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GASB STATEMENT NO. 68 REPORT

FOR THE

NEBRASKA PUBLIC EMPLOYEES

RETIREMENT SYSTEM

STATE PATROL RETIREMENT SYSTEM

MEASUREMENT DATE: JUNE 30, 2019

FOR STATE FISCAL YEAR ENDING: JUNE 30, 2020

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April 9, 2020

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 Systems in providing information required under the Governmental Accounting Standards Board (GASB) Statement No. 68 to the State of Nebraska for the State Patrol 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, 2019, is intended for use in the State's financial reporting for fiscal year 2020. The calculations in this report have been made on a basis that is consistent with our understanding of this accounting standard (GASB 68).

The annual actuarial valuation used as the basis for much of the information presented in this report was performed as of July 1, 2019. The valuation was based upon data, furnished by the staff of the Nebraska Public Employees Retirement Systems, 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 Plan's funding policy.

To the best of our knowledge, the information contained in this report is complete and accurate. Certain information about the Plan 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.

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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,

Patrice Beckham

Brent A. Banister

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

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

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NEBRASKA PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE PATROL RETIREMENT SYSTEM

SECTION I - SUMMARY OF PRINCIPAL RESULTS

Valuation Date (VD):	July 1, 2019
Prior Measurement Date:	June 30, 2018
Measurement Date (MD):	June 30, 2019
Membership Data:	
Retirees and Beneficiaries	448
Members in DROP	25
Disabled Members	15
Inactive Vested Members	23
Inactive Nonvested Members	7
Active Employees	397
Total	915
Single Equivalent Interest Rate (SEIR):	
Long-Term Expected Rate of Return	7.50%
Municipal Bond Index Rate at Prior Measurement Date	3.89%
Municipal Bond Index Rate at Measurement Date	3.50%
Year in which Fiduciary Net Position is Projected to be Depleted	N/A
Single Equivalent Interest Rate at Prior Measurement Date	7.50%
Single Equivalent Interest Rate at Measurement Date	7.50%
Net Pension Liability:	
Total Pension Liability (TPL)	$496,519,265
Fiduciary Net Position (FNP)	436,611,997
Net Pension Liability (NPL = TPL – FNP)	$59,907,268
FNP as a percentage of TPL	87.93%
Pension Expense:	$13,371,975
Deferred Outflows of Resources:	$16,762,096
Deferred Inflows of Resources:	$17,320,979

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 State Patrol 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 State Patrol Retirement System, a Measurement Date of June 30, 2019 was used to determine the Net Pension Liability and Pension Expense for the employer's fiscal year ending June 30, 2020.

This report, prepared as of June 30, 2019 (the Measurement Date), presents information to assist the State Patrol 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, is based on the results of the GASB 67 report for the State Patrol Retirement System of the Nebraska Public Employees Retirement System, which was issued November 26, 2019. 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 (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, 2018 or the June 30, 2019 TPL. The SEIR for both the Measurement Date and the Prior 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 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.

The benefit structure of the State Patrol Retirement System includes a Deferred Retirement Option Plan (DROP). For details on the provision of the DROP, please see Appendix B of this report. In accordance with Paragraph 46(d) of GASB 67, the date of entry into the DROP is considered to be the member's retirement date for purposes of attributing the actuarial present value of projected benefit payments.

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 7.50%, 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, 2019, 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 9.97 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 4.33 years.

The last item under changes in TPL is changes in actuarial assumptions or other inputs. There were no changes in the actuarial assumptions or other inputs since the Prior Measurement Date. If there was such a change, the change would 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, 2019 is shown in the following table.

