

## CONDUENT

© 2017 Conduent Business Services, LLC. All rights reserved. Conduent ${ }^{T M}$ and Conduent Design ${ }^{\mathrm{TM}}$ are trademarks of Conduent Business Services, LLC in the United States and/or other countries.

Other company trademarks are also acknowledged.
Document Version: R:\Baus\NJ\Reports\2016 Reports\GASB 67\New Assumption\2016 PFRS GASB 67 Update.docx

March 미, 2017

Director of the Division of Pension and Benefits
Division of Pension and Benefits
50 West State Street
One State Street Square
CN 295
Trenton, New Jersey 08625-0295

## Director:

This valuation provides information concerning the Police and Firemen's Retirement System of New Jersey in accordance with the Governmental Accounting Standards Board (GASB) Statement No. 67. This Statement is an amendment of Statements No. 25, Financial Reporting for Defined Benefit Pension Plans and Note Disclosures for Defined Contribution Plans, and No. 50, Pension Disclosures, effective for the fiscal years ending June 30, 2014 and later.

We certify that the information contained in this Actuarial Report has been prepared in accordance with generally accepted actuarial principles and practices. To the best of our knowledge, the information fairly presents the actuarial position of the Police and Firemen's Retirement System of New Jersey in accordance with the requirements of GASB Statement No. 67 as of June 30, 2016.

The Board of Trustees may use this report for the review of the operation of the Plan and as a source of information for the State financial statements. The report may also be used in the preparation of the Plan's audited financial statements.

Use of this report for any other purpose or by anyone other than the Board of Trustees or the staff of the Division of Pensions and Benefits may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods, or inapplicability of the report for that purpose. You should ask Conduent to review any statement you wish to make on the results contained in this report. Conduent will accept no liability for any such statement made without prior review by Conduent.

Future actuarial measurements may differ significantly from current measurements due to Plan experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in Plan provisions or applicable law. An analysis of the potential range of such future differences is beyond the scope of this valuation.

In preparing the actuarial results, we have relied upon information provided by the Division of Pensions and Benefits regarding Plan provisions, Plan participants, Plan assets, contribution rates and other matters used in the actuarial valuation. Although we did not audit the data, we reviewed the data for reasonableness and consistency with the prior year's information. The accuracy of the results presented herein is dependent on the accuracy of the data.

As required under Chapter 255, P.L. 1944, experience studies are performed once in every three year period. The valuation was prepared using the demographic assumptions recommended on the basis of the July 1, 2010 - June 30, 2013 Experience Study and approved by the Board of Trustees at the February 9, 2015 Board meeting. The Treasurer has recommended a change in the economic assumptions to be used effective with the July 1, 2016 valuation. The rate of investment return has been revised from $7.90 \%$ per annum to $7.65 \%$ per annum. The assumed future salary increases have been reduced by $0.5 \%$ at all ages for both the select and ultimate periods. In addition, the select period was extended from the fiscal year 2021 to the fiscal year 2026. Detailed information with regard to the change in the salary increase assumption is outlined in Section II. These assumptions will remain in effect for valuation purposes until such time the Board or Treasurer recommends revised assumptions.

## CONDUENT

In my opinion, the actuarial assumptions used are appropriate for purposes of the valuation and are reasonably related to the experience of the System and to reasonable long-term expectations. The mortality improvement assumption was selected in accordance with Actuarial Standard of Practice No. 35.

If there is reason to believe that the assumptions that were used are unreasonable, that the Plan provisions are incorrectly described, that important Plan provisions relevant to this actuarial report are not described, or that conditions have changed since the calculations were made, you should contact the authors of this actuarial note prior to relying on this information.

This report was prepared under my supervision. I am a Fellow of the Society of Actuaries and a Member of the American Academy of Actuaries. I meet the Academy's qualification Standards to issue this Statement of Actuarial Opinion. This report has been prepared in accordance with all applicable Actuarial Standards of Practice. I am available to answer questions and supply any additional information.

Respectfully submitted,


Aaron Shapiro, FSA, EA, MAAA
Principal, Consulting Actuary
Conduent

## Table of Contents

Section I
GASB 67 Information ..... 1Section II
Actuarial Assumptions and Methods ..... 12
Section II
Summary of Plan Provisions ..... 15

## Section I - GASB 67 Information

## Notes to the Financial Statements for the Year Ended June 30, 2016

## Summary of Significant Accounting Policies

Method used to value investments. Investments are reported at fair value.
Actuarial cost method. Entry Age Normal - Level Percentage of Pay

## Plan Description

Plan administration. The State of New Jersey Division of Pensions and Benefits administers the Police and Firemen's Retirement System of New Jersey (Plan), a governmental cost sharing multiple-employers defined benefit pension plan that provides pensions for all individuals who become full-time policemen and firemen and who at the time of enrollment are no older than age 35.

The general responsibility for the proper operation of the Plan is vested in the Board of Trustees (Board), and the pension committees established pursuant to Chapter 78 P.L. 2011.

The Board of Trustees consists of 11 members, two policeman and two firemen who are active members of the System, one retiree of the System, five members appointed by the Governor and the State Treasurer. The Director of the Division of Pensions and Benefits of the State Department of the Treasury shall appoint a qualified employee of the division who shall be the secretary of the Board.

In accordance with Chapter 78, P.L. 2011, a pension committee is to be established for the State portion of the System and the Local portion of the System when the "target funded ratio" is achieved. The "target funded ratio" is defined as the ratio of the actuarial value of assets over the actuarially determined accrued liabilities expressed as a percentage that will be $75 \%$ in State fiscal year 2012, and increased annually by equal increments in each of the subsequent seven fiscal years, until the ratio reaches $80 \%$ at which time it is to remain for all subsequent fiscal years. The Local portion of the System has attained the required "target funded ratio" in Fiscal Year 2012, thus a pension committee has been established for the Local Employer portion of the System. The State portion of the System has not attained the required "target funded ratio" in fiscal Years 2012, 2013, 2014, or 2015, thus a pension committee has not yet been established for the State portion of the System.

The pension committees consist of ten members; five members appointed by the Governor as representatives of the public employer whose employees are enrolled in the retirement system, two members who shall be appointed by the head of the union representing the greatest number of police office members, one member who shall be appointed by the head of the union representing the second greatest number of police officer members, one member appointed by the head of the union representing the greatest number of firefighter members and one member who shall be appointed by the head of the union representing the second greatest number of firefighter members.

Chapter 78, P.L. 2011 grants the authority to amend the benefit terms of the Plan to the pension committees. The pension committees will have the discretionary authority to modify the member contribution rate, formula for calculation of final compensation, age at which a member may be eligible and the benefits for service and special retirement and benefits provided for disability benefit. The pension committees will have the authority to reactivate the cost of living adjustment and set the duration and extent of the activation. The pension committees must give priority consideration to the reactivation of the cost of living adjustment. No decision of the pension committees shall be implemented if the direct or indirect result of the decision will be that the Plan's funded ratio falls below the target funded ratio in any valuation period during the 30 years following the implementation of the decision.

Plan membership. Pension plan membership consisted of the following:

|  | $\underline{\text { June 30, 2014 }}$ | $\frac{\text { June 30, 2015 }}{}$ |
| :--- | ---: | ---: |
| Inactive plan members or beneficiaries currently receiving | 40,334 | 41,824 |
| Inactive plan members entitled to but not yet receiving | 55 | 51 |
| Active plan members | $\underline{40,106}$ | $\underline{40,359}$ |
|  | $\underline{80,495}$ | $\underline{\underline{82,234}}$ |

Benefits provided. Please see Section III of the report for a summary of Plan provisions.

