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GASB STATEMENT NO. 68 REPORT

FOR THE

NEBRASKA PUBLIC EMPLOYEES

RETIREMENT SYSTEM

JUDGES RETIREMENT SYSTEM

MEASUREMENT DATE: JUNE 30, 2017

FOR STATE FISCAL YEAR ENDING: JUNE 30, 2018





Cavanaugh Macdonald

CONSULTING, LLC

The experience and dedication you deserve

July 31, 2018

Public Employees Retirement Board
Nebraska Public Employees Retirement Systems
Post Office Box 94816
Lincoln, NE 68509

Dear Members of the Board:

Presented in this report is information to assist the Nebraska Public Employees Retirement System in providing information required under the Governmental Accounting Standards Board (GASB) Statement No. 68 to the State of Nebraska for the Judges Retirement System. GASB Statement No. 68 establishes accounting and financial reporting requirements for governmental employers who provide pension benefits to their employees through a trust. This report, which has been prepared as of June 30, 2017, is intended for use in the State's financial reporting for fiscal year 2018. The calculations in this report have been made on a basis that is consistent with our understanding of this accounting standard (GASB 68). Please note that the discount rate used to determine the Total Pension Liability (TPL) changed from 8.00% at the Prior Measurement Date to 7.50% at the current Measurement Date.

The annual actuarial valuation used as the basis for much of the information presented in this report was performed as of July 1, 2017. The valuation was based upon data, furnished by the Nebraska Public Employees Retirement System staff, concerning active, inactive and retired members along with pertinent financial information. This information was reviewed for completeness and internal consistency, but was not audited by us. The valuation results depend on the integrity of the data. If any of the information is inaccurate or incomplete, our results may be different and our calculations may need to be revised. Please see the actuarial valuation report for additional details on the funding requirements for the System including actuarial assumptions and methods and the System's funding policy.

To the best of our knowledge, the information contained in this report is complete and accurate. Certain information about the System and where additional information can be found was provided by the Nebraska Public Employees Retirement System and used in this report. The calculations were performed by qualified actuaries according to generally accepted actuarial principles and practices, as well as in conformity with Actuarial Standards of Practice issued by the Actuarial Standards Board. The calculations are based on the current provisions of the System, and on actuarial assumptions that are internally consistent and individually reasonable based on the actual experience of the System. In addition, the calculations were completed in compliance with applicable law and, in our opinion, meet the requirements of GASB 68.



Board of Trustees
July 31, 2018
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These results are only for financial reporting and may not be appropriate for funding purposes or other types of analysis. Calculations for purposes other than satisfying the requirements of GASB 68 may produce significantly different results. Future actuarial results may differ significantly from the current results presented in this report due to such factors as changes in plan experience or changes in economic or demographic assumptions.

We, Patrice A. Beckham, FSA and Brent A. Banister, FSA, are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein. We are available to answer any questions on the material contained in this report or to provide explanations or further details as may be appropriate.

Respectfully submitted,

A handwritten signature in blue ink that reads 'Patrice Beckham' in a cursive script.

Patrice Beckham, FSA, EA, FCA, MAAA
Principal and Consulting Actuary

A handwritten signature in blue ink that reads 'Brent A. Banister' in a cursive script.

Brent A. Banister, PhD, FSA, EA, FCA, MAAA
Chief Actuary



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GASB STATEMENT NO. 68
NEBRASKA PUBLIC EMPLOYEES RETIREMENT SYSTEM
JUDGES RETIREMENT SYSTEM

SECTION I - SUMMARY OF PRINCIPAL RESULTS

Valuation Date (VD):	July 1, 2017
Prior Measurement Date:	June 30, 2016
Measurement Date (MD):	June 30, 2017
Membership Data:	
Retirees and Beneficiaries	186
Inactive Vested Members	4
Inactive Nonvested Members	0
Active Employees	<u>147</u>
Total	337
Single Equivalent Interest Rate (SEIR):	
Long-Term Expected Rate of Return	7.50%
Municipal Bond Index Rate at Prior Measurement Date	3.01%
Municipal Bond Index Rate at Measurement Date	3.56%
Year in which Fiduciary Net Position is Projected to be Depleted	N/A
Single Equivalent Interest Rate at Prior Measurement Date	8.00%
Single Equivalent Interest Rate at Measurement Date	7.50%
Net Pension Liability/(Asset):	
Total Pension Liability (TPL)	\$187,502,212
Fiduciary Net Position (FNP)	<u>176,605,831</u>
Net Pension Liability/(Asset) (NPL = TPL – FNP)	\$10,896,381
FNP as a percentage of TPL	94.19%
Pension Expense:	\$4,136,850
Deferred Outflows of Resources:	\$18,499,505
Deferred Inflows of Resources:	\$13,397,075



SECTION II – INTRODUCTION

The Governmental Accounting Standards Board issued Statement No. 68 (GASB 68), “*Accounting and Financial Reporting for Pensions*” in June 2012. GASB 68’s effective date for employers was the first fiscal year beginning after June 15, 2014 (fiscal year ending June 30, 2015 for the State of Nebraska). The Judges Retirement System (Plan) is a single-employer defined benefit pension plan.

Paragraph 20 of GASB Statement 68 permits the measurement date of the Net Pension Liability reported by a single employer to be “as of” a date no earlier than the end of its prior fiscal year provided that the actuarial valuation used to determine the Net Pension Liability meets the timing requirements of paragraph 22 of GASB 68. This option is available to the State of Nebraska (employer) which has a fiscal year end of June 30. Since June 30 is also the fiscal year end of the Judges Retirement System, a Measurement Date of June 30, 2017 was used to determine the Net Pension Liability and Pension Expense for the employer’s fiscal year ending June 30, 2018.

This report, prepared as of June 30, 2017 (the Measurement Date), presents information to assist the Judges Retirement System of the Nebraska Public Employees Retirement System in providing the required information under GASB 68 to the State of Nebraska. Much of the material provided in this report, including the Net Pension Liability/(Asset), is based on the results of the GASB 67 report for the Judges Retirement System of the Nebraska Public Employees Retirement System, which was issued December 13, 2017. See that report for more information on the member data, actuarial assumptions and methods used in developing the GASB 67 results.

GASB 68 requires the inclusion of a Net Pension Liability/(Asset) (NPL) on the employer’s Statement of Net Position and a determination of a Pension Expense (PE) in the Notes to the Financial Statements, that may bear little relationship to the employer’s funding requirements. In fact, it is possible in some years for the NPL to be an asset or the PE to be an income item. The NPL is set equal to the Total Pension Liability (TPL) minus the Fiduciary Net Position (FNP). The benefit provisions recognized in the calculation of the TPL are summarized in Appendix B.