Pension Expense
For the Year Ended

June 30, 2019	
Service Cost at end of year	$9,079,338
Interest on the Total Pension Liability	35,165,912
Benefit term changes	0
Expensed portion of current-period difference between expected and actual experience in the Total Pension Liability	(661,527)
Expensed portion of current-period assumption changes	0
Employee contributions	(4,710,105)
Projected earnings on plan investments	(31,123,804)
Expensed portion of current-period differences between projected and actual earnings on plan investments	717,406
Administrative expenses	75,872
Other changes	(17,930)
Recognition of beginning Deferred Outflows of Resources	13,895,806
Recognition of beginning Deferred Inflows of Resources	(9,048,993)
Total Pension Expense	**$13,371,975**

Note: Average expected remaining service life for all members is 4.33 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 State Patrol Retirement System can be found on the following pages. Similar information for the Judges' Retirement System and the State Employees' Retirement System 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 State Patrol 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 State Patrol plan has been created in accordance with Internal Revenue Code Sections 401(a) and 414(h), and 414(k). Please refer to Neb. Rev. Stat. §§ 81-2014 through 81-2041 (Reissue 2014, Cum. Supp. 2018) for the State Patrol 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 all officers of the Nebraska State Patrol. Tier 1 members joined the plan prior to July 1, 2016 and Tier 2 members joined the plan on or after July 1, 2016, as well as Tier 1 members who took a refund and returned to the plan on or after July 1, 2016.

(2) Types of benefits: The main benefits provided are retirement benefits. However, the System 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: Unreduced retirement benefits are payable upon meeting the following criteria: (1) age 50 and 25 years of service, (2) age 55 and 10 years of service, or (3) age 60 regardless of service. For Tier 1, the retirement benefit is calculated using the compensation for the three 12-month periods of service in which compensation was the greatest (five 12-month periods with a 8% cap per year for Tier 2 members), multiplied by the total years of service and the formula factor of 3.0 percent, subject to a maximum of 75 percent of the final average salary. The calculation varies with early retirement which is available at age 50 and 10 years of service. Benefits vest when the officer completes six years of service and are fully vested after ten years of service. For Tier 1 members, election into a DROP is available at age 50 and 25 years of service for a maximum of 5 years.

(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 Tier 1, the benefit 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 60% of the purchasing power of the initial benefit. For Tier 2, the benefit is increased by the lesser of the percentage change in the Consumer Price Index for Urban Wage Earners and Clerical Workers or one percent. There is no purchasing power floor for Tier 2.

(5) Authority under which benefit terms are established or may be amended: Benefit and contribution provisions are established by State law (Neb. Rev. Stat. §§ 81-2014 through 81-2041 (Reissue 2014, Cum. Supp. 2018)) 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, 2019 (the Valuation Date). The July 1, 2019 valuation was used to determine the June 30, 2019 TPL.

Membership

Number as of July 1, 2019	
Inactive Members Or Their Beneficiaries Currently Receiving Benefits	448
Members in DROP	25
Disabled Members	15
Inactive Members Entitled To But Not Yet Receiving Benefits	23
Inactive Nonvested Members	7
Active Members	397
Total	915

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 and employer statutory contributions are insufficient to meet the full actuarial required contribution, the remainder is paid by the State as an additional contribution (see 40(d)(3)).

(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. §§ 81-2014 through 81-2041 (Reissue 2014, Cum. Supp. 2018)) 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: 16% of monthly salary for Tier 1 members and 17% of monthly salary for Tier 2 members.

Employer (State) Contributions: 16% of monthly salary for Tier 1 members and 17% of monthly salary for Tier 2 members. In addition, to the extent member and employer statutory contributions are insufficient to meet the full actuarial required contribution, the remainder is paid by the State as an additional contribution. For the fiscal year ending June 30, 2019, the additional contribution made by the State was $3,983,698.

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, 2019, the plan received $4,710,105 in member contributions and total state contributions of $8,693,805.

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 State Patrol 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, 2019 was determined based on an actuarial valuation prepared as of July 1, 2019, 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 to 9.00 percent
Long-term Rate of Return, net of investment expense, including price inflation	7.50 percent

Municipal Bond Index Rate	3.50 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	2.25 percent per annum, compounded annually for Tier 1 members, 1.00 percent per annum, compounded annually for Tier 2 members.
Mortality	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. 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. Disabled mortality rates were based on the RP-2014 Disabled Lives Table (static table).

The actuarial assumptions used in the valuation are based on the results of the most recent 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, 2019 was 7.50 percent. There was no change in the SEIR since the Prior Measurement Date.