Contributions. The Board establishes contributions based on an actuarially determined contribution recommended by an independent actuary and a contribution for the Non-Contributory Group Insurance Premium Fund (NCGIPF). The actuarially determined contribution is the estimated amount necessary to finance the costs of benefits earned by Plan members during the year, with an additional amount to finance a portion of any unfunded accrued liability. For the year ended June 30, 2016, the State and Local Employers contributed $\$ 961,499,567$ to the Plan, per the financial statement. This amount excludes delayed enrollments, delayed appropriations, additional employer contributions, retroactive employer contributions, and transfer from other Systems. In addition, the administrative loan fee revenue is not included and has been used as an offset to administrative expenses.

## Investments

Rate of return. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested. A system specific moneyweighted rate of return has not been calculated. The annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, for the co-mingled trust is as follows.

$$
\frac{\text { June 30, } 2015}{4.08 \%} \quad \frac{\text { June 30, } 2016}{(1.15) \%}
$$

## Receivables

Short term contributions due as of the end of the reporting period. The statutorily required Local employers' receivable pension contributions due by the end of the reporting period. The Local employers' statutorily required contribution is calculated as of the July 1 preceding the fiscal year in which contributions are made. The fiscal year ended June 30, 2015 Plan Fiduciary Net Position includes the statutorily required contribution of $\$ 776,513,844$ which was determined by the July 1, 2014 actuarial valuation and is payable by June 30, 2016 and a contribution of $\$ 36,337,000$ for the NCGIPF. The fiscal year ended June 30, 2016 Plan Fiduciary Net Position includes the statutorily required contribution of $\$ 779,745,389$ which was determined by the July 1, 2015 actuarial valuation and is payable by June 30, 2017 and $\$ 35,500,000$ for the NCGIPF.

Contributions that are payable to the pension plan more than one year after the end of the reporting period. The present value as of the end of the Plan's reporting period of statutorily required contributions to the Plan by certain Local employers who participated in Chapter 19, P.L. 2009 and/or incurred additional liabilities due to its adoption of prior early retirement incentive programs. Please see Section III of the report for a summary of Plan provisions.

The Plan Fiduciary Net Position includes the following Local employers' receivables which are contributions that are payable to the pension plan more than one year after the end of the reporting period:

Chapter 19, P.L. 2009
Early Retirement Incentive Programs
Total

| Present Value as of Fiscal Year Ended |  |
| :---: | ---: |
| $\frac{\text { June 30, 2015 }}{\$ 140,757,467}$ | $\frac{\text { June 30, 2016 }}{\$ 129,299,915}$ |
| $\frac{14,274,396}{155,031,863}$ | $\$ \frac{12,887,608}{142,187,523}$ |

## Net Pension Liability

The components of the net pension liability were as follows:

June 30, 2015
\$ 47,517,765,905
$(25,106,858,921)$
\$ 22,410,906,984

June 30, 2016
\$ 49,402,169,913
$(23,984,726,664)$
\$ 25,417,443,249

Total pension liability Plan fiduciary net position Plan's net pension liability Plan fiduciary net position as a percentage of the total pension liability

## Actuarial assumptions

The total pension liability as of June 30, 2016 was determined by rolling forward the Plan's total pension liability as of July 1, 2015 to June 30, 2016 using the following actuarial assumptions, applied to all periods included in the measurement. In addition, an amount of $\$ 358,929$ has been added to the liability as of June 30, 2016 equal to the amount in the June 30, 2016 Plan Fiduciary Net Position for transfers from other systems. All other methods and assumptions used to determine the total pension liability are set forth in Section II and are consistent with the assumptions used for the July 1, 2015 actuarial valuation.

The actuarial cost method used to develop the total pension liability is the Entry Age Normal Cost-Level Percent of Pay method, as required by GASB Statements No. 67.

The Treasurer has recommended a change in the economic assumptions to be used effective with the July 1, 2016 valuation. The rate of investment return has been revised from $7.90 \%$ per annum to $7.65 \%$ per annum. The assumed future salary increases have been reduced by $0.5 \%$ at all ages for both the select and ultimate periods. In addition, the select period was extended from the fiscal year 2021 to the fiscal year 2026.

## Long-Term Expected Rate of Return

The arithmetic mean return on the portfolio was determined using a building-block method in which bestestimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of arithmetic rates of return for each major asset class included in the pension plan's target asset allocation as of June 30, 2016 are summarized in the following table. The capital market assumptions are per Conduent's investment consulting practice for 2016.

| Asset Class | Index | Target Allocation* | Long-Term Expected Real Rate of Return |
| :---: | :---: | :---: | :---: |
| Cash | Citigroup 90-Day T-Bills | 5.00\% | 0.87\% |
| U.S. Treasuries | Barclays Long U.S. Treasury | 1.50\% | 1.74\% |
| Investment Grade Credit | Aggregate Bonds | 8.00\% | 1.79\% |
| Mortgages | Barclays Mortgage | 2.00\% | 1.67\% |
| High Yield Bonds | Barclays High Yield | 2.00\% | 4.56\% |
| Inflation-Indexed Bonds | Barclays U.S. TIPS | 1.50\% | 3.44\% |
| Broad US Equities | Wilshire 5000/Russell 3000 | 26.00\% | 8.53\% |
| Developed Foreign Equities | MSCI EAFE | 13.25\% | 6.83\% |
| Emerging Market Equities | MSCI Emerging Markets | 6.50\% | 9.95\% |
| Private Equity | Cambridge Associates | 9.00\% | 12.40\% |
| Hedge Funds/Absolute Return | HFRI Fund of Funds | 12.50\% | 4.68\% |
| Real Estate (Property) | NCREIF Property Index | 2.00\% | 6.91\% |
| Commodities | S\&P GSCI | 0.50\% | 5.45\% |
| Global Debt ex US | Barclays Global Aggregate ex US | 5.00\% | -0.25\% |
| REIT | FTSE NAREIT | 5.25\% | 5.63\% |
| Assumed Inflation - Mean |  |  | 3.08\% |
| Assumed Inflation - Standard Deviation |  |  | 2.59\% |
| Portfolio Arithmetic Mean Return** |  |  | 9.39\% |
| Portfolio Standard Deviation |  |  | 12.13\% |
| Long-Term Expected Rate of Return selected by State Treasurer |  |  | 7.65\% |

[^0]The Tables presented in pages 8 through 11 illustrate the projections and calculations used to determine the discount rate as required by paragraphs 40-45 of this Statement as of June 30, 2016. A similar analysis was performed in determining the discount rate as of June 30, 2015. In determining the discount rate on Tables 1 and 2, the Fiduciary Net Plan Position at the beginning of each year does not reflect receivable contributions as those amounts are not available at the beginning of the year to pay plan benefits. The discount rate is the single rate that reflects (1) the long-term expected rate of return on Plan investments that are expected to be used to finance the payment of benefits, to the extent that the Plan's fiduciary net position is projected to be sufficient to make projected benefit payments and Plan assets are expected to be invested using a strategy to achieve that return, and (2) a yield or index rate for 20-year, tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher (or equivalent quality on another scale), to the extent that the conditions for use of the long-term expected rate of return are not met.

