26, 2014	June 27, 2013

[a]Covered payroll is based on the requirements of GASB Statement No. 82.
10 fiscal years will be built prospectively.

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[a]	Net Pension Liability as a % of Covered Payroll
2014	$ 2,231,263,870	$ 776,013,028	$ 1,455,250,842	34.78 %	$ 150,280,023	968.36 %
2015	2,352,928,710	833,910,155	1,519,018,555	35.44 %	145,903,074	1,041.11 %
2016	2,637,553,303	840,288,860	1,797,264,443	31.86 %	139,537,967	1,288.01 %
2017	2,713,027,855	941,803,532	1,771,224,323	34.71 %	139,737,508	1,267.54 %

[a]*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[a]	Actual Contribution[b]	Contribution Deficiency (Excess)	Covered Payroll[c]	Actual Contribution as a % of Covered Payroll	Statutory Contribution	Statutory Contribution Deficiency/(Excess)
7/1/07 - 6/30/08	$ 75,134,070	$ 46,977,961	$ 28,156,109	$ 143,700,000	32.69%	$ 46,872,500	$ (105,461)
7/1/08 - 6/30/09	78,386,597	59,983,000	18,403,597	155,645,000	38.54%	59,983,000	-
7/1/09 - 6/30/10	86,916,418	78,509,810	8,406,608	161,164,000	48.71%	78,832,000	322,190
7/1/10 - 6/30/11	95,490,182	62,694,460	32,795,722	169,155,000	37.06%	62,377,000	(317,460)
7/1/11 - 6/30/12	110,923,357	63,644,099	47,279,258	153,550,766	41.45%	63,628,000	(16,099)
7/1/12 - 6/30/13	125,576,795	88,239,564	37,337,231	156,142,183	56.51%	88,210,000	(29,564)
7/1/13 - 6/30/14	125,061,595	126,815,881	(1,754,286)	150,280,023	84.39%	126,808,000	(7,881)
7/1/14 - 6/30/15	124,215,990	134,039,684	(9,823,694)	145,903,074	91.87%	133,982,000	(57,684)
7/1/15 - 6/30/16	121,362,703	132,060,000	(10,697,297)	139,537,967	94.64%	132,060,000	-
7/1/16 - 6/30/17	152,699,188	131,334,000	21,365,188	139,737,508	93.99%	131,334,000	-

[a] *The JRS Statutory Funding may not conform to Actuarial Standards of Practice, therefore, the actuarially determined contribution is equal to the normal cost plus an amount to amortize the unfunded actuarial accrued liability as a level percentage of total payroll. The amortization period for fiscal years 2008 through 2016 is an open 30-year period, and a closed 25-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.*

[b] *The actual contributions for FYE 6/30/2008 through 6/30/2016 were obtained from the System's comprehensive annual financial reports. The actual contribution for FYE 6/30/2017 was provided by the System.*

[c] *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

Valuation Date:	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.

Methods and Assumptions Used to Determine Contribution Rates:

Actuarial Cost Method	Projected Unit Credit
Amortization Method	**Statutory Contributions** — The Statutory Contribution is equal to the level percentage of pay contributions determined so that the Plan attains a 90 percent funded ratio by the end of 2045. An amortization payment is not directly calculated. The amortization payment is the difference between the total statutory contribution and the employer normal cost contribution. **Actuarially Determined Contributions** — The Actuarially Determined Contribution is equal to the employer's normal cost plus a level percent of capped payroll amortization of the unfunded accrued liability. The amortization period for fiscal years 2006 through 2016 is an open-period 30 years. The Board has adopted a policy to calculate the ADC for financial reporting purposes, effective for the valuation as of June 30, 2015. Under this policy, the ADC for fiscal years ending on and after June 30, 2017, is calculated as the employer's normal cost plus a 25-year level percent of capped payroll closed-period amortization of the unfunded accrued liability. As of June 30, 2017, the remaining amortization period is 23 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 as of the June 30, 2017, valuation.
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition. Last updated for the June 30, 2016, valuation pursuant to an experience study of the period July 1, 2012, to June 30, 2015.
Mortality	For post-retirement, RP-2014 White Collar Healthy Annuitant mortality table, sex distinct, with rates set forward one year for males and set back one year for females and generational mortality improvements using the MP-2014 two-dimensional mortality improvement scales. For pre-retirement, RP-2014 White Collar Total Employee mortality table, sex distinct, and generational mortality improvement using MP-2014 two-dimensional mortality improvement scales.

Other Information:

Notes	The statutory contribution for fiscal year ending June 30, 2017, was determined based on the results of the June 30, 2015, valuation. Similarly, the statutory contributions for fiscal years ending June 30, 2018, and June 30, 2019, were determined based on the results of the valuations performed two years prior. All other contributions are projected using current

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

Actuarial Cost Method	Entry Age Normal
Discount Rate	6.48 percent as of the June 30, 2016, actuarial valuation. 6.58 percent as of the June 30, 2017, actuarial valuation.
Asset Valuation Method	Market value

SECTION D

NOTES TO FINANCIAL STATEMENTS

Auditor’s Note – This information is intended to assist in preparation of the financial statements of the Judges' 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 6.58 percent was used to measure the total pension liability. This Single Discount Rate was based on an expected rate of return on pension plan investments of 6.75 percent and a municipal bond rate of 3.56 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 2062. As a result, the long-term expected rate of return on pension plan investments was applied to projected benefit payments through the year 2062, 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 6.58 percent, as well as what the plan's net pension liability would be if it were calculated using a Single Discount Rate that is one percent lower or one percent higher:

Sensitivity of Net Pension Liability to the Single Discount Rate Assumption

1% Decrease 5.58%	Current Single Discount Rate Assumption 6.58%	1% Increase 7.58%
$ 2,091,197,797	$ 1,771,224,323	$ 1,502,377,113

Summary of Population Statistics

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	1,175
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	23
Active Plan Members	953
Total Plan Members	2,151