(b): Projected cash flows. The projection of cash flows used to determine the discount rate assumed that plan contributions from members and the State of Nebraska will be made at the current contribution rates as set out in state statute:

a. Employee contribution rate: 16% of monthly salary for Tier 1 members and 17% of monthly salary for Tier 2 members.

b. State contribution rate: 16% of monthly salary for Tier 1 members and 17% of monthly salary for Tier 2 members.
c. The State makes any additional contributions that are actuarially required.
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 Plan 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 3.50% on the Measurement Date.

(e): Periods of projected benefit payments. Projected future benefit payments for all current plan members were projected through 2118.

(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	7.5%	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%)
Total Pension Liability	$564,841,940	$496,519,265	$440,906,766
Fiduciary Net Position	436,611,997	436,611,997	436,611,997
Net Pension Liability	$128,229,943	$59,907,268	$4,294,769

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 Plans' 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 needed 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 (a) – (b)
Balances at June 30, 2018	$480,092,201	$420,683,030	$59,409,171
Changes for the year:			
Service Cost at end of year	9,079,338		9,079,338
Interest on TPL	35,165,912		35,165,912
Benefit term changes	0		0
Differences between expected and actual experience	(2,864,410)		(2,864,410)
Assumption changes	0		0
Employer contributions		8,693,805	(8,693,805)
Employee contributions		4,710,105	(4,710,105)
Net investment income		27,536,775	(27,536,775)
Benefit payments, including member refunds	(24,953,776)	(24,953,776)	0
Administrative expenses		(75,872)	75,872
Other changes		17,930	(17,930)
Net changes	16,427,064	15,928,967	498,097
Balances at June 30, 2019	$496,519,265	$436,611,997	$59,907,268

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

Paragraph 45:

(a): The Measurement Date of the NPL is June 30, 2019. The TPL as of June 30, 2019 was determined based upon an actuarial valuation performed as of the Valuation Date, July 1, 2019.

(b): There is no special funding situation.

(c): There were no changes in the actuarial assumptions since the Prior Measurement Date.

(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, 2019) and the employer's reporting date (June 30, 2020) 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, 2019). 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	$0	$6,526,211	($6,526,211)
Changes of assumptions	9,232,818	0	9,232,818
Differences between projected and actual earnings	7,529,278	10,794,768	(3,265,490)
Total	$16,762,096	$17,320,979	($558,883)

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, 2018	Additions	Recognition	June 30, 2019
Differences between expected and actual experience				
FY 2015 Base	$ 0	$ 0	$ 0	$ 0
FY 2016 Base	0	0	0	0
FY 2017 Base	0	0	0	0
FY 2018 Base	0	0	0	0
FY 2019 Base	0	0	0	0
Total	$ 0	$ 0	$ 0	$ 0
Changes of assumptions				
FY 2015 Base	$ 0	$ 0	$ 0	$ 0
FY 2016 Base	0	0	0	0
FY 2017 Base	15,471,210	0	6,238,392	9,232,818
FY 2018 Base	0	0	0	0
FY 2019 Base	0	0	0	0
Total	$ 15,471,210	$ 0	$ 6,238,392	$ 9,232,818
Differences between projected and actual earnings				
FY 2015 Base	$ 2,997,761	$ 0	$ 2,997,761	$ 0
FY 2016 Base	9,319,308	0	4,659,653	4,659,655
FY 2017 Base	0	0	0	0
FY 2018 Base	0	0	0	0
FY 2019 Base	0	3,587,029	717,406	2,869,623
Total	$ 12,317,069	$ 3,587,029	$ 8,374,820	$ 7,529,278
Total	$ 27,788,279	$ 3,587,029	$ 14,613,212	$ 16,762,096