Discount rate. The discount rates used to measure the total pension liability were $5.79 \%$ as of June 30, 2015 and $5.55 \%$ as of June 30, 2016. As discussed with the Division of Pensions and Benefits, the projection of cash flows used to determine the discount rate as of June 30, 2016 assumed:

- As required under Chapter 255, P.L. 1944, experience studies are performed once in every three year period. The valuation was prepared using the demographic assumptions recommended on the basis of the July 1, 2010 - June 30, 2013 Experience Study and approved by the Board of Trustees at the February 9, 2015 Board meeting. Please see Section II of the report for a summary of the revised demographic assumptions.
- The Treasurer has recommended a change in the economic assumptions to be used effective with the July 1, 2016 valuation. The rate of investment return has been revised from $7.90 \%$ per annum to $7.65 \%$ per annum. The assumed future salary increases have been reduced by $0.5 \%$ at all ages for both the select and ultimate periods. In addition, the select period was extended from the fiscal year 2021 to the fiscal year 2026. Detailed information with regard to the change in the salary increase assumption is outlined in Section II.
- It is assumed that the Locals will contribute $100.0 \%$ of their actuarially determined contribution and the NCGIPF contribution while the State will contribute $30.00 \%$ of the actuarially determined contribution and $100 \%$ of its NCGIPF contribution. The $30.00 \%$ contribution rate is the actual State contribution rate paid in fiscal year ending June 30, 2016 with respect to the actuarially determined contribution for the fiscal year ending June 30, 2016.

Based on these assumptions, the pension Plan's fiduciary net position was projected to be available to make all projected future benefit payments of current Plan members until fiscal year 2050. Municipal bond rates of $3.80 \%$ as of June 30, 2015 and $2.85 \%$ as of June 30, 2016 were used in the development of the blended GASB discount rate after that point. As selected by the State Treasurer, the rates are based on the Bond Buyer Go 20-Bond Municipal Bond Index. Based on the long-term rate of return of $7.90 \%$ and the municipal bond rate of $3.80 \%$ as of June 30, 2015 and the long-term rate of return of $7.65 \%$ and the municipal bond rate of $2.85 \%$ as of June 30, 2016, the blended GASB discount rates are $5.79 \%$ as of June 30, 2015 and $5.55 \%$ as of June 30, 2016. The assumed discount rate has been determined in accordance with the method prescribed by GASB Statement No. 67. We believe this assumption is reasonable for the purposes of the measurements required by the Statement.

The projections of the Fiduciary Net Plan Position are based on contributions to the plan in accordance with the State and the Local Employers' current funding policy. Should contributions to the Plan be different from those outlined above, the results shown in Tables 1 and 2 would be different and may result in the Fiduciary Net Plan Position not being sufficient to cover the Plan's benefit payments at some other future date and thus changing the discount rate used to determine the Plan's Total Pension Liability.

Sensitivity of the net pension liability to changes in the discount rate. The following presents the net pension liability, calculated using the discount rate of $5.55 \%$, as well as what the Plan's net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (4.55\%) or 1-percentage-point higher ( $6.55 \%$ ) than the current rate:

|  | $1 \%$ <br> Decrease | Current <br> Discount Rate <br> $(5.55 \%)$ | $1 \%$ <br> Increase <br> $(6.55 \%)$ |
| :---: | :---: | :---: | :---: |
| Net Pension Liability | $\$ 32,312,095,296$ | $\$ 25,417,443,249$ | $\$ 19,797,527,320$ |

## Schedules of Required Supplementary Information

Schedule of Changes in the Net Pension Liability and Related Ratios

|  | Increase (Decrease) |  |  |
| :--- | :---: | :---: | :---: |
| Changes in Net Pension Liability | Total Pension <br> Liability | Plan Fiduciary Net <br> Position | Net Pension <br> Liability <br> (a) |
|  | (a) | (b) | (a) - b) |

Balances as of June 30, 2015
Changes for the year:
Service cost
Interest on total pension liability
Effect of plan changes
Effect of economic/demographic (gains)
or losses
Effect of assumptions changes or inputs
Benefit payments
Administrative expenses
Member contributions
Net investment income
Employer contributions
Transfers from other system
Employer contribution - Delayed
Enrollment
Employer contribution - Delayed
Appropriations
Employer contribution - Retroactive
Employer contribution - Additional
$\$ 47,517,765,905 \quad \$ 25,106,858,921$
\$22,410,906,984

| $1,148,613,712$ | $1,148,613,712$ |
| ---: | ---: |
| $2,751,445,220$ | $2,751,445,220$ |
| 0 | 0 |

Effect of economic/demographic (gains)
or losses
$(34,916,637)$
$343,078,737$
$(2,324,175,953)$
Administrative expenses
(2,324,175,953)
(34,916,637)
343,078,737
$(4,292,891)$
4,292,891
$(388,681,408)$
150,693,159
$(961,499,567)$
0
$(142,034)$
$(763,176)$
$(3,661,101)$
$(1,923,531)$
Balances as of June 30, 2016
\$ 49,402,169,913
\$ 23,984,726,664
\$ 25,417,443,249

Plan fiduciary net position as a percentage of the total pension liability
48.55\%

Covered-employee payroll as of the July 1, 2015 actuarial valuation
\$3,695,509,355
Net pension liability as a percentage of covered-employee payroll
687.79\%

## Notes to Schedule:

## Benefit changes. None.

Changes of assumptions. The discount rate changed from $5.79 \%$ as of June 30, 2015 to $5.55 \%$ as of June 30, 2016 in accordance with Paragraph 44 of the GASB Statement No. 67. The Total Pension Liability as of June 30, 2016 reflects the mortality improvement scale update from Scale BB to the Conduent Modified 2014 Projection Scales and the change in salary increase assumption recommended by the Treasurer. The assumptions are highlighted in Section II - Actuarial Assumptions and Methods.

Employer Contributions. Includes the State's actual contributions of $\$ 76,858,000$, State-paid Local employers' actual contributions of $\$ 61,466,000$ and Local employers' receivable contributions of $\$ 779,745,389$ and contributions to the NCGIPF of $\$ 43,430,178$.

## Schedule of Contributions

|  | 2015 | 2016 |
| :---: | :---: | :---: |
| Actuarially determined contribution ${ }^{1}$ | \$1,217,110,411 | \$1,311,849,713 |
| Contributions related to the actuarially determined contribution ${ }^{2}$ | 941,950,336 | 986,654,840 |
| Contribution deficiency (excess) | \$ 275,160,075 | \$ 325,194,873 |

1. The above actuarially determined contributions are based on the assumption and methods in effect as of July 1, 2013 and July 2014, respectively. Please refer to the appropriate valuation report for the assumptions and methods used.
2. The amount represents the actual employer contributions made during fiscal year.

## Notes to Schedule

Valuation date: Actuarially determined contributions are calculated as of the July 1 preceding the fiscal year in which contributions are made. That is, the contribution calculated as of the July 1, 2015 actuarial valuation will be made during the fiscal year ended June 30, 2017.

The methods and assumptions used to determine the actuarially determined contributions to the plan are set forth in Appendix B in July 1, 2015 valuation report.