Additional information about the member data used is included in the June 30, 2017, 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	2017	2016
A. Total Pension Liability		
1. Service Cost Including Pension Plan Administrative Expense	$ 56,166,214	$ 58,041,274
2. Interest on the Total Pension Liability	168,163,770	158,611,299
3. Changes of Benefit Terms	-	-
4. Difference Between Expected and Actual Experience of the Total Pension Liability	23,042,316	(3,260,012)
5. Changes of Assumptions	(29,511,474)	205,404,829
6. Benefit Payments, Including Refunds of Employee Contributions	(141,471,869)	(133,229,847)
7. Pension Plan Administrative Expense	(914,405)	(942,950)
8. Net Change in Total Pension Liability	**$ 75,474,552**	**$ 284,624,593**
9. Total Pension Liability – Beginning	**2,637,553,303**	**2,352,928,710**
10. Total Pension Liability – Ending	**$ 2,713,027,855**	**$ 2,637,553,303**
B. Plan Fiduciary Net Position		
1. Contributions – Employer	$ 131,334,000	$ 132,060,000
2. Contributions – Employee	14,770,467	14,962,055
3. Net Investment Income	97,796,479	(6,470,553)
4. Benefit Payments, Including Refunds of Employee Contributions	(141,471,869)	(133,229,847)
5. Pension Plan Administrative Expense	(914,405)	(942,950)
6. Other	-	-
7. Net Change in Plan Fiduciary Net Position	**$ 101,514,672**	**$ 6,378,705**
8. Plan Fiduciary Net Position – Beginning	**840,288,860**	**833,910,155**
9. Plan Fiduciary Net Position – Ending	**$ 941,803,532**	**$ 840,288,860**
C. Net Pension Liability	**$ 1,771,224,323**	**$ 1,797,264,443**
D. Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	**34.71%**	**31.86%**
E. Covered-Employee Payroll[a]	**$ 139,737,508**	**$ 139,537,967**
F. Net Pension Liability as a Percentage of Covered-Employee Payroll	**1267.54%**	**1288.01%**

[a] *Covered payroll is based on the requirements of GASB Statement No. 82.*

Pension Expense under GASB Statement No. 68
Plan Year Ended June 30, 2017,
Applicable to Fiscal Year Ending June 30, 2018

A. Expense		
1. Service Cost Including Pension Plan Administrative Expense	$	56,166,214
2. Interest on the Total Pension Liability		168,163,770
3. Current-Period Benefit Changes		-
4. Employee Contributions (made negative for addition here)		(14,770,467)
5. Projected Earnings on Plan Investments (made negative for addition here)		(56,842,938)
7. Other Changes in Plan Fiduciary Net Position		-
8. Recognition of Outflow/(Inflow) of Resources due to Liabilities		12,881,227
9. Recognition of Outflow/(Inflow) of Resources due to Assumption Changes		45,811,949
10. Recognition of Outflow/(Inflow) of Resources due to Assets		(4,169,943)
11. Total Pension Expense	**$**	**207,239,812**
B. Reconciliation of Net Pension Liability		
1. Net Pension Liability Beginning of Year	**$**	**1,797,264,443**
2. Total Pension Expense		207,239,812
3. Employer Contributions (made negative for addition here)		(131,334,000)
4. Change in Deferred Liability Experience (Inflows)/Outflows		10,161,089
5. Change in Deferred Assumption Changes Experience (Inflows)/Outflows		(75,323,423)
6. Change in Deferred Investment Experience (Inflows)/Outflows		(36,783,598)
7. Net Pension Liability End of Year	**$**	**1,771,224,323**

The pension expense is based on a measurement date of June 30, 2017, but will be used for fiscal year ending June 30, 2018. Our understanding is that JRS 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, 2017*

A. Outflows and (Inflows) of Resources Recognized in Current and Future Pension Expenses as of Plan Year End June 30, 2017

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) to be Recognized in Future Pension Expenses	Deferred Outflows to be Recognized in Future Pension Expenses
1. Differences Between Expected and Actual Non-Investment Experience	$ 23,042,316	June 30, 2017	4.1499	$ -	$ 5,552,499	$ -	$ 17,489,817
	(3,260,012)	June 30, 2016	4.0593	(803,097)	(803,097)	(1,653,818)	-
	28,713,856	June 30, 2015	4.0832	14,064,388	7,032,194	-	7,617,274
	4,490,010	June 30, 2014	4.0832	3,298,890	1,099,630	-	91,490
	$ 52,986,170		4.0939	$ 16,560,181	$ 12,881,227	$ (1,653,818)	$ 25,198,580
2. Assumption Changes	$ (29,511,474)	June 30, 2017	4.1499	$ -	$ (7,111,370)	$ (22,400,104)	$ -
	205,404,829	June 30, 2016	4.0593	50,601,047	50,601,047	-	104,202,735
	9,482,302	June 30, 2015	4.0832	4,644,544	2,322,272	-	2,515,486
	-	June 30, 2014	4.0832	-	-	-	-
	$ 185,375,657		4.0939	$ 55,245,591	$ 45,811,949	$ (22,400,104)	$ 106,718,221
3. Difference Between Expected and Actual Investment Earnings	$ (40,953,541)	June 30, 2017	5.0000	$ -	$ (8,190,708)	$ (32,762,833)	$ -
	65,286,382	June 30, 2016	5.0000	13,057,276	13,057,276	-	39,171,830
	19,064,884	June 30, 2015	5.0000	7,625,954	3,812,977	-	7,625,953
	(64,247,439)	June 30, 2014	5.0000	(38,548,464)	(12,849,488)	(12,849,487)	-
	$ (20,849,714)		5.0000	$ (17,865,234)	$ (4,169,943)	$ (45,612,320)	$ 46,797,783
4. Total	**$ 217,512,113**			**$ 53,940,538**	**$ 54,523,233**	**$ (69,666,242)**	**$ 178,714,584**

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 Non-Investment Experience	Assumption Changes	Differences Between Expected and Actual Investment Experience
2018	$ 11,873,086	$ 45,811,949	$ (4,169,942)
2019	5,334,481	43,682,890	8,679,545
2020	5,504,875	(4,110,728)	4,866,569
2021	832,320	(1,065,994)	(8,190,708)
2022	-	-	-
Thereafter	-	-	-
Total	**$ 23,544,762**	**$ 84,318,117**	**$ 1,185,463**

Year Ending June 30	Deferred Outflows of Resources	Deferred (Inflows) of Resources	Net Deferred Outflows/ (Inflows) of Resources
2018	$ 82,469,755	$ (28,954,662)	$ 53,515,093
2019	73,802,091	(16,105,175)	57,696,916
2020	21,610,418	(15,349,702)	6,260,716
2021	832,320	(9,256,703)	(8,424,383)
2022	-	-	-
Thereafter	-	-	-
Total	**$ 178,714,584**	**$ (69,666,242)**	**$ 109,048,342**

**Based on a measurement date of June 30, 2017, but will be used for fiscal year ending June 30, 2018. 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, 2017)

1. Participation. Participation in the system is mandatory when a person first becomes a judge, unless an "Election Not to Participate" is filed by the judge within 30 days of the date of notification of this option.