Deferred Inflows of Resources								
		June 30, 2018		Additions		Recognition		June 30, 2019
Differences between expected and actual experience								
FY 2015 Base	$	1,012,838	$	0	$	1,012,838	$	0
FY 2016 Base		3,469,753		0		1,835,847		1,633,906
FY 2017 Base		835,137		0		336,749		498,388
FY 2018 Base		3,103,965		0		912,931		2,191,034
FY 2019 Base		0		2,864,410		661,527		2,202,883
Total	$	8,421,693	$	2,864,410	$	4,759,892	$	6,526,211
Changes of assumptions								
FY 2015 Base	$	0	$	0	$	0	$	0
FY 2016 Base		0		0		0		0
FY 2017 Base		0		0		0		0
FY 2018 Base		0		0		0		0
FY 2019 Base		0		0		0		0
Total	$	0	$	0	$	0	$	0
Differences between projected and actual earnings								
FY 2015 Base	$	0	$	0	$	0	$	0
FY 2016 Base		0		0		0		0
FY 2017 Base		12,171,350		0		4,057,117		8,114,233
FY 2018 Base		3,574,046		0		893,511		2,680,535
FY 2019 Base		0		0		0		0
Total	$	15,745,396	$	0	$	4,950,628	$	10,794,768
Total	$	24,167,089	$	2,864,410	$	9,710,520	$	17,320,979

(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
2021	$11,615,453	$8,495,741	$3,119,712
2022	3,711,832	6,686,724	(2,974,892)
2023	717,406	1,920,212	(1,202,806)
2024	717,405	218,302	499,103
2025	0	0	0
Thereafter	0	0	0

(j): Based on information supplied by NPERS, the State Patrol 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 Plan'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: 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.

2016: Legislative Bill 467 (LB 467) created a new tier of State Patrol members that are employed on or after July 1, 2016. This new tier includes changes to benefits and contributions as follows:

- Member and employer contributions are increased from 16% of pay to 17% of pay.
- Compensation no longer includes compensation for unused sick leave, unused vacation leave, unused holiday compensatory time, unused compensatory time, or any other type of unused leave, compensatory time, or similar benefits, converted to cash payments.
- Final average salary moves from the highest three 12-month periods to the highest five 12-month periods. During the five year period, the member's compensation for the preceding plan year is capped at an eight percent increase.
- The automatic COLA is capped at 1.0% instead of 2.5%. However, a 1.5% discretionary COLA may be granted in addition to the automatic COLA if certain criteria are met.
- The DROP program is eliminated.

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. As scheduled in state statute, the employee and employer contribution rate each decreased from 19% of pay to 16%.

2011: Under LB 382 passed during the 2011 Legislative session, both the member and employer contribution rates were increased from 16% to 19% on July 1, 2011. Effective July 1, 2013, both the member and employer contribution rates were scheduled to decrease to 16%.

2010: As scheduled, the member and employer contribution rates increased to 16% each.

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%.
- Covered payroll growth assumption 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 from 2.50% to 2.25% for members hired before July 1, 2016.
- Mortality assumptions changed to reflect recent mortality experience and future projected improvements.
- Termination 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 increases were changed to rates grading down from 9.50% for less than one year of service to 4.00% at 30 years of service. Prior valuation rates graded from 9.00% for less than one year to 4.50% at 25 years of service.
- Retirement rates were increased for early retirement (reduced benefits available at 50 years of age and 10 years of service) and decreased for normal retirement (unreduced benefits available at 55 years of age and 10 years of service).
- 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.
- The assumption to value deferred vested members was changed to assume they elect the greater of the present value of an annuity at earliest unreduced retirement eligibility or a refund of contributions.
- Consumer price inflation was lowered from 3.50% to 3.25%.
- Economic productivity was lowered from 1.00% to 0.75%.

Method and assumptions used in calculations of Actuarially Determined Contributions.

The Plan is funded by statutory contribution rates for members and the employer (State of Nebraska). State statutes require the State of Nebraska to make additional contributions if the regular, payroll-related contributions are insufficient to meet the actuarial required contribution for the year. 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, 2020 (based on the July 1, 2019 actuarial valuation).

Actuarial cost method	Entry age
Amortization method	Level percentage of payroll, closed
Remaining amortization period	Range from 17 to 30 years (Single Equivalent Amortization Period is 20 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 to 9.00 percent
Long-term Rate of Return, net of investment expense, including price inflation	7.50 percent
Cost-of-living adjustment	2.25 percent per annum, compounded annually for Tier 1 members, 1.00 percent per annum, compounded annually for Tier 2 members.