## Schedule of Investment Returns

Annual money-weighted rate of return, net of investment expenses

## 2015

$\underline{2016}$
4.08\%
(1.15)\%

Table 1
Projection of Fiduciary Net Position
(000's omitted)

| Fiscal Year June 30 | Beginning Fiduciary Net Plan Position | Member Contributions | Employer Contributions | Benefit Payments | Administrative Expenses | Projected Investment Earnings | Ending Fiduciary Net Plan Position |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 2016 | \$ 24,121,890 | \$ 388,681 | \$ 986,655 | \$ 2,324,176 | \$ 4,293 | \$ $(173,586)$ | \$ 22,995,171 |
| 2017 | 22,995,171 | 347,587 | 1,000,025 | 2,417,642 | 4,422 | 1,697,252 | 23,617,971 |
| 2018 | 23,617,971 | 340,156 | 1,059,570 | 2,517,935 | 4,554 | 1,741,810 | 24,237,018 |
| 2019 | 24,237,018 | 332,018 | 1,101,269 | 2,616,877 | 4,691 | 1,785,751 | 24,834,488 |
| 2020 | 24,834,488 | 321,061 | 1,146,590 | 2,729,653 | 4,832 | 1,827,478 | 25,395,132 |
| 2021 | 25,395,132 | 308,263 | 1,190,073 | 2,848,857 | 4,977 | 1,866,012 | 25,905,646 |
| 2022 | 25,905,646 | 296,898 | 1,226,675 | 2,956,331 | 5,126 | 1,901,064 | 26,368,826 |
| 2023 | 26,368,826 | 285,116 | 1,265,470 | 3,060,561 | 5,280 | 1,932,621 | 26,786,192 |
| 2024 | 26,786,192 | 271,582 | 1,303,569 | 3,168,554 | 5,438 | 1,960,442 | 27,147,793 |
| 2025 | 27,147,793 | 257,431 | 1,337,953 | 3,279,292 | 5,601 | 1,983,792 | 27,442,076 |
| 2026 | 27,442,076 | 242,173 | 1,370,584 | 3,387,782 | 5,769 | 2,001,980 | 27,663,262 |
| 2027 | 27,663,262 | 227,236 | 1,371,169 | 3,495,103 | 5,942 | 2,014,016 | 27,774,638 |
| 2028 | 27,774,638 | 213,265 | 1,396,250 | 3,594,852 | 6,112 | 2,018,409 | 27,801,598 |
| 2029 | 27,801,598 | 198,909 | 1,420,463 | 3,691,076 | 6,276 | 2,016,421 | 27,740,039 |
| 2030 | 27,740,039 | 184,522 | 1,444,353 | 3,781,612 | 6,429 | 2,007,837 | 27,588,710 |
| 2031 | 27,588,710 | 168,231 | 1,447,952 | 3,877,121 | 6,592 | 1,991,849 | 27,313,029 |
| 2032 | 27,313,029 | 150,442 | 1,447,425 | 3,975,905 | 6,760 | 1,966,081 | 26,894,312 |
| 2033 | 26,894,312 | 133,261 | 1,443,660 | 4,064,305 | 6,910 | 1,929,714 | 26,329,732 |
| 2034 | 26,329,732 | 116,433 | 1,439,678 | 4,142,302 | 7,043 | 1,882,579 | 25,619,077 |
| 2035 | 25,619,077 | 101,446 | 1,437,713 | 4,201,806 | 7,144 | 1,825,061 | 24,774,347 |
| 2036 | 24,774,347 | 89,851 | 1,439,442 | 4,234,227 | 7,199 | 1,758,485 | 23,820,699 |
| 2037 | 23,820,699 | 79,174 | 1,447,451 | 4,255,063 | 7,234 | 1,684,137 | 22,769,164 |
| 2038 | 22,769,164 | 66,813 | 1,458,464 | 4,278,219 | 7,274 | 1,602,189 | 21,611,137 |
| 2039 | 21,611,137 | 52,810 | 1,468,236 | 4,303,725 | 7,317 | 1,511,912 | 20,333,053 |
| 2040 | 20,333,053 | 37,847 | 1,475,394 | 4,327,969 | 7,358 | 1,412,398 | 18,923,365 |
| 2041 | 18,923,365 | 26,318 | 1,481,095 | 4,326,370 | 7,356 | 1,303,874 | 17,400,926 |
| 2042 | 17,400,926 | 19,870 | 1,493,195 | 4,292,170 | 7,298 | 1,188,238 | 15,802,761 |
| 2043 | 15,802,761 | 15,322 | 1,513,670 | 4,243,427 | 7,215 | 1,067,548 | 14,148,659 |
| 2044 | 14,148,659 | 11,661 | 1,537,934 | 4,185,829 | 7,117 | 942,988 | 12,448,296 |
| 2045 | 12,448,296 | 8,763 | 1,564,630 | 4,120,322 | 7,005 | 815,235 | 10,709,597 |
| 2046 | 10,709,597 | 6,490 | 1,593,534 | 4,047,880 | 6,882 | 684,848 | 8,939,707 |
| 2047 | 8,939,707 | 4,723 | 1,624,534 | 3,969,288 | 6,749 | 552,336 | 7,145,263 |
| 2048 | 7,145,263 | 3,371 | 1,657,529 | 3,885,259 | 6,606 | 418,175 | 5,332,473 |
| 2049 | 5,332,473 | 2,360 | 1,691,842 | 3,796,455 | 6,455 | 282,808 | 3,506,573 |
| 2050 | 3,506,573 | 1,613 | 1,728,507 | 3,703,500 | 6,297 | 146,607 | 1,673,503 |
| 2051 | 0 | 0 | 0 | 3,606,855 | 6,132 | 0 | 0 |
| 2052 | 0 | 0 | 0 | 3,506,905 | 5,962 | 0 | 0 |
| 2053 | 0 | 0 | 0 | 3,403,996 | 5,787 | 0 | 0 |
| 2054 | 0 | 0 | 0 | 3,298,407 | 5,608 | 0 | 0 |
| 2055 | 0 | 0 | 0 | 3,190,422 | 5,424 | 0 | 0 |
| 2056 | 0 | 0 | 0 | 3,080,318 | 5,237 | 0 | 0 |
| 2057 | 0 | 0 | 0 | 2,968,356 | 5,047 | 0 | 0 |
| 2058 | 0 | 0 | 0 | 2,854,804 | 4,854 | 0 | 0 |
| 2059 | 0 | 0 | 0 | 2,739,927 | 4,658 | 0 | 0 |
| 2060 | 0 | 0 | 0 | 2,623,994 | 4,461 | 0 | 0 |
| 2061 | 0 | 0 | 0 | 2,507,287 | 4,263 | 0 | 0 |
| 2062 | 0 | 0 | 0 | 2,390,112 | 4,064 | 0 | 0 |
| 2063 | 0 | 0 | 0 | 2,272,800 | 3,864 | 0 | 0 |
| 2064 | 0 | 0 | 0 | 2,155,695 | 3,665 | 0 | 0 |
| 2065 | 0 | 0 | 0 | 2,039,162 | 3,467 | 0 | 0 |
| 2066 | 0 | 0 | 0 | 1,923,564 | 3,270 | 0 | 0 |
| 2067 | 0 | 0 | 0 | 1,809,274 | 3,076 | 0 | 0 |
| 2068 | 0 | 0 | 0 | 1,696,649 | 2,885 | 0 | 0 |
| 2069 | 0 | 0 | 0 | 1,586,037 | 2,697 | 0 | 0 |
| 2070 | 0 | 0 | 0 | 1,477,777 | 2,513 | 0 | 0 |