2. Member Contributions. All members of the system are required to contribute to the system the following percentage of their salaries:

Retirement Annuity	7.5 percent
Automatic Annuity Increase	1.0
Survivor's Annuity	2.5
Total	11.0 percent

   All judges who become participants after December 31, 1992, are required to make contributions toward the survivor's annuity unless they file an election not to participate in the survivor's annuity benefit, in which case the total participant contribution rate is 8.5 percent of salary.

3. Discontinuance of Contributions. A participant who becomes eligible to receive the maximum rate of annuity may elect to discontinue contributions and have his or her benefits "fixed" based upon the final rate of salary immediately prior to the effective date of such election. This election, once made, is irrevocable.

4. Election to Contribute Only on Increases in Salary. A participant who has attained age 60 and continues to serve as a judge after becoming eligible to receive the maximum rate of annuity and has not elected to discontinue contributing to the system may elect to make contributions based only on the amount of the increases in salary received by the judge on or after the date of the election.

5. Retirement Annuity – Eligibility. A judge who has at least 10 years of service may retire with an unreduced retirement annuity upon attainment of age 60. A judge with at least 6 years of service may retire with an unreduced retirement annuity upon attainment of age 62.

   A judge with at least 10 years of service may retire upon attainment of age 55, with the amount of the retirement annuity reduced 1/2 of 1 percent for each month that the judge is under age 60 if the judge has less than 28 years of service. This penalty for retirement before age 60 is reduced by 5/12 of 1 percent for every month of service in the System in excess of 20 years.

6. Retirement Annuity – Amount. The retirement annuity is determined according to the following formula based upon the final rate of salary:
   - 3 ½ percent for each of the first 10 years of service; plus
   - 5 percent for each year of service in excess of 10

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

7. Automatic Increase In Retirement Annuity. Annual automatic increases of 3 percent of the current amount of retirement annuity are provided. The initial increase is effective in the month of January of the year next following the year in which the first anniversary of retirement occurs.

8. Temporary Total Disability. A member with at least 2 years of service who becomes totally disabled and unable to perform his or her duties as a judge is entitled to a temporary disability benefit equal to 50 percent of salary payable during the period of disability but not beyond the end of the term of office.

9. Total and Permanent Disability. A member with at least 10 years of service who becomes totally and permanently disabled while serving as a judge is eligible to commence receiving his or her retirement annuity without reduction regardless of age.

10. Survivor's Annuity – Participation and Eligibility. A married judge, an unmarried judge who becomes a participant after December 31, 1992, or a judge who marries after becoming a participant is subject to the provisions relating to the survivor's annuity unless he or she files a written notice of election not to participate in the survivor's annuity.

    An active judge who is not contributing for the survivor's annuity and later marries or remarries may receive partial credit for the survivor's annuity thereby providing a prorated benefit for his or her spouse by contributing to the survivor's annuity benefit prospectively from the date of marriage.

    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 of the member 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 full-time student, the spouse's benefit is suspended if the spouse is under age 50 until the attainment of such age.

    Children of the member who are under age 18 or under age 22 and a full-time student or who are over age 18 and dependent because of a physical or mental disability are eligible for survivor benefits. Legally adopted children are eligible for survivor benefits on the same basis as other children.

    If the member dies in service as a judge, the member must have at least 1 1/2 years of service credit for survivor's annuity eligibility. If death occurs after termination of service, the deceased member must have at least 10 years of service credit for survivor's annuity eligibility.

11. Survivor's Annuity – Amount. (a) Upon the death of an annuitant, his or her surviving spouse shall be entitled to a survivor's annuity of 66-2/3 percent of the annuity the annuitant was receiving immediately prior to his or her death.

    (b) Upon the death of a judge while in service, the surviving spouse shall receive a survivor's annuity of 66-2/3 percent of the annuity earned by the judge as of the date of death, or 7 ½ percent of the judge's last salary, whichever is greater.

(c) Upon the death of a former judge who had terminated service with at least 10 years of service, his or her surviving spouse shall be entitled to a survivor's annuity of 66-2/3 percent of the annuity earned by the deceased member as of the date of death.

(d) Upon the death of an annuitant, a judge in service, or a former judge who had terminated service with at least 10 years of service, each surviving child unmarried and under the age of 18, or age 22 in the case of a full-time student, or disabled shall be entitled to a child's annuity in an amount equal to 5 percent of the decedent's final salary, not to exceed in total for all such children the greater of 20 percent of final salary or 66-2/3 percent of the earned retirement annuity.

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

12. Refund of Contributions. A participant who ceases to be a judge may apply for and receive a refund of his or her total contributions to the system, provided he or she is not then eligible to receive a retirement annuity.

    A participant who becomes unmarried, either before or after retirement, is entitled to a refund of contributions made for the survivor's annuity.

<u>Judges Who First Become Participants On or After January 1, 2011</u>

The following changes to the above provisions apply to judges 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. The required contributions shall not exceed the contributions that would be due on the highest salary for annuity purposes.

3. For 2011, the final average salary is limited to the Social Security wage base of $106,800. Limitations for future years shall automatically be increased or decreased, as applicable, by a percentage change in the Consumer Price Index-U during the preceding 12-month calendar year.

4. A participant is eligible to retire with unreduced benefits after attainment of age 67 with at least 8 years of service credit. However, a participant may elect to retire at age 62 with at least 8 years of service credit and receive a retirement annuity reduced by one-half of 1 percent for each month that his or her age is under 67.

5. The annual retirement annuity provided is equal to 3 percent of the participant's final average salary for each year of service. The maximum retirement annuity payable shall be 60 percent of the participant's final average salary.

6. Automatic annual increases are provided in the retirement annuity then being paid equal to 3 percent or the annual change in the Consumer Price Index for all Urban Consumers, whichever is less. Such increases are payable in the January next following attainment of age 67 and in January of each year thereafter.

7. Automatic annual increases are provided in the survivor annuity then being paid equal to 3 percent or the annual change in the Consumer Price Index for all Urban Consumers, whichever is less. Such increases are payable on each January 1 occurring on or after attainment of age 67.

8. The retirement annuity being paid is suspended when an annuitant accepts full time employment in a position covered under the Judges' 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

SECTION G

ACTUARIAL COST METHOD AND ACTUARIAL ASSUMPTIONS

Valuation Methods — Calculation of the Total Pension Liability

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

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

(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 Adopted June 30, 2016

Actuarial assumptions are set by the Board of Trustees. Additional information regarding the rationale for the assumptions may be found in the experience review of the Judges' Retirement System for the three-year period ending June 30, 2015. All actuarial assumptions are expectations of future experience, not market measures.