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

Fiscal Year Ended June 30

	2019	2018	2017	2016	2015	2014
Total Pension Liability						
Service Cost	$9,079,338	$8,794,874	$7,955,722	$8,152,482	$7,562,642	$8,173,815
Interest	35,165,912	34,076,868	32,887,178	32,113,989	31,349,873	30,164,990
Benefit term changes	0	0	0	0	0	0
Differences between expected and actual experience	(2,864,410)	(4,016,896)	(1,508,635)	(8,977,294)	(10,658,914)	(3,787,974)
Assumption changes	0	0	27,947,994	0	0	0
Benefit payments, including member refunds	(24,953,776)	(23,828,680)	(24,139,604)	(19,576,376)	(19,458,540)	(20,010,413)
Net change in Total Pension Liability	$16,427,064	$15,026,166	$43,142,655	$11,712,801	$8,795,061	$14,540,418
Total Pension Liability - beginning	$480,092,201	$465,066,035	$421,923,380	$410,210,579	$401,415,518	$386,875,100
Total Pension Liability - ending (a)	$496,519,265	$480,092,201	$465,066,035	$421,923,380	$410,210,579	$401,415,518
Plan Fiduciary Net Position						
Employer contributions	$8,693,805	$8,952,649	$7,053,110	$7,053,408	$8,646,426	$8,752,627
Employee contributions	4,710,105	4,615,214	4,500,952	4,365,651	4,180,263	4,134,598
Net investment income	27,536,775	33,872,593	48,679,867	5,491,550	13,332,650	54,950,250
Benefit payments, including member refunds	(24,953,776)	(23,828,680)	(24,139,604)	(19,576,376)	(19,458,540)	(20,010,413)
Administrative expenses	(75,872)	(89,102)	(141,196)	(128,156)	(116,679)	(121,153)
Other changes	17,930	23,184	28,557	26,778	21,619	21,199
Net change in Plan Fiduciary Net Position	$15,928,967	$23,545,858	$35,981,686	($2,767,145)	$6,605,739	$47,727,108
Plan Fiduciary Net Position – beginning	$420,683,030	$397,137,172	$361,155,486	$363,922,631	$357,316,892	$309,589,784
Plan Fiduciary Net Position - ending (b)	$436,611,997	$420,683,030	$397,137,172	$361,155,486	$363,922,631	$357,316,892
Net Pension Liability - ending (a) - (b)	$59,907,268	$59,409,171	$67,928,863	$60,767,894	$46,287,948	$44,098,626
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	87.93%	87.63%	85.39%	85.60%	88.72%	89.01%
Covered payroll	$29,301,599	$28,697,715	$28,091,906	$27,047,938	$26,294,294	$25,624,081
Employer's Net Pension Liability as a percentage of covered payroll	204.45%	207.02%	241.81%	224.67%	176.04%	172.10%

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

	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Actuarially determined employer contribution	TBD	8,693,805	8,952,649	7,053,110	7,053,408	8,073,824	8,752,627	9,768,585	7,774,506	7,563,126
Actual employer contributions*	TBD	8,693,805	8,952,649	7,053,110	7,053,408	8,073,824	8,752,627	7,515,905	7,774,506	5,956,747
Annual contribution deficiency (excess)	TBD	0	0	0	0	0	0	2,252,680	0	1,606,379
Covered payroll	TBD	29,301,599	28,697,715	28,091,906	27,047,938	26,294,294	25,624,081	26,901,711	27,390,926	27,987,900
Actual contributions as a percentage of covered payroll	TBD	29.67%	31.20%	25.11%	26.08%	30.71%	34.16%	27.94%	28.38%	21.28%

* Includes any additional appropriations by the State beyond the regular, payroll-related contributions. 2015 excludes $572,602 in military service credits.

Note: Information prior to 2013 was produced by the prior actuary.

APPENDIX B

SUMMARY OF MAIN BENEFIT PROVISIONS

Member	Any member of the Nebraska State Patrol, permanent force.
Participation Date	Date of becoming a member.
Benefit Tiers	Tier 1 refers to participants who joined the plan prior to July 1, 2016. Tier 2 refers to participants who joined the plan on or after July 1, 2016, as well as Tier 1 participants who took a refund and returned to the plan on or after July 1, 2016.