Table 1
(continued)
Projection of Fiduciary Net Position
(000's omitted)

| Fiscal Year June 30 | Beginning <br> Fiduciary Net Plan Position | Member Contributions | Employer Contributions | Benefit Payments | Administrative Expenses | Projected Investment Earnings | Ending Fiduciary Net Plan Position |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 2071 | \$ 0 | \$ 0 | \$ 0 | \$ 1,372,186 | \$ 2,333 | \$ 0 | \$ 0 |
| 2072 | 0 | 0 | 0 | 1,269,550 | 2,158 | 0 | 0 |
| 2073 | 0 | 0 | 0 | 1,170,129 | 1,989 | 0 | 0 |
| 2074 | 0 | 0 | 0 | 1,074,169 | 1,826 | 0 | 0 |
| 2075 | 0 | 0 | 0 | 981,890 | 1,669 | 0 | 0 |
| 2076 | 0 | 0 | 0 | 893,492 | 1,519 | 0 | 0 |
| 2077 | 0 | 0 | 0 | 809,161 | 1,376 | 0 | 0 |
| 2078 | 0 | 0 | 0 | 729,074 | 1,240 | 0 | 0 |
| 2079 | 0 | 0 | 0 | 653,391 | 1,111 | 0 | 0 |
| 2080 | 0 | 0 | 0 | 582,251 | 990 | 0 | 0 |
| 2081 | 0 | 0 | 0 | 515,772 | 877 | 0 | 0 |
| 2082 | 0 | 0 | 0 | 454,031 | 772 | 0 | 0 |
| 2083 | 0 | 0 | 0 | 397,070 | 675 | 0 | 0 |
| 2084 | 0 | 0 | 0 | 344,884 | 586 | 0 | 0 |
| 2085 | 0 | 0 | 0 | 297,427 | 506 | 0 | 0 |
| 2086 | 0 | 0 | 0 | 254,602 | 433 | 0 | 0 |
| 2087 | 0 | 0 | 0 | 216,269 | 368 | 0 | 0 |
| 2088 | 0 | 0 | 0 | 182,241 | 310 | 0 | 0 |
| 2089 | 0 | 0 | 0 | 152,297 | 259 | 0 | 0 |
| 2090 | 0 | 0 | 0 | 126,180 | 215 | 0 | 0 |
| 2091 | 0 | 0 | 0 | 103,611 | 176 | 0 | 0 |
| 2092 | 0 | 0 | 0 | 84,291 | 143 | 0 | 0 |
| 2093 | 0 | 0 | 0 | 67,912 | 115 | 0 | 0 |
| 2094 | 0 | 0 | 0 | 54,163 | 92 | 0 | 0 |
| 2095 | 0 | 0 | 0 | 42,740 | 73 | 0 | 0 |
| 2096 | 0 | 0 | 0 | 33,348 | 57 | 0 | 0 |
| 2097 | 0 | 0 | 0 | 25,712 | 44 | 0 | 0 |
| 2098 | 0 | 0 | 0 | 19,577 | 33 | 0 | 0 |
| 2099 | 0 | 0 | 0 | 14,711 | 25 | 0 | 0 |
| 2100 | 0 | 0 | 0 | 10,906 | 19 | 0 | 0 |
| 2101 | 0 | 0 | 0 | 7,974 | 14 | 0 | 0 |
| 2102 | 0 | 0 | 0 | 5,751 | 10 | 0 | 0 |
| 2103 | 0 | 0 | 0 | 4,095 | 7 | 0 | 0 |
| 2104 | 0 | 0 | 0 | 2,883 | 5 | 0 | 0 |
| 2105 | 0 | 0 | 0 | 2,011 | 3 | 0 | 0 |
| 2106 | 0 | 0 | 0 | 1,394 | 2 | 0 | 0 |
| 2107 | 0 | 0 | 0 | 966 | 2 | 0 | 0 |
| 2108 | 0 | 0 | 0 | 673 | 1 | 0 | 0 |
| 2109 | 0 | 0 | 0 | 474 | 1 | 0 | 0 |
| 2110 | 0 | 0 | 0 | 339 | 1 | 0 | 0 |
| 2111 | 0 | 0 | 0 | 248 | 0 | 0 | 0 |
| 2112 | 0 | 0 | 0 | 186 | 0 | 0 | 0 |
| 2113 | 0 | 0 | 0 | 143 | 0 | 0 | 0 |
| 2114 | 0 | 0 | 0 | 112 | 0 | 0 | 0 |
| 2115 | 0 | 0 | 0 | 89 | 0 | 0 | 0 |
| 2116 | 0 | 0 | 0 | 71 | 0 | 0 | 0 |
| 2117 | 0 | 0 | 0 | 57 | 0 | 0 | 0 |
| 2118 | 0 | 0 | 0 | 45 | 0 | 0 | 0 |
| 2119 | 0 | 0 | 0 | 36 | 0 | 0 | 0 |
| 2120 | 0 | 0 | 0 | 28 | 0 | 0 | 0 |
| 2121 | 0 | 0 | 0 | 21 | 0 | 0 | 0 |
| 2122 | 0 | 0 | 0 | 15 | 0 | 0 | 0 |
| 2123 | 0 | 0 | 0 | 11 | 0 | 0 | 0 |
| 2124 | 0 | 0 | 0 | 8 | 0 | 0 | 0 |
| 2125 | 0 | 0 | 0 | 5 | 0 | 0 | 0 |
| 2126 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| 2127 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| 2128 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |

Actuarial Present Values of Projected Benefit Payments (000's omitted)