Mortality

Post-Retirement Mortality

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

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

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

Interest

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

General Inflation

2.75 percent per annum, compounded annually.

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

Illustrative rates of withdrawal from the plan are as follows:

Age Based Withdrawal		
Age	Male	Female
30	0.0175	0.0175
35	0.0170	0.0160
40	0.0154	0.0144
45	0.0136	0.0126
50	0.0118	0.0108
55	0.0102	0.0092
60	0.0084	0.0074
65	0.0067	0.0057

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

Salary Increases

A salary increase assumption of 3.00 percent per annum, compounded annually, was used. This 3.00 percent salary increase assumption includes an inflation component of 2.75 percent per annum, and a productivity/merit/promotion component of 0.25 percent.

Disability

No assumption for disability.

Employee Contribution Election

For purposes of the actuarial valuation, it is assumed that all judges elect to contribute only on increases in salary when they become eligible for this provision.

Population Projection

For purposes of determining annual appropriation as a percent of total covered payroll, the size of the active group is assumed to remain level at the number of actives as of the actuarial valuation date. New entrants are assumed to enter with an average age and average pay as disclosed below. The new entrant profile is based on the averages for all current active members. The average increase in uncapped payroll for the projection period is 3.00 percent per annum.

New Entrant Profile			
Age Group	No.	Uncapped Salary	Capped Salary
Under 20			
20-24			
25-29	1	$ 194,001	$ 117,213
30-34	28	5,609,232	3,281,967
35-39	105	20,324,665	12,307,375
40-44	205	39,155,931	24,028,686
45-49	202	38,626,741	23,677,046
50-54	166	31,473,949	19,457,375
55-59	110	20,875,766	12,893,441
60-64	51	9,729,910	5,977,869
65-69	4	756,604	468,852
70 & Over			
Total	**872**	**$ 166,746,799**	**$ 102,209,824**
Avg. Salary		**$ 191,223**	**$ 117,213**
Avg. Age			**47.29**
Percent Male			**67.89%**

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

Retirement

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

Retirement Rates	
Age	Males & Females
60	15.00%
61-65	10.00%
66-70	11.00%
71	11.00%
72	12.00%
73	13.00%
74	14.00%
75-79	15.00%
80+	100.00%

Early Retirement Rates		
Age	Male	Female
55	6.50%	7.50%
56	6.50%	7.50%
57	6.50%	7.50%
58	6.50%	7.50%
59	6.50%	7.50%

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, 2017, actuarial valuation report.

Expenses

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

Spouse's Age

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

Decrement Timing

All decrements are assumed to occur beginning of year.

Decrement Relativity

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

Decrement Operation

Turnover decrements do not operate after member reaches retirement eligibility.

Eligibility Testing

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

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

No explicit assumption is made with respect to these items.

Assumptions as a result of Public Act 96-0889

Members hired after December 31, 2010, are assumed to make contributions on salary up to the final average compensation cap in a given year until this plan provision or administrative procedure is clarified. State contributions, expressed as a percentage of pay, are calculated based upon capped pay.

Retirement rates for Tier Two members to account for the change in retirement age, as follows:

Retirement Rates for Tier Two Members	
Age	Male & Female
67	30.00%
68-70	13.00%
71	11.00%
72	12.00%
73	13.00%
74	14.00%
75-79	15.00%
80	100.00%

Early Retirement Rates for Tier Two Members	
Age	Males and Females
62	11.00%
63	12.00%
64	13.00%
65	14.00%
66	15.00%

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

Age Based Withdrawal for Tier Two Members		
Age	Male	Female
30	0.0175	0.0175
35	0.0170	0.0160
40	0.0154	0.0144
45	0.0136	0.0126
50	0.0118	0.0108
55	0.0102	0.0092
60	0.0084	0.0074
65	0.0067	0.0057

The preceding withdrawal rates for Tier Two members are the same as the rates for Tier One members.

For Tier Two members with less than five years of service, withdrawal rate is flat at 1.75 percent.

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 2003 and for the entirety of 2004,
      ii) That hypothetical state contributions had been made each fiscal year from 2005 through the valuation date, based on the funding process in place prior to P.A. 93-0002 (without regard to prior state minimum requirements),
      iii) That the actual amounts of member contributions and the actual cash outflows (benefit payments, refunds and administrative expenses) for each year prior to the valuation date were realized, and
      iv) That the hypothetical fund earned returns in each prior fiscal year equal to the rate of total return actually earned by the retirement fund in that year.
   b. The hypothetical asset values developed in a., above, will not exceed the actual assets of the fund.
   c. A projection of maximum contributions for each year of the GOB program will be performed each year, by reducing the contributions produced in a., above, by the respective amount of debt service allocated to the System for each year.
2. Calculation of the contribution with GOB proceeds
   a. The basic projection of State contributions from the valuation date through June 30, 2045, will be made, taking into account all assets of the System, including the GOB proceeds.
   b. State contribution rates (expressed as a percentage of covered pay), in the pattern required by the funding sections of the statutes, are calculated.
   c. In those projections, the dollars of state contributions which are added to assets each year during the GOB program are limited by the contribution maximum. Because the bonds are to be liquidated by the end of fiscal 2033, there is no contribution maximum thereafter.

State Contributions under P.A. 94-0004

The following is an excerpt from the Illinois Compiled statutes 40 ILCS 5/18-131:

(c) Notwithstanding any other provision of this Article, the total required State contribution for fiscal year 2006 is $29,189,400.

Notwithstanding any other provision of this Article, the total required State contribution for fiscal year 2007 is $35,236,800.

Miscellaneous and Technical Assumptions

For each State fiscal year 2008 through 2010, the State contribution to the System, as a percentage of the applicable employee 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 5/18-131:

> (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.

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 6.75 percent; the municipal bond rate is 3.56 percent; and the resulting Single Discount Rate is 6.58 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 2062.

