The State Police Retirement System of New Jersey Annual Report of the Actuary

Prepared as of July 1, 2015

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The law governing the operation of the State Police Retirement System of New Jersey provides for annual actuarial valuations of the System. The results of the July 1, 2015 valuation are submitted in this report, which also includes a comparison with the results of the July 1, 2014 valuation.

The valuation provides information concerning the financial condition of the Plan as of July 1, 2015, and sets forth the basis for determining the recommended annual contribution for the plan year beginning July 1, 2015.

As required under Section 32 of Chapter 89, P.L. 1965, experience studies are performed once in every three year period. The valuation was prepared using demographic assumptions recommended on the basis of the July 1, 2011 - June 30, 2014 Experience Study and approved by the Board of Trustees at the January 26, 2016 Board meeting. These assumptions will be reviewed in a June 30, 2017 experience study and will remain in effect for valuation purposes until such time as the Board adopts revised demographic assumptions.

The valuation reflects economic assumptions, which include a rate of investment return of $7.90 \%$ per annum and the assumed future salary increases of $3.45 \%$ per annum through fiscal year ending 2021 and 4.45\% per annum for fiscal years ending 2022 and thereafter. These assumptions will remain in effect for valuation purposes until such time the Board or the Treasurer recommends revised assumptions.

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. These assumptions were selected in accordance with applicable Actuarial Standards of Practice published by the Actuarial Standards Board.

The valuation reflects actual fiscal year 2015 State contributions of $\$ 37,358,000$, which have been reduced from the recommended pension contribution of $\$ 108,904,703$. In addition, the fiscal year 2016 recommended pension contribution of $\$ 118,600,705$ has been reduced to $\$ 32,975,255$. This amount reflects the State's planned fiscal year 2016 contribution of $\$ 35,580,300,30 \%$ of the recommended employer contribution, discounted to the valuation date. This amount may be subject to change per the requirements of the State's fiscal year 2016 spending plan.

Reporting requirements of Statements No. 67 and No. 68, effective as of the June 30, 2014 and June 30, 2015 reporting dates, respectively, are addressed in separate reports.

The State of New Jersey's Division of Pensions and Benefits reported the individual data for members of the State Police Retirement System of New Jersey as of the valuation date for use in the preparation of this report. While we did not verify the data at their source, we did perform tests for internal consistency and reasonableness. The amount of assets in the trust fund taken into account in the valuation was based on statements prepared for us by the Division of Pensions and Benefits. The accuracy of the results presented in this report is dependent on the accuracy of the data.

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. Any Statements regarding funded ratios have no specific relevance to any funded position that might be determined in the event a settlement is contemplated. An analysis of the potential range of future results is beyond the scope of this valuation.

Use of this report for any other reason or by anyone other than the Board or staff of the State of New Jersey's 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 Buck to review any statement you wish to make on the results contained in this report. Buck will accept no liability for any such statement made without prior review by Buck.

I am a Fellow of the Society of Actuaries and a Member of the American Academy of Actuaries. I meet the Qualification Standards of the Academy to render the actuarial opinions contained herein. This report has been prepared in accordance with all applicable Actuarial Standards of Practice, and I am available to answer questions concerning it.

The Table of Contents, which follows, highlights the Sections of the Report.
Respectfully submitted,


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

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## Section I - Summary of Key Results

The State Police Retirement System of New Jersey became effective July 1, 1965 under terms of Chapter 89 of the Laws of 1965. This report, prepared as of July 1, 2015, presents the results of the annual actuarial valuation of the Fund.

For convenience of reference, the principal results of the valuation and a comparison with the preceding year's results are summarized on the following pages.

| Valuation Data |  | July 1, 2015 | July 1, 2014 |  |
| :---: | :---: | :---: | :---: | :---: |
| Number of Members |  | 2,676 |  | 2,522 |
| Annual Compensation | \$ | 275,477,457 | \$ | 262,496,289 |
| Number of Pensioners and Beneficiaries |  | 3,511 |  | 3,409 |
| Total Annual Allowance | \$ | 208,106,636 | \$ | 200,508,546 |
| Assets |  |  |  |  |
| Market Value of Assets | \$ | 1,900,695,725 ${ }^{1}$ | \$ | 1,967,141,815 |
| Valuation Assets | \$ | 1,969,239,472 ${ }^{1}$ | \$ | 1,981,376,495 |
| Contribution Rates |  |  |  |  |
| Pension Contribution |  |  |  |  |
| Recommended Contribution |  |  |  |  |
| Normal Contribution |  | 12.55\% |  | 12.27\% |
| Accrued Liability Contribution |  | 35.81 |  | 32.91 |
| Total Pension Contribution |  | 48.36\% |  | 45.18\% |
| Non-Contributory Group Insurance Premium |  | 0.65\% |  | 0.84\% |
| Contribution Amounts |  |  |  |  |
| Pension Contribution |  |  |  |  |
| Recommended Contribution |  |  |  |  |
| Normal Contribution | \$ | 34,581,760 | \$ | 32,210,942 |
| Accrued Liability Contribution |  | 98,635,902 |  | 86,389,763 |
| Total Pension Contribution | \$ | 133,217,662 | \$ | 118,600,705 |
| Non-Contributory Group Insurance Premium | \$ | 1,800,000 | \$ | 2,200,000 |

${ }^{1}$ The fiscal year 2016 recommended pension contribution of $\$ 118,600,705$ has been reduced to $\$ 32,975,255$. This amount reflects the State's planned fiscal year 2016 contribution of $\$ 35,580,300,30 \%$ of the recommended employer contribution, discounted to the valuation date. This amount is included as a receivable contribution but may be subject to change per the requirements of the State's fiscal year 2016 spending plan.

The major benefit and contribution provisions of the statute as reflected in the valuation are summarized in Appendix A.

For purposes of the valuation, the fiscal year 2016 recommended pension contribution of $\$ 118,600,705$ has been reduced to $\$ 32,975,255$. This amount reflects the State's planned fiscal year 2016 contribution of $\$ 35,580,300,30 \%$ of the recommended employer contribution, discounted at the valuation interest rate of $7.90 \%$ from the expected payment date of June 30, 2016 to the valuation date. This amount may be subject to change per the requirements of the State's fiscal year 2016 spending plan.

There were no changes to the benefit and contribution provisions.
As required under Chapter 89, P.L. 1965 experience studies are performed once in every three year period. The valuation was prepared using demographic assumptions recommended on the basis of the July 1, 2011 - June 30, 2014 Experience Study and approved by the Board of Trustees at the January 26, 2016 Board meeting. The assumption changes adopted by the Board are outlined in Appendix B. As mandated by the statute, these assumptions will remain in effect for valuation purposes until such time the Board adopts revised demographic assumptions.

The valuation reflects economic assumptions which include a rate of investment return of $7.90 \%$ per annum and assumed future salary increases of 3.45\% per annum through the fiscal year ending 2021 and 4.45\% per annum for fiscal years ending 2022 and thereafter. These assumptions will remain in effect for valuation purposes until such time the Board or the Treasurer recommends revised assumptions.

There were no other changes to the actuarial assumptions and methods from those used in the prior valuation. The actuarial assumptions and methods used in this valuation are summarized in Appendix B.

The combination of the plan provisions, actuarial assumptions and member and beneficiary data is used to generate the overall required level of employer contributions. These contributions are composed of two separate portions, an "accrued liability contribution" and a "normal contribution". The recommended contribution is developed in Section III F.

The valuation generates a balance sheet which summarizes in some detail the total present and prospective assets and liabilities of the Fund. A summary comparison of the balance sheets as of July 1, 2014 and July 1, 2015 is set forth in the following table.

Table I

## Comparative Balance Sheet

|  |  | 2015 |  | 2014 |
| :---: | :---: | :---: | :---: | :---: |
| Assets |  |  |  |  |
| Actuarial value of assets of Fund |  | 1,969,239,472 | \$ 1,981,376,495 |  |
| Unfunded accrued liability/(surplus) |  | 1,120,981,012 |  | 981,805,625 |
| Total Assets | \$ 3,090,220,484 |  | \$ 2,963,182,120 |  |
| Accrued Liabilities |  |  |  |  |
| Present value of benefits to present beneficiaries payable from the Retirement Reserve Fund |  | 2,289,865,821 |  | 2,173,422,158 |
| Present value of benefits to present active members and terminated vested members |  | 800,354,663 |  | 789,739,962 |
| Total Accrued Liabilities | \$ | 3,090,220,484 |  | 2,963,182,120 |

## Section II - Employee Data

The data employed for the valuations were furnished to the actuary by the Division of Pensions and Benefits. The following summarizes and compares the Fund membership as of July 1, 2014 and July 1, 2015 by various categories.