| Fiscal Year Ending June 30 | Beginning Fiduciary Net Plan Position | Benefit Payments | Benefit P | ayments | Present | Value of Benefit P | ayments |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Funded Portion | Unfunded Portion | Funded Portion at 7.65\% | Unfunded Portion at $2.85 \%$ | Using Single Discount Rate of $5.55 \%$ |
| 2016 | \$ 24,121,890 | \$ 2,324,176 | \$ 2,324,176 | \$ 0 | \$ 2,240,072 | \$ 0 | \$ 2,262,218 |
| 2017 | 22,995,171 | 2,417,642 | 2,417,642 | 0 | 2,164,566 | 0 | 2,229,403 |
| 2018 | 23,617,971 | 2,517,935 | 2,517,935 | 0 | 2,094,158 | 0 | 2,199,744 |
| 2019 | 24,237,018 | 2,616,877 | 2,616,877 | 0 | 2,021,781 | 0 | 2,165,918 |
| 2020 | 24,834,488 | 2,729,653 | 2,729,653 | 0 | 1,959,044 | 0 | 2,140,411 |
| 2021 | 25,395,132 | 2,848,857 | 2,848,857 | 0 | 1,899,300 | 0 | 2,116,369 |
| 2022 | 25,905,646 | 2,956,331 | 2,956,331 | 0 | 1,830,888 | 0 | 2,080,677 |
| 2023 | 26,368,826 | 3,060,561 | 3,060,561 | 0 | 1,760,742 | 0 | 2,040,722 |
| 2024 | 26,786,192 | 3,168,554 | 3,168,554 | 0 | 1,693,331 | 0 | 2,001,589 |
| 2025 | 27,147,793 | 3,279,292 | 3,279,292 | 0 | 1,627,971 | 0 | 1,962,569 |
| 2026 | 27,442,076 | 3,387,782 | 3,387,782 | 0 | 1,562,313 | 0 | 1,920,841 |
| 2027 | 27,663,262 | 3,495,103 | 3,495,103 | 0 | 1,497,265 | 0 | 1,877,443 |
| 2028 | 27,774,638 | 3,594,852 | 3,594,852 | 0 | 1,430,558 | 0 | 1,829,443 |
| 2029 | 27,801,598 | 3,691,076 | 3,691,076 | 0 | 1,364,468 | 0 | 1,779,598 |
| 2030 | 27,740,039 | 3,781,612 | 3,781,612 | 0 | 1,298,594 | 0 | 1,727,337 |
| 2031 | 27,588,710 | 3,877,121 | 3,877,121 | 0 | 1,236,778 | 0 | 1,677,801 |
| 2032 | 27,313,029 | 3,975,905 | 3,975,905 | 0 | 1,178,161 | 0 | 1,630,039 |
| 2033 | 26,894,312 | 4,064,305 | 4,064,305 | 0 | 1,118,770 | 0 | 1,578,627 |
| 2034 | 26,329,732 | 4,142,302 | 4,142,302 | 0 | 1,059,210 | 0 | 1,524,284 |
| 2035 | 25,619,077 | 4,201,806 | 4,201,806 | 0 | 998,073 | 0 | 1,464,843 |
| 2036 | 24,774,347 | 4,234,227 | 4,234,227 | 0 | 934,300 | 0 | 1,398,493 |
| 2037 | 23,820,699 | 4,255,063 | 4,255,063 | 0 | 872,176 | 0 | 1,331,445 |
| 2038 | 22,769,164 | 4,278,219 | 4,278,219 | 0 | 814,605 | 0 | 1,268,269 |
| 2039 | 21,611,137 | 4,303,725 | 4,303,725 | 0 | 761,228 | 0 | 1,208,715 |
| 2040 | 20,333,053 | 4,327,969 | 4,327,969 | 0 | 711,116 | 0 | 1,151,581 |
| 2041 | 18,923,365 | 4,326,370 | 4,326,370 | 0 | 660,337 | 0 | 1,090,599 |
| 2042 | 17,400,926 | 4,292,170 | 4,292,170 | 0 | 608,562 | 0 | 1,025,060 |
| 2043 | 15,802,761 | 4,243,427 | 4,243,427 | 0 | 558,896 | 0 | 960,108 |
| 2044 | 14,148,659 | 4,185,829 | 4,185,829 | 0 | 512,132 | 0 | 897,255 |
| 2045 | 12,448,296 | 4,120,322 | 4,120,322 | 0 | 468,292 | 0 | 836,752 |
| 2046 | 10,709,597 | 4,047,880 | 4,047,880 | 0 | 427,366 | 0 | 778,797 |
| 2047 | 8,939,707 | 3,969,288 | 3,969,288 | 0 | 389,288 | 0 | 723,503 |
| 2048 | 7,145,267 | 3,885,259 | 3,885,259 | 0 | 353,968 | 0 | 670,932 |
| 2049 | 5,332,477 | 3,796,455 | 3,796,455 | 0 | 321,298 | 0 | 621,109 |
| 2050 | 3,506,578 | 3,703,500 | 3,506,578 | 196,922 | 275,676 | 74,687 | 574,028 |
| 2051 | 0 | 3,606,855 | 0 | 3,606,855 | 0 | 1,330,075 | 529,640 |
| 2052 | 0 | 3,506,905 | 0 | 3,506,905 | 0 | 1,257,382 | 487,873 |
| 2053 | 0 | 3,403,996 | 0 | 3,403,996 | 0 | 1,186,664 | 448,645 |
| 2054 | 0 | 3,298,407 | 0 | 3,298,407 | 0 | 1,117,992 | 411,859 |
| 2055 | 0 | 3,190,422 | 0 | 3,190,422 | 0 | 1,051,425 | 377,419 |
| 2056 | 0 | 3,080,318 | 0 | 3,080,318 | 0 | 987,010 | 345,225 |
| 2057 | , | 2,968,356 | 0 | 2,968,356 | 0 | 924,779 | 315,177 |
| 2058 | 0 | 2,854,804 | 0 | 2,854,804 | 0 | 864,756 | 287,174 |
| 2059 | 0 | 2,739,927 | 0 | 2,739,927 | 0 | 806,960 | 261,119 |
| 2060 | 0 | 2,623,994 | 0 | 2,623,994 | 0 | 751,401 | 236,916 |
| 2061 | 0 | 2,507,287 | 0 | 2,507,287 | 0 | 698,086 | 214,470 |
| 2062 | 0 | 2,390,112 | 0 | 2,390,112 | 0 | 647,021 | 193,692 |
| 2063 | 0 | 2,272,800 | 0 | 2,272,800 | 0 | 598,215 | 174,496 |
| 2064 | 0 | 2,155,695 | 0 | 2,155,695 | 0 | 551,670 | 156,799 |
| 2065 | 0 | 2,039,162 | 0 | 2,039,162 | 0 | 507,387 | 140,520 |
| 2066 | 0 | 1,923,564 | 0 | 1,923,564 | 0 | 465,361 | 125,581 |
| 2067 | 0 | 1,809,274 | 0 | 1,809,274 | 0 | 425,582 | 111,906 |
| 2068 | 0 | 1,696,649 | 0 | 1,696,649 | 0 | 388,031 | 99,419 |
| 2069 | 0 | 1,586,037 | 0 | 1,586,037 | 0 | 352,682 | 88,049 |
| 2070 | 0 | 1,477,777 | 0 | 1,477,777 | 0 | 319,503 | 77,723 |

Table 2
(continued)
Actuarial Present Values of Projected Benefit Payments
(000's omitted)


## Section II - Actuarial Assumptions and Methods

Investment Rate of Return:

- July 1, 2015 valuation: $7.90 \%$ per annum, compounded annually.
- July 1, 2016 valuation: 7.65\% per annum, compounded annually.


## GASB Discount Rate

- June 30, 2015: 5.79\% per annum, compounded annually.
- June 30, 2016: 5.55\% per annum, compounded annually.

COLA: No future COLA is assumed.
Compensation Limit Increase: 401(a)(17) Limit - 3.00\% per annum, Social Security Wage Base - 4.00\% per annum

Separations from Service and Salary Increases: Representative values of the assumed annual rates of separation and annual rates of salary increases are as follows:

Annual Rates of

| Age | Select Withdrawal |  |  |  |  | Ultimate Withdrawal After 9 Years |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Up to the 1st Year | 2nd Year | 3 rd Year | 4th Year | 5 to 9 Years |  |
| 25 | 6.90\% | 2.03\% | 1.18\% | 0.60\% | 0.35\% | 0.00\% |
| 30 | 9.30 | 2.75 | 1.76 | 1.31 | 0.60 | 0.24 |
| 35 | 9.80 | 3.17 | 1.76 | 1.57 | 0.77 | 0.24 |
| 40 | 13.70 | 2.25 | 1.85 | 1.74 | 0.67 | 0.27 |
| 45 | 3.50 | 2.25 | 1.85 | 2.32 | 1.35 | 0.28 |
| 50 | 0.00 | 2.25 | 1.85 | 2.00 | 1.60 | 0.30 |
| 55 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

## Annual Rates of

Death

| Age | Ordinary |  | Accidental | Disability |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Male* | Female* |  | Ordinary | Accidental |
| 25 | .035\% | .019\% | .006\% | .045\% | .029\% |
| 30 | . 042 | . 025 | . 006 | . 147 | . 278 |
| 35 | . 073 | . 045 | . 008 | . 265 | . 393 |
| 40 | . 101 | . 066 | . 008 | . 362 | . 423 |
| 45 | . 140 | . 105 | . 009 | . 394 | . 396 |
| 50 | . 198 | . 158 | . 009 | . 449 | . 179 |
| 55 | . 285 | . 234 | . 014 | . 554 | . 161 |
| 60 | . 439 | . 338 | . 013 | 1.024 | . 161 |
| 64 | . 598 | . 450 | . 008 | 1.680 | . 161 |
| 65 |  |  |  |  |  |
| and | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

## over

* RP2000 Employee Pre-Retirement mortality tables projected thirteen-years using Projection Scale BB and then projected on a generational basis using the Conduent Modified 2014 Projection Scales. The above tables are representative for the 2015 valuation.