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, 2017, 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 Actuarial Liability	Closed Group EAN Actuarial Liability	Future Member EAN Actuarial Liability	Open Group Assets	Future Member Assigned Assets	Closed Group Assigned Assets	Funded Ratio Current Members	Funded Ratio Future Members
	(a)	(b)	(c)=(a)-(b)	(d)	(e)=min[(c),(d)]	(f)=(d)-(e)	(g)=(f)/(b)	(h)=(e)/(c)
2017	$ 2,664,020,597	$ 2,664,020,597	$ -	$ 941,803,532	$ -	$ 941,803,532	35.35%	0.00%
2018	2,738,231,243	2,738,231,243	-	1,001,454,639	-	1,001,454,639	36.57%	0.00%
2019	2,808,839,986	2,806,983,713	1,856,274	1,062,087,732	1,856,274	1,060,231,459	37.77%	100.00%
2020	2,874,226,369	2,868,724,652	5,501,717	1,121,050,331	5,501,717	1,115,548,614	38.89%	100.00%
2021	2,934,069,473	2,922,863,040	11,206,434	1,179,531,582	11,206,434	1,168,325,148	39.97%	100.00%
2022	2,988,939,551	2,969,694,769	19,244,782	1,237,597,780	19,244,782	1,218,352,998	41.03%	100.00%
2023	3,037,836,411	3,008,247,959	29,588,452	1,291,004,972	29,588,452	1,261,416,519	41.93%	100.00%
2024	3,080,894,288	3,038,327,198	42,567,090	1,340,749,504	42,567,090	1,298,182,413	42.73%	100.00%
2025	3,117,236,756	3,058,920,015	58,316,741	1,386,546,215	58,316,741	1,328,229,474	43.42%	100.00%
2026	3,147,448,746	3,070,227,073	77,221,673	1,428,839,696	77,221,673	1,351,618,023	44.02%	100.00%
2027	3,171,186,370	3,072,123,870	99,062,500	1,467,479,470	99,062,500	1,368,416,970	44.54%	100.00%
2028	3,188,742,988	3,064,694,206	124,048,782	1,502,308,261	124,048,782	1,378,259,479	44.97%	100.00%
2029	3,200,103,808	3,047,851,874	152,251,933	1,534,167,222	152,251,933	1,381,915,289	45.34%	100.00%
2030	3,205,355,878	3,021,563,282	183,792,596	1,563,222,154	183,792,596	1,379,429,558	45.65%	100.00%
2031	3,205,296,037	2,986,475,836	218,820,202	1,590,348,486	218,820,202	1,371,528,284	45.92%	100.00%
2032	3,199,416,139	2,942,098,571	257,317,568	1,616,924,113	257,317,568	1,359,606,544	46.21%	100.00%
2033	3,188,428,996	2,888,994,413	299,434,582	1,644,405,202	299,434,582	1,344,970,619	46.55%	100.00%
2034	3,172,650,823	2,827,496,056	345,154,766	1,676,691,494	345,154,766	1,331,536,728	47.09%	100.00%
2035	3,152,928,304	2,758,372,318	394,555,986	1,712,064,536	394,555,986	1,317,508,550	47.76%	100.00%
2036	3,129,555,776	2,681,970,511	447,585,266	1,751,594,640	447,585,266	1,304,009,374	48.62%	100.00%
2037	3,102,926,706	2,598,700,456	504,226,250	1,796,359,137	504,226,250	1,292,132,887	49.72%	100.00%
2038	3,073,773,992	2,509,342,964	564,431,028	1,847,701,596	564,431,028	1,283,270,569	51.14%	100.00%
2039	3,042,714,512	2,414,615,386	628,099,126	1,907,055,675	628,099,126	1,278,956,549	52.97%	100.00%
2040	3,010,222,273	2,315,082,334	695,139,939	1,975,783,290	695,139,939	1,280,643,351	55.32%	100.00%
2041	2,977,244,604	2,211,818,058	765,426,546	2,055,570,506	765,426,546	1,290,143,959	58.33%	100.00%
2042	2,944,222,770	2,105,425,699	838,797,071	2,147,936,260	838,797,071	1,309,139,189	62.18%	100.00%
2043	2,911,943,399	1,996,837,524	915,105,875	2,254,564,978	915,105,875	1,339,459,103	67.08%	100.00%
2044	2,881,060,613	1,886,859,197	994,201,416	2,377,202,446	994,201,416	1,383,001,030	73.30%	100.00%
2045	2,852,045,852	1,776,119,038	1,075,926,813	2,517,510,242	1,075,926,813	1,441,583,429	81.16%	100.00%
2046	2,825,596,027	1,665,444,649	1,160,151,378	2,492,551,619	1,160,151,378	1,332,400,241	80.00%	100.00%
2047	2,802,479,326	1,555,760,540	1,246,718,786	2,470,436,017	1,246,718,786	1,223,717,231	78.66%	100.00%
2048	2,783,051,762	1,447,608,555	1,335,443,207	2,451,611,324	1,335,443,207	1,116,168,117	77.10%	100.00%
2049	2,768,014,912	1,341,804,375	1,426,210,536	2,436,677,758	1,426,210,536	1,010,467,222	75.31%	100.00%
2050	2,757,769,291	1,238,911,124	1,518,858,167	2,426,002,795	1,518,858,167	907,144,629	73.22%	100.00%
2051	2,752,638,594	1,139,387,573	1,613,251,021	2,419,873,332	1,613,251,021	806,622,311	70.79%	100.00%
2052	2,753,024,664	1,043,739,461	1,709,285,203	2,418,642,190	1,709,285,203	709,356,987	67.96%	100.00%
2053	2,759,182,488	952,346,490	1,806,835,998	2,422,539,230	1,806,835,998	615,703,232	64.65%	100.00%
2054	2,771,354,658	865,562,974	1,905,791,685	2,431,781,939	1,905,791,685	525,990,254	60.77%	100.00%
2055	2,789,638,122	783,607,899	2,006,030,223	2,446,460,546	2,006,030,223	440,430,323	56.21%	100.00%
2056	2,814,044,464	706,582,705	2,107,461,759	2,466,590,369	2,107,461,759	359,128,610	50.83%	100.00%
2057	2,844,547,842	634,546,271	2,210,001,571	2,492,148,873	2,210,001,571	282,147,302	44.46%	100.00%
2058	2,881,091,099	567,510,501	2,313,580,598	2,523,086,650	2,313,580,598	209,506,051	36.92%	100.00%
2059	2,923,540,058	505,415,963	2,418,124,095	2,559,286,855	2,418,124,095	141,162,760	27.93%	100.00%
2060	2,971,760,982	448,185,307	2,523,575,675	2,600,631,065	2,523,575,675	77,055,389	17.19%	100.00%
2061	3,025,549,467	395,672,947	2,629,876,520	2,646,937,602	2,629,876,520	17,061,082	4.31%	100.00%
2062	3,084,703,516	347,705,373	2,736,998,143	2,698,024,094	2,698,024,094	-	0.00%	98.58%
2063	3,149,031,472	304,111,156	2,844,920,315	2,753,718,411	2,753,718,411	-	0.00%	96.79%
2064	3,218,314,623	264,688,144	2,953,626,479	2,813,824,322	2,813,824,322	-	0.00%	95.27%
2065	3,292,349,420	229,229,492	3,063,119,928	2,878,157,472	2,878,157,472	-	0.00%	93.96%