## Active Membership

|  | 2015 |  |  | 2014 |  |
| :--- | :---: | :---: | :---: | :---: | :---: |
|  | Number | Annual |  | Annual |  |
| Compensation |  |  |  |  |  |

${ }^{1}$ There were no members hired on or after May 22, 2010 whose pay exceeded the Social Security wage base.

## Retired Members and Beneficiaries

| Group | 2015 |  | 2014 |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Number | Annual Allowances | Number | Annual Allowances |
| Service Retirements | 2,824 | \$ 180,701,015 | 2,731 | \$ 173,674,468 |
| Ordinary Disability Retirements | 133 | \$ 4,618,504 | 132 | \$ 4,624,783 |
| Accidental Disability Retirements | 147 | \$ 8,079,033 | 146 | \$ 7,972,073 |
| Beneficiaries of Deceased Pensioners | 352 | \$ 12,236,148 | 341 | \$ 11,680,135 |
| Beneficiaries of Deceased Active Employees | 55 | \$ 2,471,936 | 59 | \$ 2,557,087 |

Appendix C provides a detailed distribution between groups.
Graphic presentations of the statistical data on membership for the five preceding years are shown on the following pages.

## The State Police Retirement System of New Jersey

## Summary of Active Participation



## The State Police Retirement System of New Jersey

## Summary Of Retired Participation




## Section III - Assets, Liabilities and Contributions

A. Market Value of Assets as of June 30, 2015

1. Assets

| a. | Cash | \$ |
| :--- | :--- | ---: |
| b. | Securities Lending Collateral | $1,218,409$ |
| c. | Accounts Receivable | $25,126,289$ |
| d. | Investment Holdings | 275,103 |
| e. | Interest Receivable on Investments | $1,867,400,805$ |
| f. | Employer Contribution Receivable - NCGI | 151 |
| g. | Members' Contributions Receivable | 247,407 |
| h. | Dividends Receivable | $1,056,221$ |
| i. | Loans Receivable | 0 |
| j. | Interest Receivable - Member Loans | $14,692,817$ |
| k. | Total | 525,787 |

2. Liabilities

| a. | Pension Payroll Payable | \$ | $12,661,268$ |
| :--- | :--- | ---: | ---: |
| b. | Securities Lending Collateral and Rebates Payable |  | $25,094,259$ |
| c. | Pension Adjustment Payroll Payable | $1,866,506$ |  |
| d. | Withholdings Payable | $2,726,083$ |  |
| e. | Securities Purchased in Transit | 0 |  |
| f. | Accounts Payable - Other | 226,996 |  |
| g. | Death Benefits Payable |  | 247,407 |
| h. $\quad$ Total | $\$$ | $42,822,519$ |  |
| Preliminary Market Value of Assets |  |  |  |
| as of June 30, 2015: 1(k) - 2(h) | $\$$ | $1,867,720,470$ |  |
| Discounted State Appropriations Receivable |  | $32,975,255^{1}$ |  |
| Market Value of Assets as of June 30, 2015: 3. +4. | $\$$ | $1,900,695,725^{2}$ |  |

1 The fiscal year 2016 recommended pension contribution of $\$ 118,600,705$ has been reduced to $\$ 32,975,255$. This amount reflects the State's planned fiscal year 2016 contribution of $\$ 35,580,300,30 \%$ of the recommended employer contribution, discounted to the valuation date. This amount may be subject to change per the requirements of the State's fiscal year 2016 spending plan.
2 Excludes assets held in the Non-Contributory Group Insurance Fund.

1. Market Value of Assets as of June 30, 2014
2. Increases
a. Pension Contributions

Members' Contributions
Transfer from Other Systems
b. Employers' Contributions

State Appropriations
Non-Contributory Group Insurance
Transfer from Other Systems
Administrative Fee Loans
c. Income

Per Statement
d. Total
3. Decreases
a. Benefits Provided by Members

Withdrawals - Members' Contributions
Regular \$
\$ 83,898
Suspense
Adjustment - Member Account Loans - State
b. Benefits Provided by Employers and Members

Retirement Allowances
c. Benefits Provided by Employers

Benefit Expense - Pension Adjustment
Administrative Expense
Administrative Expense Loans
Adjusted Member Accounts Expense- State
NCGI Premium Expense
d. Total
4. Preliminary Market Value of Assets
as of June 30, 2015: 1. + 2.(d) - 3.(d)
5. Discounted State Appropriations Receivable
6. Market Value of Assets as of June 30, 2015:
4. +5 .
\$ 1,937,956,394
\$ 22,016,131
299,299
37,358,000
1,169,297
222,557
3,936
75,544,139
\$ 136,613,359

0
52
$182,540,341$
22,700,036
337,321
4,072
14,266
1,169,297
\$ 206,849,283
\$ 1,867,720,470
$\mathbf{3}^{32,975,255}{ }^{1}$
$\$ \quad 1,900,695,725^{2}$
${ }^{1}$ The fiscal year 2016 recommended pension contribution of $\$ 118,600,705$ has been reduced to $\$ 32,975,255$. This amount reflects the State's planned fiscal year 2016 contribution of $\$ 35,580,300,30 \%$ of the recommended employer contribution, discounted to the valuation date. This amount may be subject to change per the requirements of the State's fiscal year 2016 spending plan.
2 Excludes assets held in the Non-Contributory Group Insurance Fund.

## C. Development of Actuarial Value of Assets as of July 1, 2015

The actuarial value of plan assets is determined using a five-year average market value with write up. The following summary shows the development of the actuarial value of plan assets for the current valuation:

1. Actuarial Value of Assets as of July 1, 2014
\$ 1,952,191,074
2. Net Cash Flow (excluding investment income)
3. Expected Investment Income at 7.90\%
a. Interest on assets as of July 1, 2014
b. Interest on Net Cash Flow
c. Total
4. Expected Actuarial Value of Assets as of July 1, 2015:
5.     + 2.             + 3.(c)
1. $20 \%$ of Difference from Preliminary Market Value of Assets
2. Discounted Receivable Employer Contributions
3. Actuarial Value of Assets as of July 1, $2015=4 .+5 .+6$.
\$ 154,223,095
$(7,233,953)$
\$ 146,989,142
\$ 1,953,400,154

1 The fiscal year 2016 recommended pension contribution of $\$ 118,600,705$ has been reduced to $\$ 32,975,255$. This amount reflects the State's planned fiscal year 2016 contribution of $\$ 35,580,300,30 \%$ of the recommended employer contribution, discounted to the valuation date. This amount may be subject to change per the requirements of the State's fiscal year 2016 spending plan.

2 Excludes assets held in the Non-Contributory Group Insurance Fund.
D. Accrued Liabilities as of July 1, 2015

1. Retirees and Beneficiaries

| a. | Service Retirements | $\$$ | $2,027,208,526$ |
| :--- | :--- | ---: | ---: |
| b. | Disability Retirements | $145,183,897$ |  |
| c. | Beneficiaries | $117,473,398$ |  |
| d. | Total | $\$$ | $2,289,865,821$ |
|  |  |  |  |
| Terminated Vested Members | $\$$ | 0 |  |

3. Contributing Active Participants
a. Service Retirement \$
\$ 728,396,632
b. Ordinary Disability

17,303,475
c. Accidental Disability 24,694,165
d. Ordinary Death 8,094,532
e. Accidental Death 8,409,595
f. Vested Termination 915,547
g. Withdrawal Benefits
h. Total
$\begin{array}{r}\quad 172,155 \\ \hline\end{array}$
4. Non-Contributing Active Participants
5. Total Accrued Liability ${ }^{1}=$
1.(d) $+2 .+3 .(h)+4$.
${ }^{1}$ Excludes lump sum death benefits payable from the Non-Contributory Group Insurance Premium Fund.