| Age | Service Retirements Length of Service |  |  |  | Salary Increases Effective July 1, 2016 |  | Salary Increases Effective July 1, 2015 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Less Than 21 Years* | 21 to 24 <br> Years | 25 Years | 26 or More Years | $\begin{aligned} & \text { FY2016 to } \\ & \text { FY2026 } \end{aligned}$ | $\begin{aligned} & \text { FY2026 } \\ & \text { and } \\ & \text { thereafter } \end{aligned}$ | $\begin{aligned} & \text { FY2012 to } \\ & \text { FY2022 } \end{aligned}$ | $\begin{aligned} & \text { FY2022 } \\ & \text { and } \\ & \text { thereafter } \end{aligned}$ |
| 25 |  |  |  |  | 8.98\% | 9.98\% | 9.48\% | 10.48\% |
| 30 |  |  |  |  | 5.97 | 6.97 | 6.47 | 7.47 |
| 35 |  |  |  |  | 4.17 | 5.17 | 4.67 | 5.67 |
| 40 | 4.00\% | 0.60\% | 45.57\% | 15.40\% | 3.33 | 4.33 | 3.83 | 4.83 |
| 45 | 4.00 | 0.60 | 54.83 | 15.40 | 2.90 | 3.90 | 3.40 | 4.40 |
| 50 | 4.30 | 0.60 | 57.62 | 18.48 | 2.75 | 3.75 | 3.25 | 4.25 |
| 55 | 6.00 | 0.00 | 64.94 | 24.47 | 2.60 | 3.60 | 3.10 | 4.10 |
| 60 | 3.20 | 0.00 | 77.49 | 27.34 | 2.35 | 3.35 | 2.85 | 3.85 |
| 64 | 37.50 | 0.00 | 85.24 | 51.03 | 2.10 | 3.10 | 2.60 | 3.60 |
| 65 |  |  |  |  |  |  |  |  |
| and | 100.00 | 100.00 | 100.00 | 100.00 |  |  |  |  |
| over |  |  |  |  |  |  |  |  |

* Retirement assumption prior to age 55 is for any member as of January 18, 2000 upon completion of 20 years of service.

Deaths after Retirement: RP-2000 Combined Healthy Mortality Tables projected one year using Projection Scale AA and two years using the Conduent Modified 2014 Projection Scales is the base table as of the 2015 measurement date for male service retirements and will be further projected on a generational basis using the Conduent Modified 2014 Projection Scales. RP-2000 Combined Healthy Mortality Tables projected thirteen-years using Projection Scale BB and then two years projected using the Conduent Modified 2014 Projection Scales is the base table as of the 2015 measurement date for female service retirements and beneficiaries and will be further projected on a generational basis using the Conduent Modified 2014 Projection Scales. Special mortality tables are used for the period after disability retirement. The following representative values of the assumed annual rates of mortality are effective 2015:

| Age | Service Retirements |  | Beneficiaries |  | Age | Disability Retirements |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Men | Women | Men | Women |  |  |
| 55 | 0.348\% | 0.252\% | 0.341\% | 0.252\% | 35 | 0.598\% |
| 60 | 0.655 | 0.435 | 0.607 | 0.435 | 40 | 0.634 |
| 65 | 1.232 | 0.804 | 1.068 | 0.804 | 45 | 0.803 |
| 70 | 2.123 | 1.382 | 1.771 | 1.382 | 50 | 1.058 |
| 75 | 3.602 | 2.323 | 3.002 | 2.323 | 55 | 1.210 |
| 80 | 6.146 | 3.794 | 5.101 | 3.794 | 60 | 1.426 |
| 85 | 10.618 | 6.397 | 8.785 | 6.397 | 65 | 1.949 |

Marriage: Husbands are assumed to be 3 years older than wives. Among the active population, $90 \%$ of participants are assumed married. No children are assumed. Neither the percentage married nor the number of children assumption is individually explicit, but they are considered reasonable as a single combined assumption.

## VALUATION METHOD:

Funding calculations: Projected Unit Credit Method. This method essentially funds the System's benefits accrued to the valuation date. Experience gains and losses are recognized in future accrued liability contributions. In accordance with Chapter 78, P.L. 2011, beginning with the July 1, 2010 actuarial valuation, the accrued liability contribution shall be computed so that if the contribution is paid annually in level dollars, it will amortize the unfunded accrued liability over an open 30 year period. Beginning with the July 1, 2018 actuarial valuation, the accrued liability contribution shall be computed so that if the contribution is paid annually in level dollars it will amortize the unfunded accrued liability over a closed 30 year period (i.e., for
each subsequent valuation, the amortization period shall decrease by one year.) Beginning with the July 1, 2028 actuarial valuation, when the remaining amortization period reaches 20 years, any increase or decrease in the unfunded accrued liability as a result of actuarial losses or gains for subsequent valuation years shall serve to increase or decrease, respectively, the amortization period for the unfunded accrued liability, unless an increase in the amortization period will cause it to exceed 20 years. If an increase in the amortization period as a result of actuarial losses for a valuation year would exceed 20 years, the accrued liability contribution shall be computed for the valuation year using a 20 year amortization period.

ASSET VALUATION METHOD: A five year average of market values with write-up was used. This method takes into account appreciation (depreciation) in investments in order to smooth asset values by averaging the excess of the actual over the expected income, on a market value basis, over a five-year period.

## Section III - Summary of Plan Provisions

New Jersey Statutes, Title 43, Chapter 16A.

Eligibility for Membership

Enrollment is restricted to eligible policemen and firemen who are permanent and full-time and who pass the physical and mental fitness requirements. The maximum enrollment age is 35 .

## 1. Definitions

Plan Year
Credited Service

Average Final
Compensation (AFC)

Compensation

Final Compensation (FC)

Accumulated Deductions
2. Benefits

Service Retirement

The 12-month period beginning on July 1 and ending on June 30.
A year of service is credited for each year an employee is a Member of the Retirement System plus service, if any, covered by a prior service liability.

The average annual compensation for the three consecutive years of Service immediately preceding retirement or the highest three consecutive fiscal years of Membership Service.

Base salary upon which contributions by a Member to the Annuity Savings Fund were based in the last year of Service. For Accidental Death, benefits are computed at the annual rate of salary. In accordance with Chapter 1, P.L. 2010, for members hired on or after May 22, 2010 Compensation cannot exceed the annual maximum wage contribution base for Social Security pursuant to the Federal Insurance Contribution Act.

Annual compensation received by the member in the last 12 months of Credited Service preceding his retirement. In accordance with Chapter 1, P.L. 2010, for members hired on or after May 22, 2010, FC means the average annual compensation for the three fiscal years of membership providing the largest benefit.

The sum of all amounts deducted from the compensation of a Member or contributed by him or on his behalf without interest.

Eligibility means age 55 or 20 years of credited service for an employee who was a member of the Retirement System as of January 18, 2000 and age 55 for an employee who became a member of the Retirement System after January 18, 2000; mandatory at age 65 (except that a member hired prior to January 1, 1987 may remain a member of the Retirement System until the member attains the earlier of age 68 or 25 years of creditable service). Benefit is an annual retirement allowance equal to a member annuity plus an employer pension which together equals the greater of:
(i) $1 / 60$ th of FC for each year of Credited Service; or
(ii) $2 \%$ of FC multiplied by years of Credited Service up to 30 plus $1 \%$ of FC multiplied by years of Service over 30. (Prior to January 18, 2000, this benefit was based on AFC rather than FC. However, Policy Memorandum 4-2000, which interpreted the provisions of Chapter 428, P.L. 1999, authorized the change in the salary basis).
(iii) $50 \%$ of FC if the member has 20 or more years of Credited Service.