PE includes amounts for Service Cost (the Normal Cost under Entry Age Normal (EAN) for the year), interest on the TPL, employee contributions, administrative expenses, other cash flows during the year, recognition of increases/decreases in the TPL due to changes in the benefit structure, actual versus expected experience, actuarial assumption changes, and recognition of investment gains/losses. The actual experience and assumption change impacts are recognized over the average expected remaining service life of the Plan membership as of the beginning of the measurement period, while investment gains/losses are recognized equally over five years. The development of the PE is shown in Section III. The unrecognized portions of each year’s experience, assumption changes and investment gains/losses are used to develop Deferred Inflows and Outflows of Resources, which also must be included on the employer’s Statement of Net Position.

Among the items needed for the TPL calculation is a discount rate, as defined by GASB, or a Single Equivalent Interest Rate (SEIR). To determine the SEIR, the FNP must be projected into the future for as



long as there are anticipated benefits payable under the plan's provision applicable to the membership and beneficiaries of the Plan on the Measurement Date. Future contributions were projected to be made at the current levels set in statute. If the FNP is not projected to be depleted at any point in the future, the long-term expected rate of return on plan investments expected to be used to finance the benefit payments may be used as the SEIR.

If, however, the FNP is projected to be depleted at a future measurement date, the SEIR is determined as the single rate that will generate a present value of benefit payments equal to the sum of the present value determined by discounting all projected benefit payments through the date of depletion by the long-term expected rate of return, and the present value determined by discounting those benefits after the depletion date by a 20-year tax-exempt municipal bond (rating AA/Aa or higher) rate (Municipal Bond Index Rate). The rate used, if necessary, for this purpose is the monthly average of the Bond Buyer General Obligation 20-year Municipal Bond Index (formerly published monthly by the Board of Governors of the Federal Reserve System).

Our calculations indicated that the FNP is not projected to be depleted, so the Municipal Bond Index Rate is not used in the determination of the SEIR for either the June 30, 2016 or the June 30, 2017 TPL. The SEIR for the Prior Measurement Date was 8.00% and the SEIR for the current Measurement Date is 7.50%, the long-term assumed rate of return on investments. The SEIR for both the Measurement Date and Prior Measurement Date meets the requirements of GASB 67 and 68.

The FNP projections are based upon the Plan's financial status on the Measurement Date, the indicated set of methods and assumptions, and the requirements of GASB 67 and 68. As such, the FNP projections are not reflective of the cash flows and asset accumulations that would occur on an ongoing plan basis, reflecting the impact of future members. Therefore, the results of this test do not necessarily indicate whether or not the Plan will actually run out of money, the financial condition of the Plan, or the Plan's ability to make benefit payments in future years.

The sections that follow provide the results of all the required calculations, presented in the order laid out in GASB 68 for note disclosure and Required Supplementary Information (RSI). Some of this information was provided by the Nebraska Public Employees Retirement System for use in this report. These sections, not prepared by Cavanaugh Macdonald LLC, are: Paragraphs 37, 38, 40(a)-(b), 40(d)-(e), 43 and 45(e)-(f).



SECTION III – PENSION EXPENSE

As noted earlier, the Pension Expense (PE) consists of a number of different items. GASB 68 refers to the first item as Service Cost, which is the Normal Cost using the Entry Age Normal (EAN) actuarial funding method. The second item is interest on the TPL at 8.00%, the SEIR in effect as of the Prior Measurement Date.

The next three items refer to any changes that occurred in the TPL due to:

- benefit changes,
- actual versus expected experience, or
- changes in actuarial assumptions or other inputs.

Benefit changes, which are reflected immediately, will increase PE if there is a benefit improvement for existing Plan members, or decrease PE if there is a benefit reduction. For the year ended June 30, 2017 there were no benefit changes to be recognized.

The next item to be recognized is the portion of current year changes in TPL due to actual versus expected experience for the year. The portion to recognize in the current year is determined by spreading the total change over the average expected remaining service life of the entire Plan membership at the beginning of the measurement period. The average expected remaining service life of active members is the average number of years the active members are expected to remain in covered employment. At the beginning of the measurement period, this number is 9.52 years. The average expected remaining service life of the inactive members is zero. Therefore, the recognition period is the weighted average of these two amounts, or 4.24 years.

The last item under changes in TPL is changes in actuarial assumptions or other inputs. There were a number of changes in the actuarial assumptions or other inputs since the Prior Measurement Date. These changes will be recognized over the average expected remaining service life of the entire Plan membership, using the same approach applied to experience gains and losses as described in the prior paragraph.

Employee contributions for the year and projected earnings on the FNP at the long-term expected rate of return are subtracted from the amount determined thus far. One-fifth of current-period differences between projected and actual earnings on the FNP is recognized in the PE.

The current year portions of previously determined experience, assumption changes and earnings amounts, recognized as Deferred Outflows of Resources and Deferred Inflows of Resources are included next. Deferred Outflows of Resources are added to the PE while Deferred Inflows of Resources are subtracted from the PE. Finally, administrative expenses and other miscellaneous items are included.

The calculation of the PE for the year ended June 30, 2017 is shown in the following table.



**Pension Expense
For the Year Ended**

June 30, 2017	
Service Cost at end of year	\$4,997,654
Interest on the Total Pension Liability	13,100,385
Benefit term changes	0
Expensed portion of current-period difference between expected and actual experience in the Total Pension Liability	(404,418)
Expensed portion of current-period assumption changes	2,996,572
Employee contributions	(1,743,103)
Projected earnings on plan investments	(12,569,233)
Expensed portion of current-period differences between projected and actual earnings on plan investments	(1,826,003)
Administrative expenses	84,626
Other changes	0
Recognition of beginning Deferred Outflows of Resources	3,378,190
Recognition of beginning Deferred Inflows of Resources	(3,877,820)
Total Pension Expense	\$4,136,850

Note: Average expected remaining service life for all members is 4.24 years.



SECTION IV – NOTES TO FINANCIAL STATEMENTS

The material presented herein will follow the order presented in GASB 68. Paragraph numbers are provided for ease of reference.

Paragraph 37: This information is available in the State CAFR online at:

http://das.nebraska.gov/accounting/financial_reports/cafrcon.html

Paragraph 38: The State of Nebraska is the plan sponsor for the Judges' Retirement System, the State Patrol Retirement System, and the State Employees' Retirement System Cash Balance Benefit Fund. All are single-employer defined benefit pension plans. Information for paragraphs 39 to 45 for the Judges Retirement System can be found on the following pages. Similar information for the State Patrol Retirement System and the State Employees' Cash Balance Benefit Fund can be found in the GASB 68 report for those systems.

Paragraph 39: Not Applicable.