Definitions

Covered pay	Gross annual earnings subject to contributions.
Final average compensation	For Tier 1 participants, it is 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 Tier 2 participants, it is 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.
Salary caps	For Tier 2 participants only, increases in compensation during the final five plan years of employment will be capped at 8% per year.
Pension service	Length of service includes all service with the Nebraska State Patrol, permanent force, computed to the nearest one-twelfth year, plus declared emergency service in the armed forces.
Fiscal year	Twelve month period ending June 30.
Member and employer contributions	Tier 1 participants contribute 16.0% of covered pay. 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. Employer contributions on Tier 1 Covered Pay are 16.0% of monthly salary. (Prior to July 1, 2013, employee and employer contribution rates for Tier 1 members were 19.0% of pay.). Tier 2 participants contribute 17.0% of covered pay. 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. Employer contributions on Tier 2 Covered Pay are 17.0% of monthly salary. The State makes any additional contributions that are actuarially required.

Pension benefit	3.0% of Final Average Compensation times Pension Service. The benefit is subject to a maximum of 75% of Final Average Compensation. Effective July 1, 2001, an automatic annual cost-of-living adjustment (COLA) equal to the CPI-W index is granted to each participant who has been retired for at least one full fiscal year. For Tier 1 participants, the COLA is capped at 2.5%, unless the benefit drops below 60% of the purchasing power of the original benefit. For Tier 2 participants, the COLA is capped at 1.0% and there is no purchasing power floor.
Normal Retirement Date (NRD)	First of month coinciding with or next following (a) the completion of 25 years of service and attaining age 50, (b) the completion of ten years of service and attaining age 55, or (c) attaining age 60 regardless of service.

Eligibility for Benefits

Deferred vested	Termination for reasons other than death, disability, or retirement after completing at least six years of pension service.
Disability retirement	Retirement by reason of disability as defined by State Statutes.
Early retirement	Retirement before NRD and on or after both attaining age 50 and completing ten years of pension service.
Normal retirement	Retire on NRD.
Postponed retirement	Retire after NRD.
Post-retirement death benefit	Death after retirement with surviving spouse or dependent children under age 19. For non-disability retirement, the surviving spouse must have been married to the member at the date of retirement.
Pre-retirement death benefit	Death prior to retirement.

Monthly Benefits Paid Upon the Following Events

Normal retirement	Pension benefit determined as of NRD.
Early retirement	Pension benefit determined as of early retirement date, reduced by 5/9% for each month that commencement (which must be after age 50 and ten years of service) of payment precedes the earlier of age 55 or completion of 25 years of service. No reduction is made after 25 years of service.
Postponed retirement	Monthly pension benefit determined as of actual retirement date.

Termination with deferred vested benefit	Refund of contributions with regular interest or a percentage of the pension benefit determined as of termination date, reduced by 5/9% for each month that commencement (which must be after age 50 and ten years of service) of payment precedes the earlier of age 55 or completion of 25 years of service. This percentage is based upon completed years of pension service as follows:

Years	Vested Percentage
5 and under	0%
6	20
7	40
8	60
9	80
10 or more	100

Disability retirement	A monthly benefit equal to 50% of current monthly salary at the date of disablement for members with less than 17 years of service. For members with more than 17 years of service, a monthly benefit equal to the product of 3% of final monthly salary, times total years of service subject to a maximum of 75% of Final Average Compensation.
Pre-retirement death benefits	**Surviving spouse or dependent children under age 19:** Benefit is computed as if member retired for disability on the date of death. This benefit is payable to the surviving spouse as long as spouse has dependent children under age 19. If spouse dies or remarries, 75% of this benefit continues to children until the youngest attains age 19. If there are no dependent children under age 19, 75% of this benefit is payable to the surviving spouse until death or remarriage. **No surviving spouse or dependent children under age 19:** A lump sum equal to the member's contributions plus regular interest.
Post-retirement death benefits	100% of member's annuity is payable to the surviving spouse provided spouse has dependent children under 19. If there is no surviving spouse or spouse dies or remarries, 75% of member's annuity continues to children until the youngest attains age 19. If there are no dependent children under age 19, 75% of member's annuity continues to surviving spouse.
Forms of payment	Normal form is 75% Joint and Survivor benefit. Members may also elect a refund of contributions. If there is no surviving spouse or dependent children under age 19, the member's accumulated contributions with interest are paid to the beneficiary or estate.

