

# The Consolidated Police and Firemen's Pension Fund of New Jersey Annual Report of the Actuary

Actuarial Valuation  
July 1, 2016



© 2017 Conduent Business Services, LLC. All rights reserved. Conduent™ and Conduent Design™ are trademarks of Conduent Business Services, LLC in the United States and/or other countries.

Other company trademarks are also acknowledged.

Document Version: \\ftwsdata002a\buckretirement\Client\N\00016 New Jersey Retirement Systems\2016\0001 Prison Officers (POPF)\Valuation Work\AVR\POPF 010517 AS\_2016\ValuationReport 2016.docx



500 Plaza Drive  
Secaucus, New Jersey 07096-1533

February 3, 2017

Commission  
Consolidated Police and Firemen's Pension  
Fund of New Jersey  
Trenton, New Jersey

Ladies and Gentlemen:

The law governing the operation of the Consolidated Police and Firemen's Pension Fund of New Jersey provides for annual actuarial valuations of the Fund. The results of the July 1, 2016 valuation are submitted in this report, which also includes a comparison with the preceding year's valuation.

The valuation shows the financial condition of the Plan as of July 1, 2016 and gives the basis for determining the recommended annual contribution for the plan year beginning July 1, 2016.

The valuation was prepared on the basis of the same assumptions as were employed for the previous valuation, which include a 2.00% per annum rate of investment return.

The State of New Jersey's Division of Pensions and Benefits reported the individual data for members of the Consolidated Police and Firemen's Pension Fund of New Jersey as of the valuation date to the actuaries. 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.

The valuation reflects the actual fiscal year 2016 State Pension Contribution of \$148,000. In addition, the valuation also reflects the anticipated fiscal year 2017 State Pension Contribution of \$353,872. This amount may be subject to change per the requirements of the State's fiscal year 2017 spending plan.

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

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 future results is beyond the scope of this valuation.

Use of this report for any other reason or by anyone other than the Commission 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 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.



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,

A handwritten signature in black ink that reads "Aaron Shapiro".

Aaron Shapiro, F.S.A., E.A., M.A.A.A.  
Principal, Consulting Actuary  
Conduent

AS/em  
CPFPPF 010617 AS\_2016ValRpt\_2016.docx

# Table of Contents

## Section I

Summary of Key Results .....	1
------------------------------	---

## Section II

Employee Data .....	3
---------------------	---

## Section III

Assets, Liabilities and Contributions .....	5
---	---

- A. Market Value of Assets as of June 30, 2016
- B. Reconciliation of Market Value of Assets  
from June 30, 2015 to June 30, 2016
- C. Development of Actuarial Value of Assets  
as of July 1, 2016
- D. Accrued Liabilities as of July 1, 2016
- E. Development of State Contribution

## Section IV

Comments Concerning the Valuation .....	8
---	---

## Appendix A

Brief Summary of the Benefit and Contribution Provisions as Interpreted for Valuation Purposes.....	10
--	----

## Appendix B

Outline of Actuarial Assumptions and Methods .....	12
--	----

## Appendix C

Tabulations Used as a Basis for the 2016 Valuation .....	13
Table 1 – Service Retirements	
Table 2 – Active Members’ Death Benefits	
Table 3 – Retired Members’ Death Benefits	

## Section I – Summary of Key Results

The Consolidated Police and Firemen's Pension Fund of New Jersey was established by Chapter 358, P.L. 1952. This report, prepared as of July 1, 2016, 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 Date	July 1, 2016	July 1, 2015
<u>Participant Data</u>		
Active Members	0	0
Retired Members and Beneficiaries	95	124
Total Participants	95	124
Annual Compensation	\$ 0	\$ 0
Annual Retirement Allowances	\$ 657,938	\$ 822,873
<u>Assets</u>		
Market Value of Assets	\$ 2,241,861	\$ 2,427,950
Actuarial Value of Assets	\$ 3,017,928	\$ 3,340,908
<u>Contribution Amounts</u>		
Recommended		
Normal Contribution	\$ 0	\$ 0
Accrued Liability Contribution <sup>1</sup>	325,191	884,680
Total Contribution	\$ 325,191	\$ 884,680

<sup>1</sup> The unfunded accrued liability has been amortized over a period of one year.