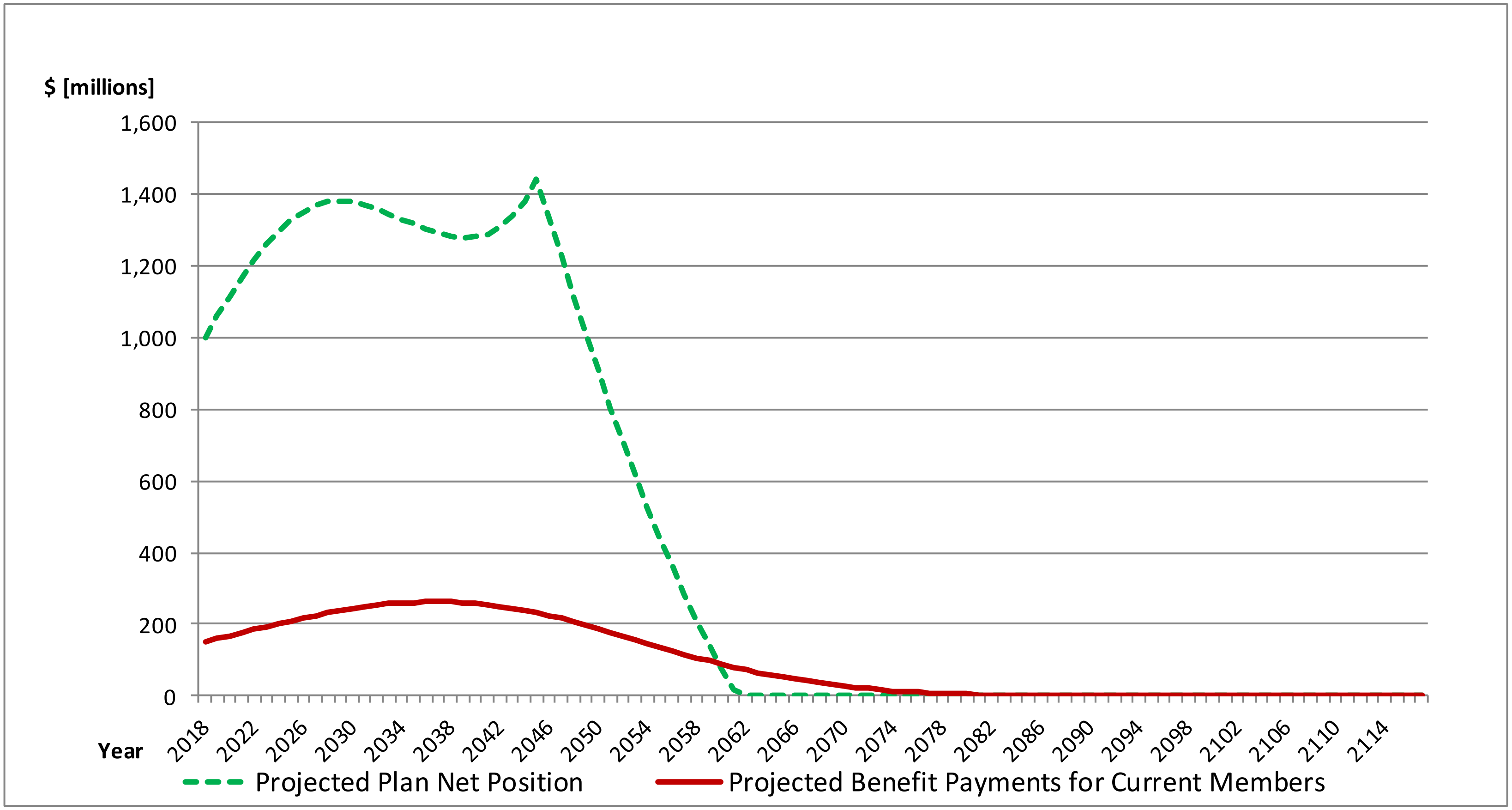
Current Member Projection of Assets and Assignment of Employer Contributions