Paragraph 40(a): The name of the pension plan is the Judges' Retirement System and it is administered by the Nebraska Public Employees Retirement Board which was created in 1971 to administer all of the Nebraska retirement plans. The Judges' Retirement System is a single-employer defined benefit pension plan.

The Judges System has been created in accordance with Internal Revenue Code Sections 401(a) and 414(h), and 414(k). Please refer to Neb. Rev. Stat. §§ 24-701 through 24-714 (Reissue 2016, Cum. Supp. 2017) for the Judges Retirement Act. Benefit and contribution provisions are established by State law and may be amended only by the Nebraska Legislature.

Paragraph 40(b):

(1) Classes of employees covered: The membership includes judges and associate judges employed by the State for the Supreme Court, Court of Appeals, District Courts, Workers' Compensation Court, County Courts, and Juvenile Courts.

(2) Types of benefits: The main benefits provided are retirement benefits. However, the Plan also provides ancillary benefits in the event of pre-retirement death, disability, or termination of employment prior to meeting the eligibility requirements to retire.

(3) Key elements of the pension formulas: Retirement is at age 65. For an employee who became a member before July 1, 2015, the monthly benefit is calculated using the compensation for the three 12-month periods of service as a judge in which compensation was the greatest. For an employee who became a member on or after July 1, 2015, the monthly benefit is calculated using the average monthly compensation for the five 12-month periods of service as a judge in which compensation was the greatest or, in the event of a judge serving less than five 12-month periods, the average monthly compensation for such judge's period of service. Once compensation is determined, it is multiplied by the total years of service and the formula factor of 3.5 percent,



subject to a maximum of 70 percent of the final average salary. The calculation varies with early retirement. Benefits vest when the judge takes office.

(4) Terms with respect to automatic postemployment benefit changes, including automatic COLAs and ad hoc COLAs: The benefit paid to a retired member or beneficiary receives an annual cost-of-living adjustment. For an employee who became a member prior to July 1, 2015, the cost-of-living adjustment is increased by the lesser of the percentage change in the Consumer Price Index for Urban Wage Earners and Clerical Workers or two and one-half percent. The current benefit paid to a retired member or beneficiary shall be adjusted so that the purchasing power of the benefit being paid is not less than 75% of the purchasing power of the initial benefit. For an employee who became a member on or after July 1, 2015, the cost-of-living adjustment is increased by the lesser of the percentage change in the Consumer Price Index for Urban Wage Earners and Clerical Workers or one percent. Additionally, if the annual actuarial report indicates the plan is fully funded with a sufficient actuarial surplus, the retirement board has the authority to issue a supplemental lump-sum cost-of-living adjustment for that year. The supplemental cost-of-living adjustment cannot exceed one and one-half percent.

(5) Authority under which benefit terms are established or may be amended: Benefit and contribution provisions are established by State law (Neb. Rev. Stat. §§ 24-701 through 24-714 (Reissue 2016, Cum. Supp. 2017)) and may be amended only by the Nebraska Legislature.

Paragraph 40(c): The data required regarding the membership of the Plan were furnished by the Nebraska Public Employees Retirement System. The following table summarizes the membership of the Plan as of July 1, 2017 (the Valuation Date). The July 1, 2017 valuation was used to determine the June 30, 2017 TPL.

Membership

Number as of July 1, 2017	
Inactive Members Or Their Beneficiaries	186
Currently Receiving Benefits	
Inactive Members Entitled To But Not Yet Receiving Benefits	4
Inactive Non-vested Members Entitled to a Refund of Member Contributions	0
Active Members	<u>147</u>
Total	337

Paragraph 40(d):

(1) **Basis for determining the employer’s contributions to the plan:** Pursuant to state statute, an actuarial valuation is performed each year to determine the actuarial required contribution. To the extent member contributions and court fees are insufficient to meet the full actuarial required contribution, the remainder is paid by the State.



- (2) **Identification of the authority under which contribution requirements of the employer and employees are established or may be amended:** contribution provisions are established by State law (Neb. Rev. Stat. §§ 24-701 through 24-714 (Reissue 2016, Cum. Supp. 2017)) and may be amended only by the Nebraska Legislature.
- (3) **The contribution rates (in dollars or as a percentage of covered payroll) of those entities for the reporting period:**

Members: Members, who entered the plan between July 1, 2004, and June 30, 2015 and those active members who elected within 90 days of July 1, 2004, contribute nine percent of their monthly salary until the maximum benefit has been earned. After earning the maximum benefit, members contribute five percent of their monthly salary for the remainder of their active service. All other members entering the Plan before July 1, 2015 contribute seven percent of their monthly salary until the maximum benefit has been earned. After earning the maximum benefit, those members contribute one percent of their monthly salary for the remainder of their active service. Members entering the Plan on or after July 1, 2015, contribute ten percent of their monthly salary.

Court fees: Beginning July 1, 2017, a fee of \$6 (previously \$4 effective July 1, 2015) is taxed for each cause of action in district and county courts and a fee of 10% of court costs in county courts is contributed to the Judges Retirement Fund.

Actual court fees for FY 2017 were \$3,578,851, but are expected to increase to \$4,078,851 in FY 2018 with the scheduled increase discussed above.

State contributions: An actuarial valuation is performed each year to determine the actuarial required contribution. To the extent member contributions and court fees are insufficient to meet the full actuarial required contribution, the remainder is paid by the State.

Amount of contributions recognized by the pension plan from the employer during the reporting period (only the total amounts recognized as additions to the plan's fiduciary net position are reflected here): For the fiscal year ending June 30, 2017 the plan received \$3,578,851 in court fees and \$118,714 in additional state appropriations.

Paragraph 40(e): Whether the pension plan issues a stand-alone financial report (or the pension plan is included in the report of a public employee retirement system or another government) that is available to the public and, if so, how to obtain the report: Annually, the Nebraska Public Employees Retirement System prepares stand-alone financial statements for the Judges Retirement System. The audited financial statement reports can be found at:

<http://www.nebraska.gov/auditor/FileSearch/entityresults.cgi?id=Retirement%20Systems%2C%20Public%20Employees>



Paragraph 41: This paragraph requires information to be disclosed regarding the significant actuarial assumptions and other inputs used to measure the TPL. The complete set of actuarial assumptions and other inputs utilized in developing the TPL are outlined in Appendix C. The TPL as of June 30, 2017 was determined based on an actuarial valuation prepared as of July 1, 2017, using the following key actuarial assumptions and other inputs:

Price Inflation	2.75 percent
Wage Inflation	3.50 percent
Salary increases, including wage inflation	3.50 percent
Long-term Rate of Return, net of investment expense, including price inflation	7.50 percent
Municipal Bond Index Rate	3.56 percent
Year FNP is projected to be depleted	N/A
Single Equivalent Interest Rate, net of investment expense, including price inflation	7.50 percent
Cost-of-living adjustment	For members hired before July 1, 2015, it is 2.25% per annum, compounded annually. For member hired after July 1, 2015, it is 1.00% per annum, compounded annually.
Mortality	<p>Pre-retirement mortality rates were based on the RP-2014 White Collar Table for Employees (100% of male rates for males, 55% of female rates for females), projected generationally with MP-2015.</p> <p>Post-retirement mortality rates were based on the RP-2014 White Collar Table for Employees, set back two years, scaled (males: under 80, 1.008; over 80, 1.449; females: under 85, 0.924; over 85, 1.5855; geometrically blended), projected generationally with a SOA projection scale tool using 0.5% ultimate rate in 2035.</p> <p>Disabled mortality rates were based on the RP-2014 Disabled Lives Table (static table).</p>



The actuarial assumptions used in the valuation are based on the results of the actuarial experience study, which covered the four-year period ending June 30, 2015. The experience study report is dated November 17, 2016.

Paragraph 42:

(a): Discount rate (SEIR). The discount rate used to measure the TPL at June 30, 2017 was 7.50 percent. The discount rate used to measure the TPL at June 30, 2016 was 8.00 percent.

(b): Projected cash flows. The projection of cash flows used to determine the discount rate assumed that contributions from members will be made at the current contribution rates as set out in state statute, revenue from court fees will increase due to LB 468 in FY 2018 and then remain level, and that the State of Nebraska will make any additional contribution needed to fund the full actuarial contribution as an additional state appropriation:

- a. Employee contribution rate: Between 1.00% and 10.00% based on hire date and years of service. See Appendix B for more detail.
- b. Court Fees: Beginning July 1, 2017, a fee of \$6 (previously \$4 effective July 1, 2015) is taxed for each cause of action in district and county courts and a fee of 10% of court costs in county courts is contributed to the Judges Retirement Fund. Actual court fees for FY 2017 were \$3,578,851, but are expected to increase to \$4,078,851 in FY 2018 with the scheduled increase discussed above.
- c. State contribution rate: The State makes an additional contribution if the actuarial contribution exceeds the expected member contributions and court fees.
- d. Administrative expenses in the prior year were projected forward with price inflation as an estimate for administrative expenses in the current and future years. The portion of expenses in future years allocated to the current members was based on the proportionate share of covered payroll in each year for the remainder of the existing members to the total covered payroll for all members.

Based on those assumptions, the Plan's FNP was projected to be available to make all projected future benefit payments of current members. Therefore, the long-term expected rate of return on plan investments of 7.50% was applied to all periods of projected benefit payments to determine the TPL.

The FNP projections are based upon the Plan's financial status on the Measurement Date, the indicated set of methods and assumptions, and the requirements of GASB 68. As such, the FNP projections are not reflective of the cash flows and asset accumulations that would occur on an ongoing plan basis, reflecting the impact of future members. Therefore, the results of this test do not necessarily indicate whether or not the fund will actually run out of money, the financial condition of the Plan, or the Plan's ability to make benefit payments in future years.

(c): Long-term rate of return. The long-term expected rate of return on pension plan investments is reviewed regularly as part of the experience study. The experience analysis was performed and



results provided in a report dated November 17, 2016. Generally, several factors are considered in evaluating the long-term rate of return assumption including long-term historical data, estimates inherent in current market data, and an analysis in which best-estimate ranges of expected future real rates of return (expected returns, net of investment expense and inflation), along with estimates of variability and correlations for each asset class, were developed by the System's investment consultant. These ranges were combined to develop the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and then adding expected inflation. The capital market assumptions developed by investment consultants are often intended for use over a 10-year investment horizon and are not always useful in setting the long-term rate of return for funding pension plans which covers a longer timeframe. The long-term rate of return assumption is intended to be a long-term assumption (30 to 50 years) and is not expected to change absent a significant change in the asset allocation, a change in the inflation assumption, or a fundamental change in the market that alters expected returns in future years.

(d): Municipal bond rate. A municipal bond rate was not used in determining the discount rate. If it were required, the rate would be 3.56% on the Measurement Date.

(e): Periods of projected benefit payments. Projected future benefit payments for all current plan members were projected through 2116.

(f): Assumed asset allocation. The target asset allocation and best estimates of arithmetic real rates of return for each major asset class as of the most recent experience study, as provided by the System's investment consultant, Aon Hewitt Investment Consulting, Inc., are summarized in the following table:



Asset Class	Target Allocation	Long-Term Expected Real Rate of Return*
Large Cap U.S. Equity	26.1%	5.83%
Small Cap U.S. Equity	2.9%	7.56%
Global Equity	15.0%	6.51%
International Developed Equity	10.8%	6.80%
Emerging Markets	2.7%	10.55%
Core Bonds	20.0%	1.63%
High Yield	3.5%	5.22%
Bank Loans	5.0%	2.78%
International Bonds	1.5%	1.41%
Private Equity	5.0%	9.70%
Real Estate	<u>7.5%</u>	5.18%
Total	100.0%	

*Arithmetic mean, net of investment expenses

(g): Sensitivity analysis. This paragraph requires disclosure of the sensitivity of the NPL to changes in the discount rate. The following presents the NPL of the System, calculated using the discount rate of 7.50 percent, as well as the System’s NPL calculated using a discount rate that is 1-percentage-point lower (6.50 percent) or 1-percentage-point higher (8.50 percent) than the current rate.

	1% Decrease (6.50%)	Current Discount Rate (7.50%)	1% Increase (8.50%)
Net Pension Liability	\$30,603,840	\$10,896,381	(\$5,997,356)

Paragraph 43: The Plan’s financial statements were prepared on the accrual basis of accounting. Under this method, revenues are recorded when earned and expenses are recorded when a liability is incurred. Employee and employer contributions are recognized in the period in which employee services are performed. Benefits and refunds are recognized when due and payable in accordance with the terms of each Plan.



Investments as reported in the financial statements include long-term investments. Law or legal instruments may restrict these investments. All investments are stated at fair value based on quoted market prices. For investments where no readily ascertainable fair value exists, management has received an estimate of fair value from the investment fund manager based, in part, on real estate appraisals. The State Treasurer is the custodian of all funds; however, investment of funds is under the responsibility of the Nebraska Investment Council.

There have been no changes since the Measurement Date that would materially alter the Plan's financial report.

This information can be found on page 13 of the published financials online at:

<http://npers.ne.gov/SelfService/>. Go to 'Related Links' and click on 'Retirement Plan Audits'.