1. Service Retirement \$ 46,608,516
2. Ordinary Disability 1,614,492
3. Accidental Disability 2,567,604
4. Ordinary Death

776,247
5. Accidental Death

1,043,816
6. Vested Termination
7. Withdrawal Benefits

37,127
8. Total Pension Normal Cost ${ }^{1}$
\$ 52,738,881

$$
=1 .+2 .+3 .+4 .+5 .+6 .+7 .
$$

${ }^{1}$ Excludes lump sum death benefits payable from the Non-Contributory Group Insurance Premium Fund.
F. Summary of Active member Accrued Actuarial Liability and Normal Cost payable July 1, 2015

| Membership Tier | Number of members | Total Appropriation Salary |  | Actuarial Accrued Liability |  | Gross Pension Normal Cost |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Tier 1 | 2,135 | \$ | 235,486,400 | \$ | 788,101,287 | \$ | 46,590,608 |
| Tier 2 | 541 |  | 39,991,057 |  | 12,253,376 |  | 6,148,273 |
| Total | 2,676 | \$ | 275,477,457 | \$ | 800,354,663 | \$ | 52,738,881 |

G. Development of Recommended State Pension Contributions

1. Accrued Liability \$ 3,090,220,484
2. Actuarial Value of Assets

1,969,239,472
3. Unfunded Actuarial Accrued

Liability/(Surplus) = 1. - 2 .
\$ 1,120,981,012
4. Amortization Period
5. Amortization of Unfunded Actuarial Accrued Liability payable July 1, 2016 (Level Dollar)
\$ 98,635,902
6. a. Gross Normal Cost (excluding NonContributory Group Insurance Premium)
b. Expected Member Contributions
c. State Normal Cost = (a) - (b)
d. State Normal Cost payable July 1, 2016 $=(\mathrm{c}) * 1.079$
\$ 34,581,760
7. Total Recommended Pension Contribution as
\$ 133,217,662
of July 1, $2016=5 .+6$.(d)
H. Non-Contributory Group Insurance Premium (One-Year Term Cost)

## Section IV - Comments Concerning the Valuation

The variation in liabilities and contributions reflects the System's actual experience during the year. The System experienced a net actuarial loss during the year that ended June 30, 2015.

The System experienced a net liability loss among active and retired members. There was also a loss due to an actual return on System assets less than expected. For valuation purposes, a $7.90 \%$ per annum rate of return was assumed for the period July 1, 2014 through June 30, 2015. The actual return on the Fund's actuarial value of assets was $6.91 \%$ for this period.

The following shows the development of the actuarial experience and identifies the major experience components:

## A. Calculation of Actuarial Experience for the Year Ended June 30, 2015

1. Unfunded Accrued Liability/(Surplus) as of July 1, 2014
\$ 981,805,625
2. Gross Normal Cost as of July 1, 2014

49,475,391
3. Interest on (1) and (2) at 7.90\%

81,471,200
4. Actual Members' Contributions Received 22,016,131
5. Employers' Contributions (including discounted receivable)

32,975,255
6. Interest on Contributions at 7.90\%

869,637
7. Expected Unfunded Accrued Liability/(Surplus)
as of July 1, $2015=(1)+(2)+(3)-(4)-(5)-(6)$
\$ 1,056,891,193
8. Change in Unfunded Accrued Liability due to the revised fiscal year 2015 State contribution ${ }^{1}$
9. Change in Unfunded Accrued Liability due to assumption changes In connection with the experience study

52,383,620
10. Actual Unfunded Accrued Liability as of July 1, 2015
$1,120,981,012$
11. $\quad$ Actuarial (Gain)/Loss $=(10)-(7)-(8)-(9)$
\$ 17,573,130
${ }^{1}$ The anticipated fiscal year 2015 contribution of $\$ 31,491,069$ has been increased to $\$ 37,358,000$ to reflect the actual State contribution made during fiscal year 2015.
B. Components of Actuarial Experience

1. Investment (Gain)/Loss
2. Other (Gain)/Loss, including mortality, changes in employee data and salary increases different than expected
3. Total Actuarial (Gain)/Loss

17,573,130

## C. Funded Ratios

The following table presents the System's funded ratios based on the actuarial value of assets (including receivables) and market value basis (including receivables).

|  | June 30, 2015 | June 30, 2014 | Change |
| :---: | :---: | :---: | :---: |
| ${\text { Actuarial Value of } \text { Assets }^{1}}^{\text {Market Value of Assets }}$ | $63.7 \%$ | $66.9 \%$ | $(3.2) \%$ |

1. Statutory funded ratio.

The System's statutory funded ratio is 66.9\% and 63.7\% as of June 30, 2014 and June 30, 2015, respectively. For purposes of Chapter 78, P.L. 2011, the "target funded ratio" is $77.856 \%$ and $78.570 \%$ for June 30, 2014 and June 30, 2015, respectively. Therefore, the System's statutory funded ratio fell below the "target funded ratio" for June 30, 2014 and the "target funded ratio" for June 30, 2015.

There is a difference on a market value basis since the actuarial value smoothes the investment gains and losses over time. Since July 1, 2000, the funded ratio on a market value basis has decreased by $71.3 \%$. This decrease is primarily due to investment losses experienced over the period, State contributions less than the statutorily determined amounts, and the strengthening of actuarial assumptions.

As of June 30, 2015, the market value of assets is less than the actuarial liability attributable to retirees. Furthermore, if the assets contained in the Annuity Savings Fund (ASF) of \$188,252,687 are excluded, the funded ratio of the remaining market value of assets to the actuarial accrued liability for retirees is $74.8 \%$.

As of June 30, 2015, the ratio of market value of assets to the prior year's benefit payment is 9.3 . This is a simplistic measure of the number of years that the assets can cover benefit payments, excluding: future increases in those payments, State and member contributions, and investment income. This ratio decreased by $7 \%$ from the previous year's ratio of 10.0. If ASF assets are excluded, since they represent accumulated contributions from active and inactive members, the ratio is 8.3.

## D. Schedule of Assets and Liabilities

The following presents a ten-year schedule of the System's assets, liabilities and funded ratio. The System's assets and funded ratio are provided on a market value (including receivables) basis and actuarial value of assets (including receivables) basis.

| Actuarial Valuation Date | Market Value of Assets ${ }^{2}$ <br> (a) | Actuarial Value of Assets ${ }^{2}$ <br> (b) | Actuarial <br> Accrued <br> Liability <br> (c) | Funded Ratio |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Market Value (a)/(c) | Actuarial Value (b)/(c) |
| 6/30/2015 | \$1,900,695,725 | \$ 1,969,239,472 | \$3,090,220,484 | 61.5\% | 63.7\% |
| 6/30/2014 | \$1,967,141,815 | \$ 1,981,376,495 | \$ 2,963,182,120 | 66.4\% | 66.9\% |
| 6/30/2013 | \$ 1,832,851,456 | \$ 1,990,797,312 | \$2,870,590,700 | 63.8\% | 69.4\% |
| 6/30/2012 | \$ 1,755,429,511 | \$ 1,995,388,133 | \$2,767,768,813 | 63.4\% | 72.1\% |
| 6/30/2011 | \$ 1,820,438,444 | \$ 2,015,624,130 | \$ 2,581,950,846 | 70.5\% | 78.1\% |
| 6/30/2010 | \$1,656,194,924 | \$ 2,019,350,048 | \$2,497,094,137 | 66.3\% | 80.9\% |
| 6/30/2009 | \$1,564,180,409 | \$ 2,067,242,877 | \$2,825,455,568 | 55.4\% | 73.2\% |
| 6/30/2008 | \$ 1,976,540,990 | \$ 2,136,006,509 | \$2,609,164,869 | 75.8\% | 81.9\% |
| 6/30/2007 | \$2,105,399,764 | \$ 2,101,672,160 | \$2,485,649,230 | 84.7\% | 84.6\% |
| 6/30/2006 | \$ 1,872,079,777 | \$ 2,000,274,259 | \$2,319,656,532 | 80.7\% | 86.2\% |

2. The information in the above tables has been taken directly from the final valuation reports for each plan year and does not reflect subsequent changes in actual employer contribution amounts from the reported receivable contribution after the valuation reports were issued.