Chapter 428 also requires that, in addition to the $50 \%$ of FC benefit, any member as of January 18, 2000 who will have 20 or more years of Credited Service and is required to retire upon attaining age 65 (except that a member hired prior to January 1, 1987 may remain a member of the System until the member attains the earlier of age 68 or 25 years of creditable service), shall receive an additional benefit equal to $3 \%$ of FC for each year of Credited Service over 20 years but not over 25 years.

Special Retirement

Vested Termination

Death Benefits

After completion of 25 years of Credited Service. The annual retirement benefit is equal to a member annuity plus an employer pension which together equal $65 \%$ of FC plus $1 \%$ of FC for each year of Credited Service over 25. Effective for members hired after June 28, 2011, the annual retirement benefit is equal to a member annuity plus an employer pension which together equal $60 \%$ of FC plus $1 \%$ of FC for each year of Credited Service over 25. There is a maximum benefit of $70 \%$ of FC ( $65 \%$ of FC for members hired after June 28, 2011) except for those members with 30 or more years of Credited Service on June 30, 1979.
(A) Eligible upon termination of service prior to age 55 and prior to 10 years of Credited Service. The benefit equals a refund of Accumulated Deductions less any outstanding loans.
(B) Eligible upon termination of service prior to age 55 and after 10 years of Credited Service (but less than 20 years if a member on or prior to January 18, 2000 or less than 25 years of service if a member after January 18, 2000). The benefit is a deferred retirement benefit, commencing at age 55 , equal to a member annuity plus an employer pension which together provide a retirement allowance equal to $2 \%$ of FC multiplied by years of Credited Service up to 30 plus $1 \%$ of FC multiplied by years of Credited Service over 30.

Ordinary Death Benefit - Lump Sum (NCGIPF)
(1) If a member dies prior to retirement, the benefit payable is as follows:

A lump sum amount equal to 3-1/2 times FC payable to the member's beneficiary.
(2) After retirement but prior to age 55, the benefit is as follows:
(i) For death while a Disabled Retiree the benefit is equal to 3-1/2 times Compensation.
(ii) For death while a Deferred Retiree the benefit is equal to his Accumulated Deductions
(iii) For death while a Retiree who has completed 20 years of Credited Service, the benefit is equal to 1/2 times FC.
(3) After retirement and after age 55, the benefit payable is equal to $1 / 2$ times Compensation. (Note: If a Member is not disabled, 10 years of Credited Service is required for Members enrolling after July 1, 1971.)

Ordinary Death Benefit - Survivor Annuity
(1) If a member dies prior to retirement, the benefit payable to a widow (widower) is equal to $50 \%$ of FC ( $20 \%$ of FC payable to one child, $35 \%$ of FC payable to two children or $50 \%$ of FC payable to three or more children if there is no surviving widow or widower or if the widow or widower dies or remarries or $25 \%$ of FC payable to one parent or $40 \%$ of FC payable to two parents if no surviving widow, widower or child. If no widow, widower, child or parent, the benefit payable to a beneficiary is the aggregate Accumulated Contributions at the time of death).
(2) For any member who retired after December 18, 1967, the benefit payable to a widow (widower) is equal to $50 \%$ of FC plus $15 \%$ of FC for one child and $25 \%$ of FC for two or more children.

If no spouse, or spouse remarries, the benefit is equal to $20 \%$ of FC for one child, $35 \%$ for two children, and 50\% for three or more children.

There is also a minimum benefit payable to widows (widowers) of \$4,500 a year.
(3) For any member who retired with an Accidental Disability Benefit, the benefit payable is equal to $\$ 4,500$ a year to the widow (widower). If there is no widow (widower) the benefit payable is $\$ 600$ a year for 1 child, $\$ 960$ a year for 2 children, and \$1,500 a year for 3 or more children. The benefit for children is payable until age 18.

## Accidental Death Benefit

A death while active resulting from injuries received from an accident during performance of duty is eligible for a lump sum equal to the Accumulated Deductions plus 3-1/2 times Compensation plus an annuity benefit payable is as follows:
(i) The benefit to a widow or widower is equal to $70 \%$ of Compensation.
(ii) The benefit, when there is no spouse, or spouse is remarried, is equal to $20 \%$ of Compensation for one child, $35 \%$ for two children, $50 \%$ for three or more children. The benefit is payable while the children are under age 18, or until age 24 if they are full-time students, or it is payable for life if they are disabled.
(iii) The benefit, when there is no spouse or children, is equal to $25 \%$ of Compensation for one parent and $40 \%$ for two parents.
(iv) The benefit, when there is no relation as stated above, is equal to the Accumulated Deductions and is payable to a beneficiary or to the Member's estate. This is also the minimum benefit payable under (i), (ii) and (iii).

Disability Benefits

## Ordinary Disability Retirement

A Member is eligible for Ordinary Disability Retirement if he (she) has 4 years of Service and is totally and permanently incapacitated from the performance of usual or available duties. The benefit is equal to the greater of:
(i) $1-1 / 2 \%$ of FC times the number of years of Credited Service; or
(ii) $40 \%$ of FC .

In addition, a member who has at least 20 years but less than 25 years of Credited Service and who is required to retire upon application by the employer on and after January 18, 2000 shall receive a benefit equal to a member annuity plus an employer pension which together provide a total retirement allowance equal to $50 \%$ of FC plus $3 \%$ of FC multiplied by the number of years of Credited Service over 20 but not over 25.

## Accidental Disability Retirement

A Member is eligible upon total and permanent incapacitation from the performance of usual or available duties as a result of injury during the performance of regular duties. The benefit payable is equal to a Member annuity plus an employer pension which together equals $2 / 3$ of the Compensation at date of injury.

## Special Disability Retirement

A member is eligible for Special Disability Retirement if he (she) has 5 years of Credited Service, is under age 55, and has received a heart transplant. The benefit payable is equal to a Member annuity plus an employer pension which together equals $50 \%$ of FC .
3. Member Contributions
4. Chapter 19, P.L. 2009
5. Early Retirement Incentive Contribution

Each member contributes 8.5\% of Compensation. Chapter 78, P.L. 2011 increased the Member Contributions from 8.5\% to 10.0\% of Compensation effective October 2011.

Chapter 19, P.L. 2009 provides that the State Treasurer will reduce for Local employers the normal and accrued liability contributions to 50 percent of the amount certified for fiscal years 2009. The additional unfunded liability will be paid by Local employers in level annual payments over a period of 15 years, with the first payment due in the fiscal year ending June 30, 2012. The unfunded liability will be adjusted annually by the rate of return on the actuarial value of assets. The legislation also provides that a Local employer may opt to pay 100 percent of the recommended contribution for fiscal year 2009. Employers making this election will be credited with the full payment. In addition, certain employers who were eligible to defer $50 \%$ of their fiscal year 2009 recommended contributions but instead paid $100 \%$ of the 2009 recommended contributions are permitted to elect to defer $50 \%$ of their recommended 2010 fiscal year contributions. The additional unfunded liability will be paid by Local employers in level annual payments over a period of 15 years, with the first payment due in the fiscal year ending June 30, 2012. The unfunded liability will be adjusted by the rate of return on the actuarial value of assets.

The following legislation provides additional retirement benefits to certain employees of Local employers: Ch. 99, P.L. 1993, Ch. 59, P.L. 1999, Ch. 126, P.L. 2000 and Ch. 130, P.L. 2003. The cost of the enhanced pension benefits will be funded by employer contributions to the retirement system and paid by the employer that elected to participate. The additional pension liability shall be paid by each electing employer entity over a period of years.


[^0]:    *Based on target asset allocation for 2016.
    **Includes assumed inflation