Paragraph 44 (a) – (c): This paragraph requires a schedule of changes in NPL. The necessary information is provided in the table below for fiscal year ended June 30:

	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability/(Asset) (a) – (b)
Balances at June 30, 2016	\$168,103,750	\$159,240,849	\$8,862,901
Changes for the year:			
Service Cost at end of year	4,997,654		4,997,654
Interest on TPL	13,100,385		13,100,385
Benefit term changes	0		0
Differences between expected and actual experience	(1,714,732)		(1,714,732)
Assumption changes	12,705,465		12,705,465
Court fees		3,578,851	(3,578,851)
State Appropriations		118,714	(118,714)
Employee contributions		1,743,103	(1,743,103)
Net investment income		21,699,250	(21,699,250)
Benefit payments, including member refunds	(9,690,310)	(9,690,310)	0
Administrative expenses		(84,626)	84,626
Other changes		0	0
Net changes	<u>19,398,462</u>	<u>17,364,982</u>	<u>2,033,480</u>
Balances at June 30, 2017	\$187,502,212	\$176,605,831	\$10,896,381

Paragraph 44(d): There is no special funding situation.



Paragraph 45:

(a): The Measurement Date of the NPL is June 30, 2017. The TPL as of June 30, 2017 was determined based upon an actuarial valuation performed as of the Valuation Date, July 1, 2017.

(b): There is no special funding situation.

(c): There were a number of changes in the actuarial assumptions since the Prior Measurement Date. These changes are detailed in Appendix C of this report.

(d): There were no changes in the benefit terms since the Prior Measurement Date.

(e): There were no benefit payments in the measurement period attributable to the purchase of allocated insurance contracts.

(f): Based on the available information, the Nebraska Public Employees Retirement System believes that there are no changes between the Measurement Date of the NPL (June 30, 2017) and the employer's reporting date (June 30, 2018) that are expected to have a significant effect on the NPL.

(g): Please see Section III of this report for the development of the PE.

(h): Since certain expense items are recognized over closed periods each year, the deferred portions of these items must be tracked annually. If the amounts serve to reduce PE they are labeled Deferred Inflows of Resources. If they will increase PE they are labeled Deferred Outflows of Resources. The recognition of these amounts is accomplished on a level dollar basis, with no interest included in the deferred amounts. Experience gains/losses and the impact of changes in actuarial assumptions, if any, are recognized over the average expected remaining service life of the active and inactive Plan members at the beginning of the measurement period. Investment gains and losses are recognized equally over a five-year period.



The following tables provide a summary of the amounts of the Deferred Outflows of Resources and Deferred Inflows of Resources as of the Measurement Date (June 30, 2017). Per GASB 68, reporting of the differences between projected and actual earnings should be on a net basis, with only one Deferred Outflow or Inflow. This information is provided in the following table:

	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows/(Inflows) of Resources
Differences between expected and actual experience	\$3,004	\$3,354,978	(\$3,351,974)
Changes of assumptions	9,708,893	0	9,708,893
Differences between projected and actual earnings	<u>8,787,608</u>	<u>10,042,097</u>	<u>(1,254,489)</u>
Total	\$18,499,505	\$13,397,075	\$5,102,430



The following tables show the Deferred Outflows of Resources and Deferred Inflows of Resources separately to provide additional detail.

Deferred Outflows of Resources				
	June 30, 2016	Additions	Recognition	June 30, 2017
Differences between expected and actual experience				
FY 2014 Base	\$ 12,691	\$ 0	\$ 9,687	\$ 3,004
FY 2015 Base	0	0	0	0
FY 2016 Base	0	0	0	0
FY 2017 Base	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	\$ 12,691	\$ 0	\$ 9,687	\$ 3,004
Changes of assumptions				
FY 2014 Base	\$ 0	\$ 0	\$ 0	\$ 0
FY 2015 Base	0	0	0	0
FY 2016 Base	0	0	0	0
FY 2017 Base	<u>0</u>	<u>12,705,465</u>	<u>2,996,572</u>	<u>9,708,893</u>
Total	\$ 0	\$ 12,705,465	\$ 2,996,572	\$ 9,708,893
Differences between projected and actual earnings				
FY 2014 Base	\$ 0	\$ 0	\$ 0	\$ 0
FY 2015 Base	3,953,695	0	1,317,899	2,635,796
FY 2016 Base	8,202,416	0	2,050,604	6,151,812
FY 2017 Base	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	\$ 12,156,111	\$ 0	\$ 3,368,503	\$ 8,787,608
Total	\$ 12,168,802	\$ 12,705,465	\$ 6,374,762	\$ 18,499,505



Deferred Inflows of Resources				
	June 30, 2016	Additions	Recognition	June 30, 2017
Differences between expected and actual experience				
FY 2014 Base	\$ 0	\$ 0	\$ 0	\$ 0
FY 2015 Base	1,428,408	0	592,700	835,708
FY 2016 Base	1,755,994	0	547,038	1,208,956
FY 2017 Base	<u>0</u>	<u>1,714,732</u>	<u>404,418</u>	<u>1,310,314</u>
Total	\$ 3,184,402	\$ 1,714,732	\$ 1,544,156	\$ 3,354,978
Changes of assumptions				
FY 2014 Base	\$ 0	\$ 0	\$ 0	\$ 0
FY 2015 Base	0	0	0	0
FY 2016 Base	0	0	0	0
FY 2017 Base	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	\$ 0	\$ 0	\$ 0	\$ 0
Differences between projected and actual earnings				
FY 2014 Base	\$ 5,476,165	\$ 0	\$ 2,738,082	\$ 2,738,083
FY 2015 Base	0	0	0	0
FY 2016 Base	0	0	0	0
FY 2017 Base	<u>0</u>	<u>9,130,017</u>	<u>1,826,003</u>	<u>7,304,014</u>
Total	\$ 5,476,165	\$ 9,130,017	\$ 4,564,085	\$ 10,042,097
Total	\$ 8,660,567	\$ 10,844,749	\$ 6,108,241	\$ 13,397,075



(i): Amounts reported as Deferred Outflows of Resources and Deferred Inflows of Resources related to pensions will be recognized in PE in future fiscal years as follows:

Fiscal Year Ending June 30:	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows/(Inflows) of Resources
2019	\$6,368,079	\$6,108,242	\$259,837
2020	6,365,073	3,020,467	3,344,606
2021	5,047,176	2,345,301	2,701,875
2022	719,177	1,923,065	(1,203,888)
2023	0	0	0
Thereafter	0	0	0

(j): Based on information supplied by NPERS, the Judges Retirement System receives no revenue from non-employer contributing entities.



SECTION V – REQUIRED SUPPLEMENTARY INFORMATION

There are several tables of Required Supplementary Information (RSI) that need to be included in the System’s financial statements:

Paragraphs 46(a) - (c): The required tables of schedules are provided in Appendix A.