## E. Schedule of Employer Pension Contributions

The following table presents a ten-year schedule that provides information about the System's actuarially determined contribution and the percentage of the actuarially determined contribution recognized by the System as contributed.

| Fiscal Year Ending June 30 | Actuarially Determined Contribution ${ }^{1}$ <br> (a) |  | Actual Pension Contribution <br> (b) |  | Contribution Deficiency <br> (a) - (b) |  | Percentage of Contribution Made |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Annual $\text { (b) } /(\mathrm{a})$ | Five-Year Average |  |  |
| 2016 |  | 118,600,705 |  |  | \$ | 35,580,300 | \$ | 83,020,405 | 30.00\% | 28.02\% |
| 2015 |  | 108,904,703 | \$ | 37,358,000 | \$ | 71,546,703 | 34.30\% | 22.02\% |
| 2014 | \$ | 106,977,623 | \$ | 35,231,000 | \$ | 71,746,623 | 32.93\% | 15.16\% |
| 2013 | \$ | 89,535,903 | \$ | 25,582,000 | \$ | 63,953,903 | 28.57\% | 9.46\% |
| 2012 | \$ | 89,671,744 | \$ | 12,810,000 | \$ | 76,861,744 | 14.29\% | 13.59\% |
| 2011 | \$ | 103,745,281 | \$ | 0 | \$ | 103,745,281 | 0.00\% | 21.01\% |
| 2010 | \$ | 82,485,012 | \$ | 0 | \$ | 82,485,012 | 0.00\% | 27.29\% |
| 2009 | \$ | 75,889,699 | \$ | 3,378,000 |  | 72,511,699 | 4.45\% |  |
| 2008 | \$ | 70,942,933 | \$ | 34,918,000 |  | 36,024,933 | 49.22\% |  |
| 2007 | \$ | 51,409,336 | \$ | 28,976,213 | \$ | 22,433,123 | 56.36\% |  |

1. The information in the above tables has been taken directly from the final valuation reports for each plan year and does not reflect subsequent changes in actual employer contribution amounts from the reported receivable contribution after the valuation reports were issued

## Section V - Level of Funding

The tables below present the liabilities determined on a Financial Accounting Standards Board ASC 715 (formerly Statement No. 87) Accumulated Benefit Obligation (ABO) basis. This is the same approach as was used under GASB Statement No. 5 except that no assumption is made as to future salary increases and assets are at market value with receivables.

## ASC 715 ABO Funded Ratios

| Actuarial present value of accumulated benefits: | June 30, 2015 |  | June 30, 2014 |  |
| :---: | :---: | :---: | :---: | :---: |
| Vested benefits |  |  |  |  |
| Participants currently |  |  |  |  |
| Other participants |  | 432,514,759 |  | 444,651,352 |
|  | \$ | 2,722,380,580 | \$ | 2,618,093,510 |
| Non-vested benefits |  | 180,195,287 |  | 167,449,652 |
| Total | \$ | 2,902,575,867 | \$ | 2,785,543,162 |
| Assets at market value | \$ | 1,867,720,470 ${ }^{1}$ | \$ | 1,967,141,815 |
| Ratio of assets to total present value |  | 64.3\% |  | 70.6\% |

1. Assets at market value do not include any receivable contributions.

As in the case of the Governmental Accounting Standard Board Statement No. 25, the actuarial present value of vested and non-vested accrued benefits was based on an interest rate of $7.90 \%$ for 2015 and 2014.

## Appendix A

Brief Summary of the Benefit and Contribution Provisions as Interpreted for Valuation Purposes
Eligibility for Membership
All members of the former State Police and Benevolent Fund: full-time commissioned officers, noncommissioned officers or troopers of the Division of State Police. Membership is a condition of employment.

## 1. Definitions

Plan Year
The 12-month period beginning on July 1 and ending on June 30.

## Service

Service rendered while a member as described above.

## Credited Service

A year is credited for each year of service as an officer or trooper in the State Police. Service with other State Retirement Systems is included in the calculation of the retirement benefit at the rate of $1 \%$ of final compensation for each year of service credit.

## Compensation

Based on contractual salary, including maintenance allowance, received by the member in the last 12 months of credited service preceding retirement, termination or death. Compensation does not include individual salary adjustments granted primarily in anticipation of the retirement or for temporary or extracurricular duties beyond the ordinary work day. (Effective June 30, 1996, Chapter 113, P.L. 1997 provided that the amount of compensation used for employer and member contributions and benefits under the program cannot exceed the compensation limitation of Section 401(a)(17) of the Internal Revenue Code; Chapter 1, P.L. 2010 provides that for members hired on or after May 22, 2010, the amount of compensation used for employer and member contributions and benefits under the System cannot exceed the annual maximum wage contribution base for Social Security, pursuant to the Federal Insurance Contributions Act.)

## Final Compensation

Average compensation received by member in last 12 months of credited service preceding retirement or death. Such term includes the value of the member's maintenance allowance for the same period. (Chapter 1, P.L. 2010 provides that for members hired on or after May 22, 2010, Final Compensation means the average annual salary for service for which contributions are made during any three fiscal years of membership providing the largest possible benefit to the member or the member's beneficiary. Such term shall include the value of the member's maintenance allowance.)

## Aggregate Contributions

The sum of all amounts deducted from the compensation of a member or contributed by him or on his behalf. For contribution purposes, compensation does not include overtime, bonuses, maintenance or any adjustments before retirement.

## Adjusted Final Compensation

The amount of compensation or compensation as adjusted, as the case may be, increased by the same percentage increase which is applied in any adjustments of the compensation schedule of active members after the member's death and before the date on which the deceased member of the retirement system would have accrued 25 years of service under an assumption of continuous service, at which time that
amount will become fixed. Adjustments to compensation or adjusted compensation shall take effect at the same time as any adjustments in the compensation schedule of active members.

## 2. Benefits

## Service Retirement

Mandatory retirement at age 55 . Voluntary retirement prior to age 55 with 20 years of credited service.
Benefit is an annual retirement allowance equal to the greater of (a), (b), or (c), as follows:
a. $50 \%$ of final compensation;
b. For members retiring with 25 or more years of service, $65 \%$ of final compensation, plus $1 \%$ for each year of service in excess of 25 years, to a maximum of $70 \%$ of final compensation.
c. For members as of August 29, 1985 who would not have 20 years of service by age 55, benefit as defined in (a) above. For members as of August 29, 1985 who would have 20 years of service but would not have 25 years of service at age 55, benefit as defined in (a) above plus $3 \%$ for each year of service in excess of 20 years.

## Vested Termination

Termination of service prior to age 55. Benefit for 10 to 20 years of service - Refund of aggregate contributions, or a deferred life annuity beginning at age 55 equal to $2 \%$ of final compensation for each year of service up to 20 years.

## Non-Vested Termination

Termination of service prior to age 55 and less than 10 years of service - Return of aggregate contributions.

## Ordinary Death

## Before Retirement

Death of an active member of the plan. Benefit is equal to:
a. Lump sum payment equal to 3-1/2 times compensation, plus
b. Spousal life annuity of $50 \%$ of final compensation payable until spouse's death or remarriage. If there is no surviving spouse, or upon death or remarriage, a total of $20 \%, 35 \%$ or $50 \%$ of final compensation payable to one, two or three dependent children. If there is no surviving spouse (or dependent children), $25 \%$ or $40 \%$ of final compensation to one or two dependent parents.

Minimum benefit: Aggregate contributions.

## After Retirement

Death of a retired member of the plan. The benefit is equal to:
a. Lump sum of $50 \%$ of compensation, plus
b. Spousal life annuity of $50 \%$ of final compensation payable until spouse's death or remarriage. If there is no surviving spouse, or upon death or remarriage, a total of $20 \%, 35 \%$ or $50 \%$ of final compensation payable to one, two or three dependent children, respectively.

## Accidental Death

Death of an active member of the plan resulting during performance of duties. Benefit is equal to:
a. Lump sum payment equal to 3-1/2 times compensation, plus
b. Spousal life annuity of $70 \%$ of adjusted final compensation payable until spouse's death. If there is no surviving spouse, or upon death of the surviving spouse, a total of $20 \%, 35 \%$ or $50 \%$ of adjusted final compensation payable to one, two or three dependent children. If there is no surviving spouse or dependent children, $25 \%$ or $40 \%$ of adjusted final compensation to one or two dependent parents.

## Ordinary Disability Retirement

Mentally or physically incapacitated for the performance of his usual duty and of any other available duty in the Division of State Police and such incapacity is likely to be permanent.
a. The benefit for members with less than four years of service is a refund of the member's aggregate contributions.
b. For members with at least four years of service, the benefit is an immediate life annuity equal to $40 \%$ of final compensation plus $1-1 / 2 \%$ of final compensation for years of creditable service in excess of 26-2/3.
c. For members who are forced to retire with 20 but less than 25 years of service, the benefit is $50 \%$ of the member's final compensation plus $3 \%$ of final compensation for each year of service in excess of 20 years, to a maximum of $65 \%$ of final compensation.

For death following disability retirement, a lump sum equal to 3-1/2 times compensation if death occurs prior to age 55 or $1 / 2$ of compensation after age 55 .

## Accidental Disability Retirement

Totally and permanently disabled as a direct result of a traumatic event occurring during and as a result of his regular or assigned duties. Benefit is an immediate life annuity equal to $2 / 3$ of final compensation. Upon death after disability retirement, lump sum benefit of 3-1/2 times final compensation if death occurs before 55 and $1 / 2$ times final compensation if death occurs after 55.

## Loan Provision

Eligible if an active member of the State Police Retirement System with at least 3 years of contributory service. If eligible, a member may borrow an amount which is greater than $\$ 50$, but not more than $50 \%$ of aggregate contributions. The loan accrues interest at a rate set by the State Treasurer, which is based on a commercially reasonable rate as required by the Internal Revenue Code. An administrative fee may be charged for the loan.