PYE 6/30	Assets (boy)	Member Contributions	Administrative Expenses	Benefit Payments	Assigned Employer Contribution	Income on Cash Flow	Income on Assigned Contribution	Total Investment Income	Assets (eoy)
2018	$ 941,803,532	$ 13,987,871	$ 966,100	$ 152,778,424	$ 135,962,000	$ 58,931,969	$ 4,513,791	$ 63,445,760	$ 1,001,454,639
2019	1,001,454,639	13,052,635	909,197	160,213,490	139,532,134	62,682,423	4,632,316	67,314,738	1,060,231,459
2020	1,060,231,459	12,106,946	866,472	168,516,520	141,549,675	66,344,229	4,699,296	71,043,525	1,115,548,614
2021	1,115,548,614	11,290,387	818,363	176,751,620	144,480,312	69,779,229	4,796,590	74,575,819	1,168,325,148
2022	1,168,325,148	10,274,503	767,040	184,613,815	147,198,756	73,048,606	4,886,839	77,935,446	1,218,352,998
2023	1,218,352,998	9,392,403	722,601	192,716,067	146,129,747	76,128,691	4,851,349	80,980,040	1,261,416,519
2024	1,261,416,519	8,611,640	673,391	200,660,499	145,897,074	78,747,445	4,843,625	83,591,070	1,298,182,413
2025	1,298,182,413	7,825,101	627,248	208,776,201	145,848,274	80,935,130	4,842,005	85,777,135	1,328,229,474
2026	1,328,229,474	7,045,493	576,073	216,330,721	145,723,660	82,688,322	4,837,868	87,526,189	1,351,618,023
2027	1,351,618,023	6,159,441	530,001	223,629,888	145,956,944	83,996,838	4,845,612	88,842,450	1,368,416,970
2028	1,368,416,970	5,155,555	487,144	230,416,145	145,873,826	84,873,565	4,842,853	89,716,418	1,378,259,479
2029	1,378,259,479	4,430,740	446,853	236,763,984	146,275,258	85,304,468	4,856,180	90,160,648	1,381,915,289
2030	1,381,915,289	3,873,145	407,525	242,643,441	146,489,945	85,338,838	4,863,307	90,202,145	1,379,429,558
2031	1,379,429,558	3,149,411	369,383	247,577,502	147,030,464	84,984,484	4,881,252	89,865,736	1,371,528,284
2032	1,371,528,284	2,877,929	335,945	252,349,498	148,665,422	84,284,821	4,935,531	89,220,351	1,359,606,544
2033	1,359,606,544	2,622,275	301,440	256,191,456	150,880,417	83,345,212	5,009,066	88,354,279	1,344,970,619
2034	1,344,970,619	2,397,650	270,060	259,235,958	156,237,754	82,249,798	5,186,924	87,436,722	1,331,536,728
2035	1,331,536,728	2,202,613	239,912	261,235,657	158,704,802	81,271,148	5,268,827	86,539,975	1,317,508,550
2036	1,317,508,550	1,988,470	213,355	262,482,155	161,567,368	80,276,636	5,363,861	85,640,497	1,304,009,374
2037	1,304,009,374	1,809,693	188,224	262,922,762	164,614,083	79,345,713	5,465,009	84,810,722	1,292,132,887
2038	1,292,132,887	1,631,997	164,198	262,340,174	167,878,387	78,558,290	5,573,380	84,131,670	1,283,270,569
2039	1,283,270,569	1,460,159	142,970	260,788,481	171,458,440	78,006,598	5,692,234	83,698,832	1,278,956,549
2040	1,278,956,549	1,289,574	123,751	258,388,234	175,299,401	77,790,062	5,819,750	83,609,812	1,280,643,351
2041	1,280,643,351	1,140,130	105,768	254,812,921	179,308,080	78,018,253	5,952,834	83,971,087	1,290,143,959
2042	1,290,143,959	1,000,968	90,990	250,454,231	183,642,629	78,800,119	6,096,736	84,896,855	1,309,139,189
2043	1,309,139,189	874,765	76,979	245,106,972	188,127,379	80,256,095	6,245,625	86,501,720	1,339,459,103
2044	1,339,459,103	760,453	65,206	238,917,834	192,857,110	82,504,758	6,402,647	88,907,405	1,383,001,030
2045	1,383,001,030	656,763	54,801	232,039,408	197,784,516	85,669,097	6,566,232	92,235,329	1,441,583,429
2046	1,441,583,429	555,306	44,697	224,391,233	24,025,527	89,874,287	797,621	90,671,909	1,332,400,241
2047	1,332,400,241	466,150	36,155	215,945,605	23,277,675	82,782,132	772,794	83,554,925	1,223,717,231
2048	1,223,717,231	389,965	29,572	207,050,164	22,649,675	75,739,037	751,945	76,490,981	1,116,168,117
2049	1,116,168,117	321,057	23,146	197,554,333	22,031,459	68,792,648	731,421	69,524,069	1,010,467,222
2050	1,010,467,222	262,573	18,594	187,683,227	21,421,720	61,983,758	711,178	62,694,935	907,144,629
2051	907,144,629	217,576	14,687	177,569,710	20,809,766	55,343,876	690,862	56,034,738	806,622,311
2052	806,622,311	171,938	11,002	167,224,217	20,225,797	48,900,686	671,475	49,572,161	709,356,987
2053	709,356,987	131,223	8,135	156,786,820	19,676,218	42,680,531	653,229	43,333,760	615,703,232
2054	615,703,232	101,283	5,944	146,316,606	19,166,404	36,705,581	636,304	37,341,884	525,990,254
2055	525,990,254	82,283	4,639	135,950,057	18,698,197	30,993,525	620,760	31,614,285	440,430,323
2056	440,430,323	64,231	3,635	125,800,508	18,276,811	25,554,618	606,770	26,161,388	359,128,610
2057	359,128,610	49,557	2,710	115,921,299	17,904,460	20,394,275	594,409	20,988,684	282,147,302
2058	282,147,302	34,959	1,912	106,363,557	17,590,392	15,514,885	583,982	16,098,867	209,506,051
2059	209,506,051	25,153	1,376	97,192,137	17,333,829	10,915,774	575,464	11,491,239	141,162,760
2060	141,162,760	16,403	897	88,423,889	17,138,606	6,593,424	568,983	7,162,407	77,055,389
2061	77,055,389	12,850	703	80,114,052	17,001,233	2,541,942	564,422	3,106,365	17,061,082
2062	17,061,082	8,506	465	72,279,244	54,643,711	(1,247,703)	1,814,112	566,409	-
2063	-	3,478	190	64,910,844	64,907,557	(2,154,861)	2,154,861	-	-
2064	-	1,528	84	58,024,176	58,022,732	(1,926,292)	1,926,292	-	-
2065	-	-	-	51,611,651	51,611,651	(1,713,451)	1,713,451	-	-