Deferred Retirement Option Plan (DROP)	A Tier 1 member may elect to participate in the DROP after they attain age 50 with 25 years of service. A member can continue to work while participating in the DROP, but must terminate employment within 5 years of entry into the DROP. The member's retirement benefits would be calculated as of the DROP entry date. The monthly payments that begin at entry into the DROP are accumulated until the member terminates service, at which time the DROP accumulated benefits and investment income can be paid as a lump sum, rollover or annuity. The COLA for retirees would not apply to the member during participation in the DROP and both the member and employer contributions cease upon entry into the DROP. Tier 2 members cannot participate in DROP.

Benefits Reflected in Valuation

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

Plan Provisions Effective After July 1, 2019

No future changes in plan provisions were recognized in determining the funded status or in determining the actuarial soundness of statutory contribution levels.

Changes in Plan Provisions Since the Prior Year

There have been no changes to plan provisions since the prior year.

APPENDIX C

STATEMENT OF ACTUARIAL ASSUMPTIONS

1. Long-term Expected Rate of Return — 7.50% per annum, compounded annually, net of expenses.

2. Inflation — 2.75% per annum, compounded annually.

3. Salary Increase — Rates vary by service. Sample rates are as follows:

Rates by Service	
Years	**Rate***
<1	9.0%
5	6.1
10	5.1
15	5.0
20	5.0
25	5.0
30	3.5

4. Payroll Growth — 3.50% per annum

5. Interest on Employee Contributions — 3.00% per annum, compounded annually.

6. Increases on Compensation And Benefit Limits — 2.75% per annum on the 401(a)(17) compensation limit and the 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, 0.924; over 85, 1.5855; geometrically blended), projected generationally from 2013 with a Society of Actuaries (SOA) projection scale tool using 0.5% ultimate rate in 2035.

   c. Disabled lives — RP-2014 Disabled Lives Table (static table)

d. Healthy mortality rates and life expectancies are shown below at sample ages:

	Pre-retirement Mortality	
	Mortality Rate	
Sample Age	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

	Post-retirement Mortality	
	Mortality Rate	
Sample Age	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

	Projection Scale – Post-retirement Mortality					
	Scale (2020)		Scale (2030)		Scale (2040)	
Sample Age	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

Retirement is assumed to occur upon attaining certain age and service requirements. The retirement assumption varies depending on benefit eligibility and age at retirement.

Early/Normal Retirement Eligibility	Age and Service Requirements	Retirement Assumption
Reduced	Age 50 Service: 10 years	3% at each age
Unreduced	Age 55 Service: 10 years	10% at each age
Unreduced (Eligible for DROP)	Age 50 Service: 25 years	100% at each age
Unreduced (Mandatory)	Age 60	100% at each age

3. Termination

Rates vary by service. Sample rates are as follows:

Rates by Service	
Years	Rate
<1	4.00%
1	3.75
5	2.75
10	2.00
15	1.25
20+	0.00

4. Disability

Rates vary by age. Sample rates are as follows:

Rates by Age	
Age	Rate
25	0.08%
30	0.10
35	0.13
40	0.20
45	0.31
50	0.52
55	0.91
60	1.36

OTHER ASSUMPTIONS

1. Form of Payment	75% Joint & Survivor Annuity. Deferred vesteds are assumed to take the greater of the present value of an annuity at earliest unreduced eligibility 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. Children	All members are assumed to have one dependent child at death or retirement. The child is assumed to be 28 years younger than the member, and is assumed to always survive until age 19.
4. Administrative Expense	Investment return is assumed to be net of investment and administrative expenses.
5. Cost of living adjustments	2.25% per annum, compounded annually for Tier 1 members. 1.00% per annum, compounded annually for Tier 2 members.
6. DROP participation	All members elect the DROP at the earliest possible date and remain in the DROP for 4 years or to age 60, if earlier.
7. State Contribution	Additional 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

There have been no changes to the assumptions since the prior year.