## Member Contributions

Each member contributes 7.5\% of Compensation. Chapter 78, P.L. 2011 increased Member Contributions from $7.5 \%$ to $9.0 \%$ of Compensation effective October 2011.

## Appendix B

## Outline of Actuarial Assumptions and Methods

Valuation Interest Rate
7.90\% per annum, compounded annually.

COLA
No future COLA is assumed.
Salary Increases
Salaries are assumed to increase by $3.45 \%$ per year through fiscal year ending 2021 and $4.45 \%$ per year for fiscal years ending 2022 and thereafter.

401(a)(17) Pay Limit
\$265,000 for 2015 increasing 3.00\% per annum, compounded annually.
Social Security Wage Base
\$118,500 for 2015 increasing 4.00\% per annum, compounded annually.
Termination
Withdrawal rates vary by length of service. Illustrative rates are shown below:

|  | Lives per Thousand |  |
| :---: | :---: | :---: |
|  | Less Than | Five to Nineteen <br> Age |
|  | 3.8 | 0.0 |
| 30 | 3.8 | 2.0 |
| 35 | 8.3 | 1.4 |
| 40 | 0.0 | 0.8 |
| 45 | 0.0 | 1.0 |
| 50 | 0.0 | 0.0 |

## Separations from Service

Representative mortality, disability and retirement rates are as follows:

| Age | Annual Rates of ${ }^{1}$ |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Ordinary Death ${ }^{2}$ |  | Accidental Death | Ordinary Disability | Accidental Disability |
|  | Male | Female |  |  |  |
| 25 | 0.4 | 0.2 | 0.3 | 0.4 | 0.2 |
| 30 | 0.4 | 0.3 | 0.5 | 0.6 | 0.5 |
| 35 | 0.5 | 0.5 | 0.5 | 1.5 | 1.9 |
| 40 | 0.9 | 0.7 | 0.5 | 1.7 | 2.1 |
| 45 | 1.2 | 1.1 | 0.7 | 2.2 | 2.1 |
| 50 | 1.7 | 1.6 | 0.9 | 3.8 | 2.3 |

Per one thousand lives.
${ }^{2}$ RP-2000 Combined Healthy Male (set back 3 years) and RP-2000 Combined Healthy Female Mortality Tables projected on a generational basis from the base year of 2000 to 2013 using Projection Scale BB as the base table. The base tables will be further projected using the Buck Modified MP-2014 Projection Scale. Rates shown above are unadjusted for the Buck Modified MP-2014 Projection Scale.

## Marriage

Husbands are assumed to be 3 years older than wives. Among the active population, $83.3 \%$ of participants are assumed married. No children are assumed. Neither the percentage married nor the number of children assumption is individually explicit but are considered reasonable as a single combined assumption.

## Valuation Method

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, 2019 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, 2029 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.

## Receivable Contributions

State contributions expected to be paid the June 30th following the valuation date are discounted by the valuation interest rate of $7.90 \%$ to the valuation date.

## Asset Valuation Method

A five-year average of market values with write-up. (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).

## Deaths After Retirement

For healthy inactive members and beneficiaries of deceased members the RP-2000 Combined Healthy Male (set back 3 years) and RP-2000 Combined Healthy Female Mortality tables projected on a generational basis from the base year of 2000 to 2013 using Projection Scale BB. These base tables will be further projected beyond the valuation date using the Buck Modified MP-2014 mortality improvement scale. For disabled members the RP-2000 Combined Healthy Male (set forward 5 years) and RP-2000 Combined Healthy Female Mortality (set forward 5 years) tables are used. Illustrative rates of mortality unadjusted for the Buck Modified MP-2014 Projection Scale are shown below:

| Age | Lives per Thousand |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Retired Members and Beneficiaries of Deceased Members |  | Disabled Members |  |
|  | Males | Females | Males | Females |
| 55 | 2.6 | 2.5 | 6.7 | 5.1 |
| 60 | 4.3 | 4.4 | 12.7 | 9.7 |
| 65 | 7.5 | 8.3 | 22.2 | 16.7 |
| 70 | 13.2 | 14.3 | 37.8 | 28.1 |
| 75 | 22.4 | 24.0 | 64.4 | 45.9 |
| 80 | 38.5 | 39.2 | 110.8 | 77.4 |
| 85 | 66.1 | 66.2 | 183.4 | 131.7 |
| 90 | 117.8 | 114.0 | 267.5 | 194.5 |

## Rates of Retirement

Rates of retirement vary by length of service and age (if more than 24 years of service) with 100\% of those remaining at age 55 retiring at age 55. The rates are shown below:

| Service | Lives Per 100 |
| :---: | :---: |
| 20 | 2.0 |
| 21 | 0.5 |
| 22 | 0.0 |
| 23 | 0.0 |
| 24 | 0.0 |
| 25 | 50.0 |


| Service | Lives Per 100 |
| :---: | :---: |
| (a) through age 42 | 5.0 |
| (b) ages 43-47 | 28.0 |
| (c) ages 48-53 | 33.0 |
| (d) age 54 | 61.0 |

## Appendix C

Tabulations Use as a Basis for the 2015 Valuation

The following tables give a reconciliation of data from July 1, 2014 to June 30, 2015. Tables are also given showing active member number and salaries by age and length of service as of July 1, 2015 and showing the number and retirement allowances of beneficiaries classified by age as of July 1, 2015.

## Table 1

Reconciliation of Data from July 1, 2014 to June 30, 2015

|  | Actives |  | Deferred Vested | Retirees |  |  |  | Beneficiaries | Dependents | Domestic Relations Beneficiaries |  | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Contrib. | Noncontrib. |  | Service | Special | Deferred | Disabled |  |  | Retirees | Disabilities |  |
| Members as of July 1, 2014 | 2,483 | 39 | 0 | 376 | 2,174 | 6 | 256 | 398 | 2 | 175 | 22 | 5,931 |
| Changed to Contributing | 4 | (4) |  |  |  |  |  |  |  |  |  |  |
| Changed to Noncontributing | (6) | 6 |  |  |  |  |  |  |  |  |  |  |
| Terminated Vested (Deferred) |  |  |  |  |  |  |  |  |  |  |  |  |
| Terminated Vested (Refund) |  | (1) |  |  |  |  |  |  |  |  |  | (1) |
| Terminated Non-Vested |  |  |  |  |  |  |  |  |  |  |  |  |
| Service Retirement | (1) | (2) |  | 3 |  |  |  |  |  |  |  |  |
| Special Retirement | (98) |  |  |  | 98 |  |  |  |  |  |  |  |
| New Disabled | (2) |  |  |  |  |  | 2 |  |  |  | 1 | 1 |
| New Death |  |  |  | (16) | (19) |  | (1) | (21) |  | (1) |  | (58) |
| New Actives | 258 |  |  |  |  |  |  |  |  |  |  | 258 |
| Rehires |  |  |  |  |  |  |  |  |  |  |  |  |
| New <br> Beneficiaries |  |  |  |  |  |  |  | 28 |  | 28 |  | 56 |
| Data Corrections |  |  |  | 1 | (1) |  |  |  |  |  |  |  |
| Members as of June 30, 2015 | 2,638 | 38 | 0 | 364 | 2,252 | 6 | 257 | 405 | 2 | 202 | 23 | 6,187 |