Development of Single Discount Rate

PYE 6/30	Benefit Payments	Discount Rate	Discounted Benefit Payment	Single Discount Rate	Discounted Benefit Payment
2018	$ 152,778,424	6.75%	$ 147,869,322	6.58%	$ 147,987,270
2019	160,213,490	6.75%	145,260,407	6.58%	145,608,284
2020	168,516,520	6.75%	143,127,397	6.58%	143,699,134
2021	176,751,620	6.75%	140,629,298	6.58%	141,416,388
2022	184,613,815	6.75%	137,596,922	6.58%	138,587,864
2023	192,716,067	6.75%	134,553,365	6.58%	135,738,673
2024	200,660,499	6.75%	131,241,336	6.58%	132,608,765
2025	208,776,201	6.75%	127,915,114	6.58%	129,454,157
2026	216,330,721	6.75%	124,162,711	6.58%	125,857,145
2027	223,629,888	6.75%	120,236,120	6.58%	122,071,475
2028	230,416,145	6.75%	116,051,331	6.58%	118,010,845
2029	236,763,984	6.75%	111,708,180	6.58%	113,775,649
2030	242,643,441	6.75%	107,243,261	6.58%	109,402,414
2031	247,577,502	6.75%	102,504,928	6.58%	104,735,569
2032	252,349,498	6.75%	97,874,179	6.58%	100,163,648
2033	256,191,456	6.75%	93,081,301	6.58%	95,410,681
2034	259,235,958	6.75%	88,231,804	6.58%	90,584,161
2035	261,235,657	6.75%	83,290,312	6.58%	85,647,393
2036	262,482,155	6.75%	78,396,006	6.58%	80,743,235
2037	262,922,762	6.75%	73,562,157	6.58%	75,885,572
2038	262,340,174	6.75%	68,757,992	6.58%	71,042,870
2039	260,788,481	6.75%	64,029,322	6.58%	66,262,645
2040	258,388,234	6.75%	59,428,580	6.58%	61,599,582
2041	254,812,921	6.75%	54,900,485	6.58%	56,996,888
2042	250,454,231	6.75%	50,549,309	6.58%	52,563,314
2043	245,106,972	6.75%	46,341,985	6.58%	48,265,266
2044	238,917,834	6.75%	42,315,517	6.58%	44,142,027
2045	232,039,408	6.75%	38,498,601	6.58%	40,224,451
2046	224,391,233	6.75%	34,875,561	6.58%	36,497,148
2047	215,945,605	6.75%	31,440,671	6.58%	32,955,058
2048	207,050,164	6.75%	28,239,378	6.58%	29,646,809
2049	197,554,333	6.75%	25,240,516	6.58%	26,540,775
2050	187,683,227	6.75%	22,463,077	6.58%	23,657,954
2051	177,569,710	6.75%	19,908,786	6.58%	21,001,256
2052	167,224,217	6.75%	17,563,343	6.58%	18,556,677
2053	156,786,820	6.75%	15,425,871	6.58%	16,324,326
2054	146,316,606	6.75%	13,485,463	6.58%	14,293,678
2055	135,950,057	6.75%	11,737,720	6.58%	12,461,045
2056	125,800,508	6.75%	10,174,636	6.58%	10,818,875
2057	115,921,299	6.75%	8,782,777	6.58%	9,353,790
2058	106,363,557	6.75%	7,549,072	6.58%	8,052,707
2059	97,192,137	6.75%	6,461,955	6.58%	6,904,065
2060	88,423,889	6.75%	5,507,247	6.58%	5,893,428
2061	80,114,052	6.75%	4,674,183	6.58%	5,009,931
2062	72,279,244	6.75%	3,950,415	6.58%	4,240,932
2063	64,910,844	3.56%	13,215,371	6.58%	3,573,466
2064	58,024,176	3.56%	11,407,200	6.58%	2,997,133
2065	51,611,651	3.56%	9,797,737	6.58%	2,501,321
2066	45,674,299	3.56%	8,372,552	6.58%	2,076,913
2067	40,202,822	3.56%	7,116,238	6.58%	1,715,251
2068	35,186,045	3.56%	6,014,124	6.58%	1,408,530
2069	30,610,980	3.56%	5,052,276	6.58%	1,149,735
2070	26,464,159	3.56%	4,217,702	6.58%	932,617
2071	22,730,099	3.56%	3,498,059	6.58%	751,573
2072	19,392,329	3.56%	2,881,799	6.58%	601,623
2073	16,432,810	3.56%	2,358,053	6.58%	478,334
2074	13,831,517	3.56%	1,916,547	6.58%	377,758
2075	11,566,331	3.56%	1,547,580	6.58%	296,390
2085	1,696,655	3.56%	160,004	6.58%	22,988
2095	538,245	3.56%	35,776	6.58%	3,856
2105	184,623	3.56%	8,649	6.58%	699
2110	77,279	3.56%	3,039	6.58%	213
2116	16,830	3.56%	537	6.58%	32
Total Present Value			**$ 3,080,602,953**		**$ 3,080,602,953**

Projection of Plan Net Position and Benefit Payments



SECTION I

GLOSSARY OF TERMS

Glossary of Terms

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

Glossary of Terms

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

Glossary of Terms

Entry Age Actuarial Cost Method (EAN)	The EAN is a cost method for allocating the costs of the plan between the normal cost and the accrued liability. The actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis (either level dollar or level percent of pay) over the earnings or service of the individual between entry age and assumed exit ages(s). The portion of the actuarial present value allocated to a valuation year is the normal cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future normal costs is the actuarial accrued liability. The sum of the accrued liability plus the present value of all future normal costs is the present value of all benefits.
Fiduciary Net Position	The fiduciary net position is the market value of the assets of the trust dedicated to the defined benefit provisions.
GASB	The Governmental Accounting Standards Board is an organization that exists in order to promulgate accounting standards for governmental entities.
Long-Term Expected Rate of Return	The long-term rate of return is the expected return to be earned over the entire trust portfolio based on the asset allocation of the portfolio.
Money-Weighted Rate of Return	The money-weighted rate of return is a method of calculating the returns that adjusts for the changing amounts actually invested. For purposes of GASB Statement No. 67, money-weighted rate of return is calculated as the internal rate of return on pension plan investments, net of pension plan investment expense.
Multiple-Employer Defined Benefit Pension Plan	A multiple-employer plan is a defined benefit pension plan that is used to provide pensions to the employees of more than one employer.
Municipal Bond Rate	The Municipal Bond Rate is the discount rate to be used for those benefit payments that occur after the assets of the trust have been depleted.
Net Pension Liability (NPL)	The NPL is the liability of employers and non-employer contributing entities to plan members for benefits provided through a defined benefit pension plan.
Non-Employer Contributing Entities	Non-employer contributing entities are entities that make contributions to a pension plan that is used to provide pensions to the employees of other entities. For purposes of the GASB accounting statements, plan members are not considered non-employer contributing entities.
Normal Cost	The portion of the actuarial present value allocated to a valuation year is called the normal cost. For purposes of application to the requirements of this Statement, the term normal cost is the equivalent of service cost.

Glossary of Terms

Other Postemployment Benefits (OPEB)	All postemployment benefits other than retirement income (such as death benefits, life insurance, disability, and long-term care) that are provided separately from a pension plan, as well as postemployment healthcare benefits regardless of the manner in which they are provided. Other post-employment benefits do not include termination benefits.
Real Rate of Return	The real rate of return is the rate of return on an investment after adjustment to eliminate inflation.
Service Cost	The service cost is the portion of the actuarial present value of projected benefit payments that is attributed to a valuation year.
Total Pension Expense	The total pension expense is the sum of the following items that are recognized at the end of the employer's fiscal year: 1. Service Cost 2. Interest on the Total Pension Liability 3. Current-Period Benefit Changes 4. Employee Contributions (made negative for addition here) 5. Projected Earnings on Plan Investments (made negative for addition here) 6. Pension Plan Administrative Expense 7. Other Changes in Plan Fiduciary Net Position 8. Recognition of Outflow (Inflow) of Resources due to Liabilities 9. Recognition of Outflow (Inflow) of Resources due to Assets
Total Pension Liability (TPL)	The TPL is the portion of the actuarial present value of projected benefit payments that is attributed to past periods of member service.
Unfunded Actuarial Accrued Liability (UAAL)	The UAAL is the difference between actuarial accrued liability and valuation assets.
Valuation Assets	The valuation assets are the assets used in determining the unfunded liability of the plan. For purposes of GASB Statement Nos. 67 and 68, the valuation assets are equal to the market value of assets.