The major benefit and contribution provisions of the statute as reflected in the valuation are summarized in Appendix A. There were no changes from the provisions used in the previous valuation.

The actuarial assumptions and methods used for valuing the Fund are summarized in Appendix B. There were no changes in actuarial assumptions and methods used from the previous valuation.

The combination of the plan provisions, actuarial assumptions and member and beneficiary data is used to generate the overall required level of employer contributions. The required contribution is developed in Section III E.

The Valuation also 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, 2015 and July 1, 2016 is set forth in the following table.

## Section I – Summary of Key Results (continued)

Table I

Comparative Balance Sheet

	2016	2015
<b><u>Assets</u></b>		
Actuarial value of assets of Fund	\$ 3,017,928	\$ 3,340,908
Unfunded accrued liability/(surplus)	<u>318,815</u>	<u>867,333</u>
Total Assets	\$ 3,336,743	\$ 4,208,241
<b><u>Accrued Liabilities</u></b>		
Present value of benefits to present beneficiaries payable from the Retirement Reserve Fund	\$ 3,336,743	\$ 4,208,241
Present value of benefits to present active members and terminated vested members	<u>0</u>	<u>0</u>
Total Accrued Liabilities	\$ 3,336,743	\$ 4,208,241

## Section II – Employee Data

The data employed for the valuations were furnished to the actuary by the Division of Pensions and Benefits. Appendix C contains summary tables, which present the number and retirement allowances of members classified by age. The following summarizes and compares the Fund membership as of July 1, 2015 and July 1, 2016 by various categories.

### Active Membership

There have been no active participants in the Plan since July 1, 1992.