Table 2

Distribution Of Active Members By Age and Service

| Age | Service | 1 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 20 | Number Salary |  |  |  |  |  |  |  |  |  |
| 25 | Number Salary | $\begin{array}{r} 179 \\ 13,019,726 \end{array}$ | $\begin{array}{r} 16 \\ 1,215,817 \end{array}$ |  |  |  |  |  |  | $\begin{array}{r} 195 \\ 14,235,543 \end{array}$ |
| 30 | Number Salary | $\begin{array}{r} 202 \\ 14,730,583 \end{array}$ | $\begin{array}{r} 181 \\ 15,231,082 \end{array}$ | $\begin{array}{r} 60 \\ 5,683,788 \end{array}$ |  |  |  |  |  | $\begin{array}{r} 443 \\ 35,645,453 \end{array}$ |
| 35 | Number Salary | $\begin{array}{r} 45 \\ 3,312,982 \end{array}$ | $\begin{array}{r} 115 \\ 9,870,595 \end{array}$ | $\begin{array}{r} 401 \\ 40,924,557 \end{array}$ | $\begin{array}{r} 89 \\ 9,745,707 \end{array}$ | $\begin{array}{r} 1 \\ 88,844 \end{array}$ |  |  |  | $\begin{array}{r} 651 \\ 63,942,685 \end{array}$ |
| 40 | Number Salary | $\begin{array}{r} 1 \\ 90,906 \end{array}$ | $\begin{array}{r} 26 \\ 2,280,974 \end{array}$ | $\begin{array}{r} 204 \\ 21,506,660 \end{array}$ | $\begin{array}{r} 276 \\ 31,009,592 \end{array}$ | $\begin{array}{r} 26 \\ 2,952,899 \end{array}$ |  |  |  | $\begin{array}{r} 533 \\ 57,841,031 \end{array}$ |
| 45 | Number Salary |  | $\begin{array}{r} 3 \\ 256,796 \end{array}$ | 53 $5,723,987$ | 146 $16,806,270$ | $\begin{array}{r} 274 \\ 33,891,515 \end{array}$ | $\begin{array}{r} 12 \\ 1,491,429 \end{array}$ |  |  | $\begin{array}{r} 488 \\ 58,169,997 \end{array}$ |
| 50 and over | Number Salary |  |  | 5 432,554 | 2,856,145 | 165 | 89 $11,225,611$ | 81 $10,390,906$ | 1 145,899 | $\begin{array}{r} 366 \\ 45,642,748 \end{array}$ |
| Total | Number Salary | $\begin{array}{r} 427 \\ 31,154,197 \end{array}$ | $\begin{array}{r} 341 \\ 28,855,264 \end{array}$ | 7423 | 60,417,714 | 466 $57,524,891$ | 12,717,040 | 81 $10,390,906$ | 1 145,899 | $\begin{array}{r} 2,676 \\ 275,477,457 \end{array}$ |

Table 3

The Number And Annual Compensation Of
Active Members Distributed By Age
As Of June 30, 2015

| Age | Men |  |  | Women |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Number |  | Amount | Number |  | ount |
| 24 | 4 | \$ | 288,745 |  |  |  |
| 25 | 40 |  | 2,919,317 | 2 | \$ | 142,924 |
| 26 | 63 |  | 4,571,634 | 3 |  | 214,386 |
| 27 | 73 |  | 5,344,194 | 10 |  | 754,343 |
| 28 | 74 |  | 5,467,802 | 3 |  | 234,665 |
| 29 | 78 |  | 5,910,088 | 6 |  | 443,257 |
| 30 | 85 |  | 6,760,024 | 3 |  | 231,768 |
| 31 | 80 |  | 6,574,188 | 4 |  | 309,024 |
| 32 | 108 |  | 9,523,741 | 2 |  | 190,896 |
| 33 | 108 |  | 9,760,651 | 11 |  | 1,027,788 |
| 34 | 128 |  | 12,239,235 | 6 |  | 525,394 |
| 35 | 138 |  | 13,631,331 | 3 |  | 296,913 |
| 36 | 129 |  | 13,067,050 | 5 |  | 474,080 |
| 37 | 119 |  | 12,508,176 | 4 |  | 412,067 |
| 38 | 129 |  | 13,769,272 | 9 |  | 937,588 |
| 39 | 94 |  | 9,987,647 | 4 |  | 439,419 |
| 40 | 110 |  | 11,882,875 | 7 |  | 749,590 |
| 41 | 85 |  | 9,394,272 | 5 |  | 572,007 |
| 42 | 84 |  | 9,456,175 | 6 |  | 652,186 |
| 43 | 89 |  | 10,352,684 | 3 |  | 357,700 |
| 44 | 107 |  | 12,443,392 | 7 |  | 866,806 |
| 45 | 104 |  | 12,538,366 | 7 |  | 863,125 |
| 46 | 90 |  | 10,854,604 | 2 |  | 220,806 |
| 47 | 77 |  | 9,427,253 | 2 |  | 245,261 |
| 48 | 65 |  | 7,852,643 | 3 |  | 375,604 |
| 49 | 74 |  | 9,285,134 | 3 |  | 360,049 |
| 50 | 52 |  | 6,582,741 | 3 |  | 385,914 |
| 51 | 59 |  | 7,358,723 |  |  |  |
| 52 | 41 |  | 5,064,590 | 3 |  | 410,682 |
| 53 | 29 |  | 3,654,254 |  |  |  |
| 54 | 25 |  | 3,135,620 |  |  |  |
| 55 | 4 |  | 515,865 |  |  |  |
| 56 | 1 |  | 125,645 |  |  |  |
| 58 | 1 |  | 115,649 |  |  |  |
| 60 | 1 |  | 129,795 |  |  |  |
| 61 | 1 |  | 143,941 |  |  |  |
| 65 | 1 |  | 145,899 |  |  |  |
|  |  |  |  |  |  |  |
| Total | 2,550 | \$ | 262,783,215 | 126 | \$ | 12,694,242 |

Of the 2,676 active members included in the June 30, 2015 valuation data, 1,558 are vested and 1,118 have not yet completed the vesting service requirement.

## The Number And Annual Compensation Of

Active Members Distributed By Service
As Of June 30, 2015

| Years Of Service | Men |  |  | Women |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Number |  | mount | Number |  | ount |
| 0 | 92 | \$ | 6,588,154 | 6 | \$ | 428,772 |
| 1 | 121 |  | 8,646,902 | 10 |  | 714,620 |
| 2 | 188 |  | 14,015,612 | 10 |  | 760,137 |
| 3 | 67 |  | 5,306,517 | 7 |  | 561,071 |
| 4 | 11 |  | 832,434 |  |  |  |
| 5 | 13 |  | 999,160 | 2 |  | 160,306 |
| 6 | 85 |  | 7,181,367 | 2 |  | 185,518 |
| 7 | 147 |  | 12,992,576 | 7 |  | 636,315 |
| 8 | 62 |  | 5,796,716 | 7 |  | 652,841 |
| 9 | 92 |  | 8,892,742 | 6 |  | 595,418 |
| 10 | 259 |  | 26,597,808 | 9 |  | 939,675 |
| 11 | 156 |  | 16,577,831 | 3 |  | 320,430 |
| 12 | 120 |  | 12,919,780 | 9 |  | 978,305 |
| 13 | 59 |  | 6,383,924 | 3 |  | 323,614 |
| 14 | 263 |  | 29,569,527 | 14 |  | 1,558,586 |
| 15 | 36 |  | 3,897,588 | 3 |  | 340,161 |
| 16 | 34 |  | 3,741,199 |  |  |  |
| 17 | 117 |  | 13,780,680 | 7 |  | 822,435 |
| 18 | 106 |  | 12,472,915 | 5 |  | 618,177 |
| 19 | 20 |  | 2,285,627 | 0 |  | - |
| 20 | 137 |  | 17,102,169 | 10 |  | 1,303,849 |
| 21 | 105 |  | 13,226,539 | 4 |  | 533,091 |
| 22 | 79 |  | 9,982,524 |  |  |  |
| 23 | 8 |  | 950,769 |  |  |  |
| 24 | 8 |  | 1,005,762 |  |  |  |
| 25 | 13 |  | 1,640,850 | 1 |  | 124,027 |
| 26 | 24 |  | 3,088,720 |  |  |  |
| 27 | 46 |  | 5,770,018 | 1 |  | 136,894 |
| 28 | 44 |  | 5,619,943 |  |  |  |
| 29 | 22 |  | 2,812,242 |  |  |  |
| 30 | 10 |  | 1,327,677 |  |  |  |
| 31 | 3 |  | 357,256 |  |  |  |
| 32 | 2 |  | 273,788 |  |  |  |
| 37 | 1 |  | 145,899 |  |  |  |
|  |  |  |  |  |  |  |
| Total | 2,550 | \$ | 262,783,215 | 126 | \$ | 12,694,242 |

Of the 2,676 active members included in the June 30, 2015 valuation data, 1,558 are vested and 1,118 have not yet completed the vesting service requirement.

Table 5

State Police Retirement System of New Jersey

|  | Service Retirement |  | Special Retirement <br> (25 Years of Service) |  | Ordinary Disability |  | Accidental Disability |  | Survivors |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Average Age At Retirement | Average_Annual Benefit At Retirement ${ }^{1}$ | Average Age At Retirement | Average Annual Benefit At Retirement ${ }^{1}$ | Average Age At Retirement | Average Annual Benefit At Retirement ${ }^{1}$ | Average Age At Retirement | Average Annua Benefit At Retirement ${ }^{1}$ | Average Age At Retirement ${ }^{2}$ |  | Annual fit At ment ${ }^{1}$ |
| All Retirees | 50.4 | \$ 30,714 | 51.0 | \$ 67,800 | 41.7 | \$ 33,280 | 39.9 | \$ 51,612 | 47.1 | \$ | 24,319 |
| New Retirees | 49.3 | \$ 57,036 | 51.0 | \$ 91,745 | N/A | N/A | 35.5 | \$ 68,028 | 48.5 | \$ | 24,790 |


|  | All Retirements <br> (excluding Survivors) |  |
| :---: | :---: | :---: |
|  | Average Age At <br> Retirement | Average Age At <br> Retirement |
| All Retirees | 50.0 | $\$ \quad 60,921$ |

1. The Average Annual Benefit at Retirement does not reflect COLA's granted after retirement.
2. Calculated as of member's date of retirement.