Paragraph 47: Significant methods and assumptions used in calculating the Actuarially Determined Contributions, if any, should be presented as notes to the schedule required by paragraph 46(c). In addition, for each of the schedules required by paragraph 46, information should be presented about factors that significantly affect trends in the amounts reported.

Changes of benefit and funding terms: The following changes were made by the Nebraska Legislature and reflected in the valuation performed as of July 1 listed below:

- 2017: LB 415, which was passed by the 2017 Nebraska Legislature, made changes to the benefit structure for judges who become members on or after July 1, 2017 by granting the Public Employees Retirement Board (PERB) the authority to set the actuarial assumptions used to determine the benefit amounts payable under optional forms of payment.
- 2015: LB 468, which was passed by the 2015 Nebraska Legislature, made changes to the benefit structure for judges who become members on or after July 1, 2015 including the calculation of final average salary based on the highest 5 years rather than the highest 3 years of salary and a cost-of-living-adjustment (COLA) of 1% rather than 2.5%. The bill also provided for a supplemental COLA, to be granted at the Board’s discretion, up to an additional 1.5% if the System is more than 100% funded. In addition, the member contribution rate for those hired on or after July 1, 2015 was increased to 10% of pay. LB 468 also increased the amount of court fees directed to fund the Judges Retirement System with the increases phased-in over two years. Ultimately, in fiscal year 2018 the additional funding is estimated to be \$1.3 million. Due to the valuation date of July 1, 2015, the change to the benefit structure had no impact on the valuation results.
- 2013: Legislative Bill 553 (LB 553) changed the amortization of the unfunded actuarial accrued liability from a level dollar payment to a level percent of payroll payment. The court fee designated for the Judges Retirement System was scheduled to decrease from \$6 to \$5 dollars on July 1, 2014. Legislative Bill 306 (LB 306) removed the language to decrease the court fees so the court fee in future years remains at six dollars. The passage of Legislative Bill 414 (LB 414) in 2009 increased the member contribution rate by 1 percent, but this increase was scheduled to be removed July 1, 2014. Legislative Bill 306 (LB 306) removed the sunset provision on the increase in the member contribution rate, thereby retaining the higher contribution rates.
- 2009: LB 414 passed during the 2009 Legislative session amended the plan provisions to increase all member contribution rates by 1% and increase the court fees from \$5 to \$6 per case.



Changes in actuarial assumptions:

7/1/2017 valuation:

- Price inflation decreased from 3.25% to 2.75%.
- Long-term investment return decreased from 8.00% to 7.50%.
- General wage growth decreased from 4.00% to 3.50%.
- Salary increase assumption decreased by 0.50% at each age.
- Interest on employee contribution balances decreased from 4.25% to 3.00%.
- Cost of living adjustment assumption decreased to 2.25% for Tier 1 members.
- Mortality assumptions changed to reflect recent mortality experience and future projected improvements.
- Retirement rates changed to better fit the observed experience.

7/1/2012 valuation:

- The interest rate on employee contributions was lowered to 4.25% from 5.50%.
- Salary increase were lowered to 4.00% from 4.50%.
- Retirement rates were decreased for ages under 65 and age 66.
- Pre- and post-retirement healthy mortality assumptions were changed from the 1994 Group Annuity Mortality (GAM) table projected to 2010 (for pre-retirement males rates were 65% of rates and female rates were 50% of rates) to the 1994 GAM table, with a 1 year setback, projected to 2015.
- Deferred vested members were changed to assume they elected the greater of the present value of an annuity at age 63 or a refund of contributions.
- Consumer price inflation was lowered to 3.25% from 3.50%.
- Economic productivity was lowered to 0.75% from 1.00%.

7/1/2008 valuation:

- Retirement rates were increased at ages 62 through 64 to account for the possible increase in retirements due to the subsidized early retirement factors.



Method and assumptions used in calculations of Actuarially Determined Contributions.

The System is funded with contribution rates that vary by date of hire and years of service, court fees that vary from year to year, as well as contributions from the State of Nebraska that cover the remaining required amounts, if necessary. The Actuarially Determined Contributions in the *Schedule of Employer Contributions* are calculated as of the beginning of the fiscal year in which contributions are reported.

The following actuarial methods and assumptions were used to determine the Actuarially Determined Contribution reported for the most recent fiscal year, June 30, 2018 (based on the July 1, 2017 actuarial valuation).

Actuarial cost method	Entry age
Amortization method	Level percentage of payroll, closed
Remaining amortization period	Range from 24 to 30 years (Single Equivalent Amortization Period is 23 years)
Asset valuation method	5-year smoothed market
Price Inflation	2.75 percent
Wage Inflation	3.50 percent
Salary increases, including wage inflation	3.50 percent
Long-term Rate of Return, net of investment expense, including price inflation	7.50 percent
Cost-of-living adjustment	For members hired before July 1, 2015, it is 2.25% per annum, compounded annually. For member hired after July 1, 2015, it is 1.00% per annum, compounded annually.

Please see the information presented earlier in regard to Paragraph 47 for detailed information on the benefit changes and assumption changes that may have impacted the Actuarially Determined Contributions shown in the *Schedule of Employer Contributions*.



APPENDIX A

Exhibit A

GASB 68 Paragraphs 46(a) – (b) SCHEDULE OF CHANGES IN THE NET PENSION LIABILITY/(ASSET)

Fiscal Year Ended June 30

	2017	2016	2015	2014
Total Pension Liability				
Service Cost	\$4,997,654	\$4,721,039	\$4,759,455	\$4,257,200
Interest	13,100,385	12,642,618	12,170,797	11,567,915
Benefit term changes	0	0	0	0
Differences between expected and actual experience	(1,714,732)	(2,303,032)	(2,613,808)	41,752
Assumption changes	12,705,465	0	0	0
Benefit payments, including member refunds	<u>(9,690,310)</u>	<u>(9,052,110)</u>	<u>(8,547,892)</u>	<u>(8,121,996)</u>
Net change in Total Pension Liability	\$19,398,462	\$6,008,515	\$5,768,552	\$7,744,871
Total Pension Liability - beginning	\$168,103,750	\$162,095,235	\$156,326,683	\$148,581,812
Total Pension Liability - ending (a)	\$187,502,212	\$168,103,750	\$162,095,235	\$156,326,683
Plan Fiduciary Net Position				
Court fees	\$3,578,851	\$3,458,665	\$2,977,205	\$3,102,864
State Appropriations	118,714	0	94,000	803,383
Employee contributions	1,743,103	1,651,432	1,610,529	1,518,801
Net investment income	21,699,250	2,453,560	5,958,799	24,543,298
Benefit payments, including member refunds	<u>(9,690,310)</u>	<u>(9,052,110)</u>	<u>(8,547,892)</u>	<u>(8,121,996)</u>
Administrative expenses	<u>(84,626)</u>	<u>(70,707)</u>	<u>(82,746)</u>	<u>(78,263)</u>
Other changes	<u>0</u>	<u>0</u>	<u>3</u>	<u>45</u>
Net change in Plan Fiduciary Net Position	\$17,364,982	(\$1,559,160)	\$2,009,898	\$21,768,132
Plan Fiduciary Net Position – beginning	\$159,240,849	\$160,800,009	\$158,790,111	\$137,021,979
Plan Fiduciary Net Position - ending (b)	\$176,605,831	\$159,240,849	\$160,800,009	\$158,790,111
Net Pension Liability - ending (a) - (b)	\$10,896,381	\$8,862,901	\$1,295,226	(\$2,463,428)
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	94.19%	94.73%	99.20%	101.58%
Covered payroll	\$22,801,593	\$22,178,157	\$21,586,829	\$20,099,647
Employer's Net Pension Liability as a percentage of covered payroll	47.79%	39.96%	6.00%	(12.26%)