### Retired Members and Beneficiaries

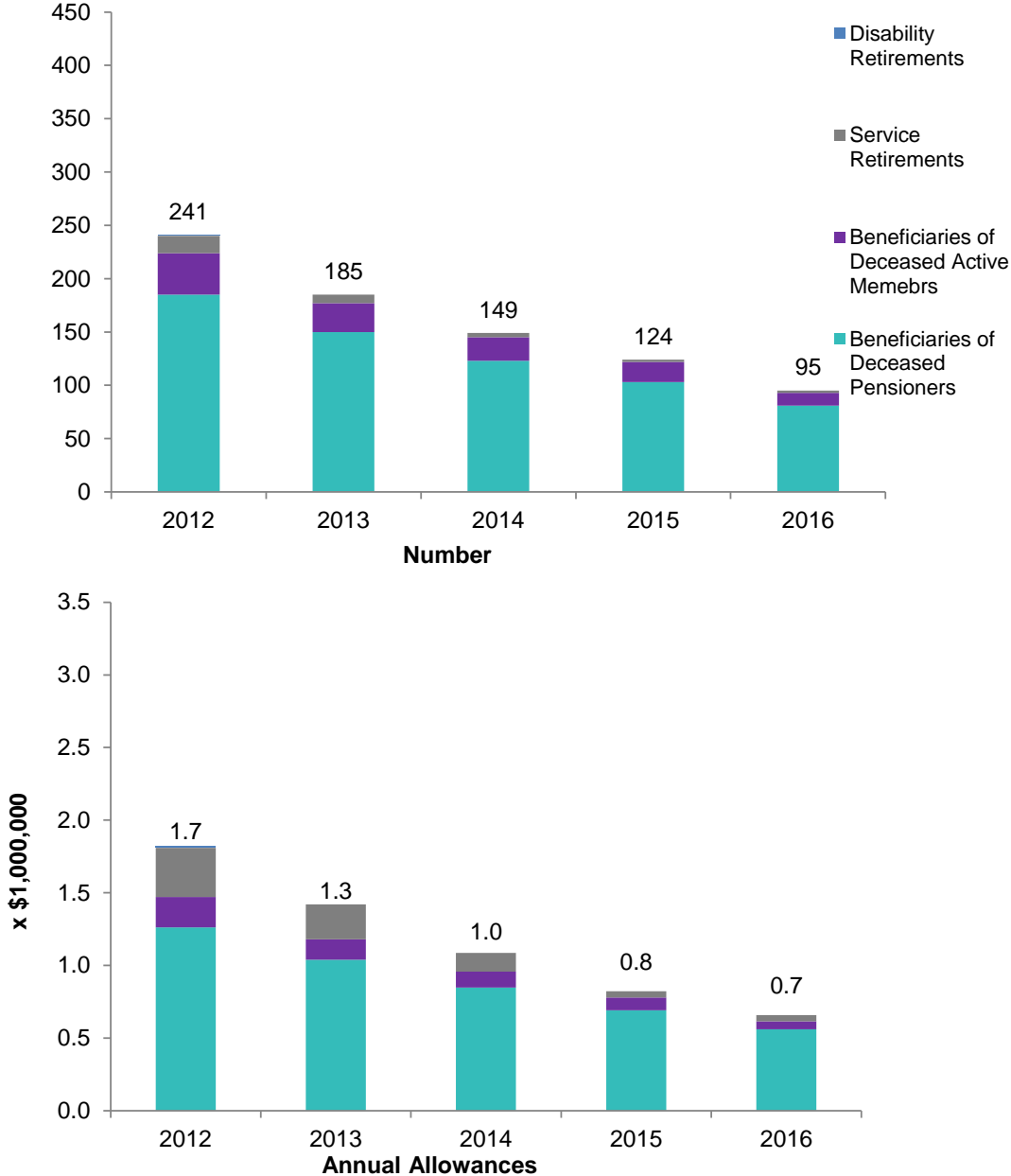
Group	2016		2015	
	Number	Annual Allowances	Number	Annual Allowances
Service Retirements	2	\$ 43,144	2	\$ 43,144
Ordinary Disability Retirements	0	\$ 0	0	\$ 0
Accidental Disability Retirements	0	\$ 0	0	\$ 0
Beneficiaries of Deceased Active Employees	12	\$ 55,072	19	\$ 88,945
Beneficiaries of Deceased Pensioners	81	\$ 559,722	103	\$ 690,784

Graphic presentations of the statistical data on membership for the five preceding years are shown on the following page.



# The Consolidated Police and Firemen's Pension Fund of New Jersey

## Summary of Retired Participants



## Section III - Assets, Liabilities and Contributions

### A. Market Value of Assets as of June 30, 2016

1. Assets		
a. Cash	\$	97,183
b. Investment Holdings		1,683,801
c. Accrued Interest on Investments		16
d. Employer Contribution Receivable – State		0
e. Accounts Receivable - Other		188,659
f. Administrative Expense Receivable		11,222
g. Employers' Contributions Receivable - Pension Adjustment		88,477
h. Total	\$	<u>2,069,358</u>
2. Liabilities		
a. Pension Payroll Payable	\$	51,500
b. Pension Adjustment Payroll Payable		107,759
c. Withholdings Payable		12,792
d. Administrative Expense Payable		2,379
e. Accounts Payable – Other		0
f. Total	\$	<u>174,430</u>
3. Preliminary Market Value of Assets as of June 30, 2016: 1(h) - 2(f)	\$	1,894,928
4. State Appropriations Receivable		<u>346,933</u> <sup>1</sup>
5. Market Value of Assets as of June 30, 2016: 3. + 4.	\$	2,241,861

<sup>1</sup> Reflects the State's fiscal year 2017 anticipated contribution of \$353,872 discounted one year. This amount may be subject to change per the requirements of the State's fiscal year 2017 spending plan.