Table 6
The Number And Annual Retirement
Allowances Of Retired Members Distributed
xerox $0^{\circ}$
By Age As Of June 30, 2015
Service Retirements

| Age | Men |  |  | Women |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Number |  | Amount | Number |  |  |
| 43 |  |  |  | 1 | \$ | 20,738 |
| 44 |  |  |  | 2 |  | 36,902 |
| 45 |  |  |  | 1 |  | 25,813 |
| 46 | 2 | \$ | 147,609 | 3 |  | 36,712 |
| 47 | 7 |  | 552,001 | 1 |  | 26,364 |
| 48 | 32 |  | 2,552,724 | 10 |  | 189,419 |
| 49 | 57 |  | 4,517,274 | 9 |  | 180,304 |
| 50 | 98 |  | 7,888,639 | 12 |  | 400,470 |
| 51 | 119 |  | 9,380,410 | 16 |  | 454,534 |
| 52 | 122 |  | 9,908,094 | 14 |  | 408,517 |
| 53 | 109 |  | 8,762,249 | 18 |  | 710,051 |
| 54 | 97 |  | 7,804,102 | 16 |  | 616,495 |
| 55 | 73 |  | 5,760,387 | 12 |  | 459,405 |
| 56 | 104 |  | 8,310,247 | 24 |  | 855,086 |
| 57 | 91 |  | 7,073,420 | 11 |  | 302,058 |
| 58 | 94 |  | 7,183,701 | 10 |  | 500,051 |
| 59 | 89 |  | 6,601,396 | 10 |  | 311,233 |
| 60 | 61 |  | 4,444,409 | 10 |  | 316,835 |
| 61 | 81 |  | 6,011,363 | 8 |  | 302,652 |
| 62 | 50 |  | 3,727,773 | 5 |  | 82,597 |
| 63 | 60 |  | 4,342,753 | 3 |  | 100,462 |
| 64 | 70 |  | 4,743,419 | 5 |  | 68,418 |
| 65 | 50 |  | 3,536,276 | 2 |  | 36,622 |
| 66 | 68 |  | 4,708,346 | 6 |  | 148,901 |
| 67 | 66 |  | 4,115,856 | 1 |  | 31,212 |
| 68 | 84 |  | 5,461,289 | 9 |  | 204,610 |
| 69 | 95 |  | 5,782,183 | 8 |  | 161,919 |
| 70 | 73 |  | 4,273,984 | 7 |  | 133,918 |
| 71 | 65 |  | 3,623,210 | 1 |  | 16,049 |
| 72 | 83 |  | 4,665,614 |  |  |  |
| 73 | 78 |  | 4,206,155 | 1 |  | 12,000 |
| 74 | 84 |  | 4,355,424 | 3 |  | 52,773 |
| 75 | 55 |  | 2,906,443 |  |  |  |
| 76 | 40 |  | 2,078,320 | 3 |  | 77,114 |
| 77 | 51 |  | 2,496,690 | 2 |  | 57,691 |
| 78 | 23 |  | 1,096,145 |  |  |  |
| 79 | 26 |  | 1,129,146 | 1 |  | 2,600 |
| 80 | 24 |  | 1,133,324 |  |  |  |

Table 6
The Number And Annual Retirement
Allowances Of Retired Members Distributed
By Age As Of June 30, 2015
Service Retirements
(Continued)

| Age | Men |  |  | Women |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Number | Amount |  | Number |  | unt |
| 81 | 15 | \$ | 709,195 | 1 |  | 25,968 |
| 82 | 15 | \$ | 634,531 |  |  |  |
| 83 | 26 | \$ | 1,203,791 |  |  |  |
| 84 | 27 | \$ | 1,179,671 |  |  |  |
| 85 | 22 | \$ | 921,157 |  |  |  |
| 86 | 18 | \$ | 717,743 |  |  |  |
| 87 | 25 | \$ | 1,068,098 |  |  |  |
| 88 | 10 | \$ | 352,063 |  |  |  |
| 89 | 14 | \$ | 423,855 |  |  |  |
| 90 | 9 | \$ | 306,264 |  |  |  |
| 91 | 7 | \$ | 214,376 |  |  |  |
| 92 | 2 | \$ | 67,072 |  |  |  |
| 93 | 1 | \$ | 23,316 |  |  |  |
| 94 | 2 | \$ | 79,788 |  |  |  |
| 95 | 2 | \$ | 83,056 |  |  |  |
| 98 | 1 | \$ | 38,196 |  |  |  |
| 100 | 1 | \$ | 31,975 |  |  |  |
|  |  |  |  |  |  |  |
| Total | 2,578 | \$ | 173,334,522 | 246 | \$ | 7,366,493 |

Table 7
The Number And Annual Retirement
Allowances Of Beneficiaries Distributed
xerox $0^{\circ}$
By Age As Of June 30, 2015
Beneficiaries Of Deceased Pensioners

| Age | Men |  | Women |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Number | Amount | Number |  |  |
| 47 |  |  | 1 | \$ | 41,495 |
| 49 |  |  | 1 |  | 45,902 |
| 52 |  |  | 1 |  | 49,252 |
| 53 |  |  | 3 |  | 143,528 |
| 56 |  |  | 3 |  | 153,297 |
| 57 | 1 | \$ 10,100 | 2 |  | 104,569 |
| 58 |  |  | 5 |  | 224,658 |
| 59 |  |  | 3 |  | 159,198 |
| 60 |  |  | 2 |  | 104,702 |
| 61 |  |  | 2 |  | 69,442 |
| 62 |  |  | 2 |  | 98,202 |
| 63 |  |  | 3 |  | 135,059 |
| 64 |  |  | 1 |  | 54,071 |
| 65 |  |  | 9 |  | 416,517 |
| 66 |  |  | 2 |  | 77,443 |
| 67 |  |  | 11 |  | 414,874 |
| 68 | 1 | 10,132 | 16 |  | 660,822 |
| 69 |  |  | 5 |  | 196,380 |
| 70 |  |  | 8 |  | 334,659 |
| 71 |  |  | 14 |  | 560,101 |
| 72 |  |  | 12 |  | 429,506 |
| 73 | 1 | 41,306 | 13 |  | 535,591 |
| 74 |  |  | 14 |  | 504,166 |
| 75 |  |  | 13 |  | 468,511 |
| 76 |  |  | 8 |  | 320,596 |
| 77 |  |  | 14 |  | 501,592 |
| 78 |  |  | 10 |  | 357,463 |
| 79 |  |  | 6 |  | 178,071 |
| 80 |  |  | 11 |  | 363,186 |
| 81 |  |  | 8 |  | 251,152 |
| 82 |  |  | 11 |  | 353,475 |

Table 7
The Number And Annual Retirement
Allowances Of Beneficiaries Distributed
xerox $0^{\circ}$
By Age As Of June 30, 2015
Beneficiaries Of Deceased Pensioners
(Continued)

| Age | Men |  |  | Women |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Number |  | Amount | Number |  | ount |
| 83 |  |  |  | 20 | \$ | 601,240 |
| 84 |  |  |  | 15 |  | 398,131 |
| 85 |  |  |  | 17 |  | 535,704 |
| 86 |  |  |  | 18 |  | 521,482 |
| 87 |  |  |  | 15 |  | 411,821 |
| 88 |  |  |  | 13 |  | 404,097 |
| 89 |  |  |  | 9 |  | 257,451 |
| 90 |  |  |  | 5 |  | 143,313 |
| 91 |  |  |  | 7 |  | 207,155 |
| 92 |  |  |  | 3 |  | 51,434 |
| 93 |  |  |  | 4 |  | 116,934 |
| 94 |  |  |  | 2 |  | 63,416 |
| 95 |  |  |  | 2 |  | 56,938 |
| 96 |  |  |  | 2 |  | 32,886 |
| 97 |  |  |  | 2 |  | 55,115 |
| 100 |  |  |  | 1 |  | 10,013 |
|  |  |  |  |  |  |  |
| Total | 3 | \$ | 61,538 | 349 | \$ | 12,174,610 |