Note: Schedule is intended to show 10-year trend. Additional years will be reported as they become available.



Exhibit B
GASB 68 Paragraphs 46(c)
SCHEDULE OF EMPLOYER CONTRIBUTIONS
Fiscal Year Ended June 30

	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Actuarially determined employer contribution	TBD	\$3,697,565	\$3,458,665	\$3,727,054	\$3,906,247	\$3,180,367	\$3,483,614	\$3,579,661	\$3,615,291	\$3,491,335
Court fees	TBD	3,578,851	3,458,665	2,977,205	3,102,864	3,180,367	3,411,370	3,507,417	3,543,047	3,419,091
State contributions	<u>TBD</u>	<u>118,714</u>	<u>0</u>	<u>94,000</u>	<u>803,383</u>	<u>0</u>	<u>72,244</u>	<u>72,244</u>	<u>72,244</u>	<u>72,244</u>
Actual employer contributions	TBD	3,697,565	3,458,665	3,071,205	3,906,247	3,180,367	3,483,614	3,579,661	3,615,291	3,491,335
Annual contribution deficiency (excess)	<u>TBD</u>	<u>\$0</u>	<u>\$0</u>	<u>\$655,849</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>
Covered payroll	TBD	\$22,801,593	\$22,178,157	\$21,586,829	\$20,099,647	\$19,005,478	\$18,182,238	\$18,773,203	\$18,373,339	\$17,990,072
Actual contributions as a percentage of covered payroll	TBD	16.22%	15.59%	14.23%	19.43%	16.73%	19.16%	19.07%	19.68%	19.41%

Note: Actuarially determined employer contributions, actual employer contributions and covered payroll prior to 2013 was produced by the prior actuary.

For years 2014 and prior, covered payroll was estimated based on the valuation.



APPENDIX B

SUMMARY OF MAIN BENEFIT PROVISIONS

Member

Original A judge who first serves prior to December 25, 1969, and who does not elect to become a Future member on or before November 1, 1981.

Future A judge who first serves on or after December 25, 1969, or who elects to become a Future member on or before November 1, 1981.

Participation Date Date of becoming a member.

Definitions

Final average earnings For Judges who became members prior to July 1, 2015, the average of the highest three 12-month periods of covered pay, ending on the earlier of the participant's termination date or retirement date.

For Judges who became members on or after July 1, 2015, the average of the highest five 12-month periods of covered pay, ending on the earlier of the participant's termination date or retirement date.

Fiscal year Twelve month period ending June 30.

Member contributions All members hired after July 1, 2004, but before July 1, 2015, and members that elected an enhanced Joint and Survivor Benefit contribute 9% of pensionable pay up to 20 years of service, and 5% of pensionable pay thereafter. All other members contribute 7% of pensionable pay during the first twenty years of service, and 1% of pensionable pay thereafter. Such contributions are credited with interest based on the 1-year Treasury yield curve on July 1 of each year, as determined by State Statutes.

Judges who first became members on or after July 1, 2015 will contribute 10% of compensation.

Monthly pension benefit A monthly benefit equal to one-twelfth of 3.5% of final average salary times total years of service, subject to a maximum of 70% of final average salary. Effective July 1, 2001, an automatic annual cost-of-living adjustment (COLA) equal to the CPI-W index is provided for current and future retirees. Also provided is a minimum floor benefit equal to 75% of the purchasing power of the original benefit. The maximum increase for any one year is 2.5% for Judges who became members prior to July 1, 2015, and 1.0% for Judges who became members on or after July 1, 2015.



Normal Retirement Date (NRD) Attainment of age 65.

Pension service Length of service includes all service as a Supreme Court, District Court, Worker's compensation Court, separate Juvenile Court, County Court, Municipal Court, or Appeals Court judge in Nebraska, computed to the nearest one-twelfth year and includes declared emergency service in the armed forces.

Eligibility for Benefits

Deferred vested Termination for reasons other than death, disability, or retirement. No service requirement for vesting.

Disability retirement Retirement by reason of permanent disability as determined by the Commission of Judicial qualifications.

Early retirement Retirement before NRD and after attaining age 55.

Normal retirement Retire on NRD.

Postponed retirement Retire after NRD.

Pre-retirement spouse benefit Death prior to retirement.

Monthly Benefits Paid Upon the Following Events

Normal retirement Monthly pension benefit determined as of NRD.

Early retirement Monthly pension benefit determined as of early retirement date, reduced by 3% if the member retires at age 64, 6% at age 63, or 9% at age 62, and actuarially reduced for each month that commencement of payment precedes age 62. The actuarial reduction is based on the 1994 Group Annuity Mortality Table, 25% female, 75% male and 8% interest.

Postponed retirement Monthly pension benefit determined as of actual retirement date.

Termination with deferred vested benefit Members may elect to receive either (i) a refund of their contributions with regular interest, or (II) a deferred normal retirement benefit payable at age 65 and calculated based upon service and salary at the date of termination.

Disability retirement Monthly pension benefit determined as of disability retirement date.

Pre-retirement spouse benefits **1) With 5 or more years of service:** A life annuity is payable to the surviving spouse in the amount which would have been payable had the member retired on the date of death and elected a joint and 100% survivor annuity.



- 2) **With less than 5 years of service:** A lump sum equal to the member's contributions plus regular interest.

Forms of payment

All members hired after July 1, 2004, and members who elected increased contributions are eligible to receive benefits paid in the normal form of an enhanced 50% Joint and Survivor Annuity. All other members receive benefits paid in the normal form of a modified cash refund annuity. Optional forms are: life annuity, life annuity with period certain, contingent annuity and joint annuity. Pre-retirement spouse benefits are payable only as described above.