## Section III - Assets, Liabilities and Contributions (continued)

### B. Reconciliation of Market Value of Assets: June 30, 2015 to June 30, 2016

1.	Market Value of Assets as of June 30, 2015	\$	2,427,950
2.	Increases		
a.	State Appropriations	\$	148,000
b.	Administrative Revenue - Local		8,003
c.	Pension Adjustment		1,196,017
d.	Investment Income		2,853
e.	Total	\$	<u>1,354,873</u>
3.	Decreases		
a.	Retirement Allowances	\$	685,234
b.	Benefit Expense – Pension Adjustment		1,196,017
c.	Miscellaneous Expense		0
d.	Administrative Expenses		6,644
e.	Total	\$	<u>1,887,895</u>
4.	Preliminary Market Value of Assets as of June 30, 2016: 1. + 2.(e) - 3.(e)	\$	1,894,928
5.	State Appropriations Receivable		<u>346,933</u> <sup>1</sup>
6.	Market Value of Assets as of June 30, 2016: 4. + 5.	\$	2,241,861

<sup>1</sup> Reflects the State's fiscal year 2017 anticipated contribution of \$353,872 discounted one year. This amount may be subject to change per the requirements of the State's fiscal year 2017 spending plan.

### C. Development of Actuarial Value of Assets as of July 1, 2016

1.	Actuarial Value of Assets as of July 1, 2015 (without State Appropriations Receivable)	\$	3,340,908
2.	Net Cash Flow excluding Investment Income and receivable Employer Contributions		<u>(535,875)</u>
3.	Expected Investment Income at 2.00%		
a.	Interest on assets as of July 1, 2015	\$	66,818
b.	Interest on Net Cash Flow		<u>(6,839)</u>
c.	Total	\$	59,979
4.	Expected Actuarial Value of Assets as of July 1, 2016 1. + 2. + 3.(c)	\$	2,865,012
5.	20% of Difference from Preliminary Market Value of Assets		(194,017)
6.	Discounted Receivable Employer Contributions		<u>346,933</u> <sup>1</sup>
7.	Actuarial Value of Assets as of July 1, 2016 = 4. + 5. + 6.	\$	3,017,928

<sup>1</sup> Reflects the State's fiscal year 2017 anticipated contribution of \$353,872 discounted one year. This amount may be subject to change per the requirements of the State's fiscal year 2017 spending plan.

## Section III - Assets, Liabilities and Contributions (continued)

### D. Accrued Liabilities as of July 1, 2016

1. Active Members		
a. Service Retirement	\$	0
b. Death After Retirement		0
c. Total: (a) + (b)	\$	<u>0</u>
2. Service Retirees		172,786
3. Disability Retirees		0
4. Beneficiaries of Deceased Pensioners		2,828,829
5. Beneficiaries of Deceased Active Employees		<u>335,128</u>
6. Total Accrued Liability = 1.(c) + 2. + 3. + 4. + 5.	\$	3,336,743

### E. Development of State Contribution

1. Accrued Liability	\$	3,336,743
2. Actuarial Value of Assets		<u>3,017,928</u>
3. Unfunded Accrued Liability/(Net Surplus) = 1. - 2.	\$	318,815
4. Amortization Years Remaining <sup>1</sup>		<u>1</u>
5. Total State Contribution as of July 1, 2017 = 3. * 1.02	\$	325,191

<sup>1</sup> The latest unfunded accrued liability payment schedule required the amortization of any plan gains or losses over the remainder of the 9-year period that began on June 30, 1991. Without additional guidance, we have assumed the immediate payment of any unfunded accrued liability.

## Section IV - Comments Concerning the Valuation

The variation in liabilities and contributions reflects the Fund's actual experience during the year. The Fund experienced a net actuarial gain during the year that ended June 30, 2016.