## Table 8

The Number And Annual Retirement
Allowances Of Beneficiaries Distributed
xerox $\boldsymbol{Q}^{\circ}$
By Age As Of June 30, 2015
Beneficiaries Of Deceased Active Employees

| Age | Men |  | Women |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Number | Amount | Number |  | unt |
| 35 |  |  | 2 | \$ | 127,918 |
| 39 |  |  | 1 |  | 75,469 |
| 40 |  |  | 1 |  | 47,113 |
| 42 |  |  | 1 |  | 76,154 |
| 47 |  |  | 1 |  | 42,679 |
| 49 |  |  | 2 |  | 130,088 |
| 50 |  |  | 1 |  | 76,449 |
| 51 |  |  | 1 |  | 37,577 |
| 52 |  |  | 2 |  | 151,690 |
| 53 |  |  | 1 |  | 76,449 |
| 54 |  |  | 1 |  | 52,511 |
| 56 |  |  | 1 |  | 65,123 |
| 57 |  |  | 2 |  | 111,851 |
| 60 |  |  | 1 |  | 40,928 |
| 61 |  |  | 1 |  | 45,884 |
| 63 |  |  | 2 |  | 107,005 |
| 64 |  |  | 2 |  | 84,074 |
| 65 |  |  | 1 |  | 56,211 |
| 66 |  |  | 3 |  | 100,965 |
| 68 |  |  | 1 |  | 36,769 |
| 69 |  |  | 1 |  | 50,776 |
| 70 |  |  | 3 |  | 113,571 |
| 71 |  |  | 2 |  | 79,895 |
| 72 |  |  | 3 |  | 146,709 |
| 73 |  |  | 1 |  | 47,768 |
| 74 |  |  | 2 |  | 80,957 |
| 75 |  |  | 2 |  | 62,886 |
| 76 |  |  | 1 |  | 21,964 |
| 78 |  |  | 1 |  | 41,037 |
| 80 |  |  | 1 |  | 29,387 |
| 81 |  |  | 1 |  | 36,622 |
| 83 |  |  | 1 |  | 24,135 |
| 85 |  |  | 1 |  | 27,716 |
| 86 |  |  | 1 |  | 22,518 |
| 89 |  |  | 1 |  | 32,548 |
| 90 |  |  | 1 |  | 19,466 |
| 91 |  |  | 2 |  | 52,289 |
| 94 |  |  | 1 |  | 18,325 |
| 95 |  |  | 1 |  | 20,460 |
|  |  |  |  |  |  |
| Total |  |  | 55 | \$ | 2,471,936 |

Table 9
The Number And Annual Retirement
Allowances Of Retired Members Distributed
By Age As Of June 30, 2015
xerox $0^{\circ}$

Ordinary Disability Retirements

| Age | Men |  |  | Women |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Number | Amount |  | Number | Amount |  |
| 36 | 1 | \$ | 31,970 |  |  |  |
| 39 | 2 |  | 79,960 |  |  |  |
| 40 |  |  |  | 1 | \$ | 43,524 |
| 43 |  |  |  | 1 |  | 38,141 |
| 44 | 1 |  | 40,556 | 1 |  | 28,593 |
| 45 | 1 |  | 43,528 |  |  |  |
| 46 | 1 |  | 30,554 |  |  |  |
| 47 | 3 |  | 86,873 |  |  |  |
| 48 | 2 |  | 73,660 |  |  |  |
| 49 | 7 |  | 252,344 | 4 |  | 44,904 |
| 50 | 4 |  | 112,840 |  |  |  |
| 51 | 9 |  | 294,539 | 3 |  | 118,406 |
| 52 | 5 |  | 214,043 | 4 |  | 120,562 |
| 53 | 5 |  | 195,256 | 3 |  | 74,012 |
| 54 | 5 |  | 195,046 | 3 |  | 72,624 |
| 55 | 1 |  | 37,270 | 1 |  | 18,497 |
| 56 | 6 |  | 302,669 | 2 |  | 65,299 |
| 57 | 4 |  | 178,259 | 1 |  | 9,007 |
| 58 | 4 |  | 248,031 | 1 |  | 51,125 |
| 59 | 3 |  | 146,915 |  |  |  |
| 60 | 1 |  | 56,880 |  |  |  |
| 61 | 4 |  | 205,922 | 1 |  | 26,235 |
| 62 | 2 |  | 83,864 |  |  |  |
| 63 | 3 |  | 143,500 |  |  |  |
| 64 | 2 |  | 29,356 | 1 |  | 8,141 |
| 65 | 1 |  | 26,351 | 1 |  | 21,833 |
| 66 | 1 |  | 50,998 |  |  |  |
| 67 | 1 |  | 24,591 | 1 |  | 3,981 |
| 68 | 4 |  | 132,404 | 1 |  | 32,532 |
| 70 | 2 |  | 49,945 |  |  |  |
| 71 | 2 |  | 88,750 | 1 |  | 13,757 |
| 72 | 1 |  | 23,847 |  |  |  |
| 73 | 3 |  | 82,557 |  |  |  |
| 74 | 2 |  | 39,317 |  |  |  |
| 75 | 3 |  | 73,788 |  |  |  |
| 76 | 2 |  | 75,309 |  |  |  |
| 77 | 2 |  | 40,046 |  |  |  |
| 78 | 1 |  | 19,311 |  |  |  |
| 90 | 1 |  | 16,282 |  |  |  |
|  |  |  |  |  |  |  |
| Total | 102 | \$ | 3,827,331 | 31 | \$ | 791,173 |

The Number And Annual Retirement
Allowances Of Retired Members Distributed
By Age As Of June 30, 2015
xerox $0^{\circ}$

## Accidental Disability Retirements

| Age | Men |  |  | Women |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Number | Amount |  | Number | Amount |  |
| 33 | 2 | \$ | 108,181 | 1 | \$ | 50,082 |
| 34 | 1 |  | 47,708 |  |  |  |
| 36 | 1 |  | 67,815 | 1 |  | 70,405 |
| 37 | 4 |  | 260,784 |  |  |  |
| 39 | 2 |  | 131,805 |  |  |  |
| 40 | 1 |  | 58,530 |  |  |  |
| 41 | 2 |  | 134,716 |  |  |  |
| 42 | 3 |  | 159,400 |  |  |  |
| 43 | 4 |  | 236,632 |  |  |  |
| 44 | 6 |  | 387,972 |  |  |  |
| 45 | 2 |  | 126,932 |  |  |  |
| 46 | 1 |  | 50,017 |  |  |  |
| 47 | 5 |  | 289,171 |  |  |  |
| 48 | 8 |  | 511,010 | 3 |  | 160,630 |
| 49 | 4 |  | 259,951 |  |  |  |
| 50 | 8 |  | 543,125 | 1 |  | 57,133 |
| 51 | 9 |  | 546,288 | 1 |  | 7,980 |
| 52 | 8 |  | 520,916 | 1 |  | 61,104 |
| 53 | 7 |  | 408,826 |  |  |  |
| 54 | 7 |  | 366,093 | 3 |  | 27,717 |
| 55 | 4 |  | 264,376 | 1 |  | 40,988 |
| 56 | 4 |  | 269,782 | 1 |  | 3,380 |
| 57 | 2 |  | 96,843 | 1 |  | 31,413 |
| 58 | 1 |  | 71,460 | 2 |  | 112,506 |
| 59 | 4 |  | 206,630 |  |  |  |
| 60 | 1 |  | 63,937 |  |  |  |
| 61 | 3 |  | 177,645 |  |  |  |
| 63 | 3 |  | 140,156 | 1 |  | 10,452 |
| 65 | 3 |  | 176,931 | 1 |  | 51,830 |
| 68 | 1 |  | 54,720 |  |  |  |
| 69 | 1 |  | 36,349 |  |  |  |
| 70 | 1 |  | 74,400 |  |  |  |
| 71 | 2 |  | 65,090 |  |  |  |
| 72 | 1 |  | 28,265 |  |  |  |
| 73 | 5 |  | 161,462 |  |  |  |
| 74 | 1 |  | 26,722 |  |  |  |
| 75 | 1 |  | 25,289 |  |  |  |
| 76 | 3 |  | 105,442 |  |  |  |
| 77 | 1 |  | 45,399 |  |  |  |
| 78 | 1 |  | 51,305 |  |  |  |
| 90 | 1 |  | 35,338 |  |  |  |
|  |  |  |  |  |  |  |
| Total | 129 | \$ | 7,393,413 | 18 | \$ | 685,620 |