Funding Arrangement

The Nebraska Retirement Fund for Judges is established in the State Treasury. The fund receives member contributions and pays benefits and expenses. Additional funds are received as follows:

Court Fees

Beginning July 1, 2017, a fee of \$6 (previously \$4 effective July 1, 2015) from each (a) civil cause of action, criminal cause of action, traffic misdemeanor or infraction, and city or village ordinance violation filed in the district courts, the county courts, and the separate juvenile courts, (b) filing in the district court of an order, award, or judgment of the Nebraska Workers' Compensation Court or any judge thereof pursuant to section 48-188, (c) appeal or other proceeding filed in the Court of Appeals, and (d) original action, appeal, or other proceeding filed in the Supreme Court will be re-directed from the General Fund to the Judges' Retirement Fund. In county courts, a sum shall be charged which is equal to 10% of each fee provided by Nebraska statutes sections 33-125 and 33-126.03, rounded to the nearest even dollar.

State

The State makes any additional contributions that are necessary each year to pay the excess of the actuarial contribution (normal cost plus an amortization payment to fund unfunded actuarial accrued liability bases) over member contributions, court fees, and state appropriations.

Benefits Reflected in Valuation

All benefits were valued, including future cost of living increases.

Plan Provision Effective After July 1, 2017

No future changes in plan provisions were recognized in determining the funded status or in determining the State's contribution amount.

Changes since the Prior Year

The 2017 Legislature passed LB 415, which grants the PERB the authority to set the actuarial assumptions used to determine the benefit amounts payable under optional forms of payment for members hired on or after July 1, 2017. Since these changes do not affect any members in the current valuation, the adopted changes have no impact on the valuation results.



APPENDIX C

STATEMENT OF ACTUARIAL ASSUMPTIONS

Economic Assumptions

- 1. Long-term Rate of Return 7.50% per annum, compounded annually, net of all expenses.
- 2. Inflation 2.75% per annum, compounded annually.
- 3. Salary Increases Salaries are assumed to increase 3.50% each year.
- 4. Payroll Growth 3.50% per year
- 5. Interest on Employee
Contributions 3.00% per annum, compounded annually.
- 6. Increases in Compensation
And Benefit Limits 2.75% per annum on the 401(a)(17) compensation limit and
415 benefit limit

Demographic Assumptions

1. Mortality

- a. Healthy lives - Active Members RP-2014 White Collar Table for Employees (100% of male rates for males, 55% of female rates for females), projected generationally with MP-2015.
- b. Healthy lives - Retired Members and Beneficiaries RP-2014 White Collar Table for Employees, set back two years, scaled (males: under 80, 1.008; over 80, 1.449; females: under 85, .924; over 85, 1.5855; geometrically blended), projected generationally from 2013 with a SOA projection scale tool using 0.5% ultimate 2035 rate in 2035.
- c. Disabled Members RP-2014 Disabled Lives Table (static table)
- d. Healthy mortality rates and projection scale are shown below at sample ages:

2014 Base Table Sample Age	Pre-retirement Mortality Mortality Rate	
	Males	Females
20	0.03%	0.01%
30	0.03	0.01
40	0.04	0.02
50	0.12	0.05
60	0.33	0.11



2013 Base Table Sample Age	Post-retirement Mortality Mortality Rate	
	Males	Females
50	0.23%	0.17%
60	0.47	0.31
70	1.03	0.82
80	3.65	2.28
90	14.57	12.63

Sample Age	Projection Scale – Post-retirement Mortality					
	Scale (2020)		Scale (2030)		Scale (2040)	
	Males	Females	Males	Females	Males	Females
50	0.0252	0.0144	0.0080	0.0052	0.0050	0.0050
60	0.0083	0.0051	0.0066	0.0059	0.0050	0.0050
70	0.0088	0.0121	0.0061	0.0057	0.0050	0.0050
80	0.0114	0.0104	0.0057	0.0058	0.0050	0.0050
90	0.0109	0.0104	0.0057	0.0057	0.0046	0.0046

e. Disabled mortality rates are shown below at sample ages:

Sample Age	Males	Females
30	0.79%	0.30%
40	1.10	0.55
50	2.04	1.19
60	2.66	1.70
70	4.03	2.82
80	7.66	6.10

2. Retirement

Rates vary by age. Rates are as follows:

Rates by Age	
Age	Rate
55-59	1.5%
60-61	3.0
62-63	7.0
64	15.0
65	20.0
66-71	15.0
72	100.0

3. Termination

None.

4. Disability

None.



Other Assumptions

- | | |
|------------------------------|---|
| 1. Form of Payment | Modified Cash Refund Annuity under prior plan benefit provisions. A 50% Joint & Survivor Benefit for members electing this provision, and new members hired after July 1, 2004. Deferred vesteds are assumed to take the greater of the present value of an annuity at age 63 or a refund of contributions. |
| 2. Marital Status | |
| a. Percent married | 100% married |
| b. Spouse's age | Females assumed to be three years younger than males. |
| 3. Administrative Expense | Investment return is assumed to be net of expenses. |
| 4. Cost of Living Adjustment | 2.25% per annum, compounded annually for Tier 1 members, 1.00% per annum for Tier 2 members. |
| 5. State Contribution | State contributions for the current plan year are assumed to be contributed in a lump sum on the July 1 following the plan year end. These amounts from the prior plan year are treated as a contribution receivable on the plan's financial statements. |

Changes in Assumptions since the Prior Year

The results of an experience study covering the four-year period ending June 30, 2015 were presented to the Public Employee Retirement Board (PERB) on October 17, 2016. All of the recommended assumption changes were adopted and are first reflected in this valuation. The assumption changes include:

- price inflation decreased from 3.25% to 2.75%,
- long-term investment return decreased from 8.00% to 7.50%,
- general wage growth decreased from 4.00% to 3.50%,
- salary increase assumption decreased by 0.50% at each age,
- interest on employee contribution balances decreased from 4.25% to 3.00%,
- cost of living adjustment assumption decreased to 2.25% for Tier 1 members,
- mortality assumptions changed to reflect recent mortality improvements, and
- retirement rates changed to better fit the observed experience.

TECHNICAL VALUATION PROCEDURES

Data Procedures

Client data caps active service at 20 years. While capping the benefit amount at 20 years of service, we keep a record of actual service beyond 20 years in order to remain consistent with the Entry Age Method.

Salaries for first year members are annualized by using the client's Calculated Salary field. For continuing active members, the Accumulated Salary field is used.

Other Valuation Procedures

Salary increases are assumed to apply to annual amounts.

Decrements are assumed to occur mid-year, except that immediate retirement is assumed for those who are at or above the age at which retirement rates are 100%. Standard adjustments are made for multiple decrements.