The experience gain is due to mortality experience among the retired participants and beneficiaries of the Fund and to an investment loss. For valuation purposes, a 2.0% per annum rate of return was assumed. The actual return on the Fund's actuarial value of assets was approximately (4.36)% for the period from July 1, 2015 through June 30, 2016.

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, 2016

1. Unfunded Accrued Liability/(Surplus) as of July 1, 2015	\$	867,333
2. Interest on 1. at 2.0%		17,347
3. Contributions*		494,933
4. Interest on 3.		0
5. Expected Unfunded Accrued Liability as of July 1, 2016 = 1.+ 2.- 3.- 4.	\$	389,747
6. Actual Unfunded Accrued Liability as of July 1, 2016	\$	318,815
7. Actuarial Loss/(Gain) = 6. - 5.	\$	(70,932)

### B. Components of Actuarial Experience

1. Investment (Gain)/Loss	\$	194,017
2. Other (Gain)/Loss, including mortality, changes in employee data and salary increases different than expected		(264,949)
3. Total Actuarial (Gain)/Loss = 1. + 2.	\$	(70,932)

\* Actual contribution made of \$148,000 as of as of June 30, 2016 and discounted accrued contribution of \$346,933.

### C. 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 (a)	Actuarial Value of Assets (b)	Actuarial Accrued Liability (c)	Funded Ratio	
				Market Value (a)/(c)	Actuarial Value (b)/(c)
6/30/2016	\$ 2,241,861	\$ 3,017,928	\$ 3,336,743	67.19%	90.45%
6/30/2015	\$ 2,427,950	\$ 3,340,908	\$ 4,208,241	57.70%	79.39%
6/30/2014	\$ 3,303,631	\$ 4,366,457	\$ 4,848,499	68.14%	90.06%
6/30/2013	\$ 5,217,857	\$ 6,445,847	\$ 6,102,292	85.51%	105.63%
6/30/2012	\$ 5,755,743	\$ 7,179,322	\$ 8,026,421	71.71%	89.45%
6/30/2011	\$ 6,665,469	\$ 8,300,684	\$ 9,179,981	72.61%	90.42%
6/30/2010	\$ 8,760,735	\$ 10,632,228	\$ 11,824,904	74.09%	89.91%
6/30/2009	\$ 11,749,083	\$ 13,879,949	\$ 14,024,132	83.78%	98.97%
6/30/2008	\$ 14,438,781	\$ 16,962,382	\$ 17,319,488	83.37%	97.94%
6/30/2007	\$ 16,618,771	\$ 19,858,423	\$ 21,090,186	78.80%	94.16%

### D. 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 <sup>1</sup> (a)	Actual Pension Contributions (b)	Contribution Deficiency (a) - (b)	Percentage of Contribution Made	
				Annual (b)/(a)	Five-Year Average
2017	\$ 884,680	\$ 353,872 <sup>2</sup>	\$ 530,808	40.00%	54.02%
2016	\$ 491,683	\$ 148,000	\$ 343,683	30.10%	48.88%
2015	\$ 0	\$ 0	\$ 0	100.00%	42.86%
2014	\$ 864,041	\$ 0	\$ 864,041	0.00%	22.86%
2013	\$ 896,883	\$ 897,000	\$ (117)	100.01%	42.86%
2012	\$ 1,216,530	\$ 174,000	\$ 1,042,530	14.30%	42.89%
2011	\$ 147,067	\$ 0	\$ 147,067	0.00%	60.03%
2010	\$ 364,248	\$ 0	\$ 364,248	0.00%	80.03%
2009	\$ 1,256,398	\$ 1,256,000	\$ 398	99.97%	
2008	\$ 522,176	\$ 523,000	\$ (824)	100.16%	

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
2. Assumes State contributes 40% of the actuarially determined contribution for the fiscal year ending June 30, 2017.

# Appendix A

## Brief Summary of the Benefit and Contribution Provisions as Interpreted For Valuation Purposes

### Eligibility for Membership

Member of a municipal police department, municipal paid or part-paid fire department or county police department, or a paid or part-paid fire department of a fire district located in a township who has contributed to this pension fund; and who is not covered by the Police and Firemen's Retirement System which became effective on July 1, 1944.

### Active Member

Any member who is a policeman, fireman, detective, lineman, driver of police van, fire alarm operator, or inspector of combustibles and who is subject to call for active service as such.

### Employee Member

Any member who is not subject to active service or duty.

## 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.

### Compensation

Base salary; not including individual salary adjustments which are granted primarily in anticipation of retirement or additional remuneration for performing temporary duties beyond the regular 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.)

### Final Compensation

Compensation received during the last 12 months of service preceding retirement or termination of service.

### Average Salary

Salary averaged over the last three years prior to retirement or other termination of service.

## Appendix A (continued)

### 2. Benefits

#### Service Retirement

Mandatory retirement at age 65 with 25 years of service (a municipality may retain the Chief of Police until age 70). Voluntary retirement after 25 years of service for an active member and after age 60 with 25 years of service for an employee member. Benefit is life annuity equal to 60% of final compensation, plus 1% of final compensation for years of service in excess of 25.

#### Death Benefit

##### While on duty

Immediate life annuity equal to 70% of average salary payable to the spouse. If there is no spouse or if the spouse dies or remarries, 20% of final compensation will be payable to one surviving child and 35% (50%) of final compensation will be payable, to two (three) surviving children. If there is no surviving spouse or child, 25% (40%) of final compensation will be payable to one (two) surviving dependent parent(s). The minimum spousal annuity is \$4,500 per annum.

##### While not on duty after retirement

Life annuity equal to 50% of the member's average salary payable to the spouse, plus 15% (25%) to one (two or more) surviving child (children). If there is no surviving spouse or if the surviving spouse dies or remarries, 20% (35%, 50%) of the member's average salary to one (two, three or more) surviving child (children). In the event that there is no surviving spouse or child, 25% (40%) of the member's average salary will be payable to one (two) dependent parent(s). The minimum spousal annuity is \$4,500 per annum.

#### Ordinary Disability Retirement

Totally and permanently incapacitated from service for any cause other than as a direct result of a traumatic event occurring during the performance of duty. Benefit is an immediate life annuity equal to 1/2 of average salary.

#### Accidental Disability Retirement

Totally and permanently incapacitated as a direct result of a traumatic event occurring while performing regular or assigned duties. Benefit is an immediate life annuity equal to 2/3 of average salary.

### 3. Contributions

Each active member contributes 7% of his salary to the pension fund.



# Appendix B

## Outline of Actuarial Assumptions and Methods

### Valuation Interest Rate

2.00% per annum, compounded annually for development of costs.

### Deaths After Retirement

RP-2000 Combined Healthy Mortality Tables projected on a generational basis from the base year of 2000 to 2014 using Projection Scale BB as the base tables and the tables will be further projected beyond the valuation date using the Buck Modified MP-2014 projection scale. Representative values of the assumed annual rates of mortality.

Age	Service Pensioners and Beneficiaries*	
	Men	Women
60	0.612%	0.439%
65	1.076	0.820
70	1.797	1.414
75	3.062	2.374
80	5.209	3.875
85	8.964	6.540
90	15.710	11.279

\*Unadjusted for the Buck-Modified MP-2014 projection scale

### Marriage

Males are assumed to be 4 years older than females; no assumption was made as to children.

For those participants with listed beneficiaries, the beneficiary allowance was assumed to be the greater of twice the amount contained in the record or the minimum of \$4,500/yr. (The information contained in the record has not been updated for the change from 25% to 50% payment to the survivor.)

For those participants without listed beneficiaries, 65% were assumed to be married and the beneficiary amount was assumed to be the minimum benefit payable (\$4,500/yr.).

### Actuarial Method

The unfunded accrued liability was measured as of June 30, 1990 and the accrued liability contribution rate was then determined such that the unfunded accrued liability was to be amortized over a period of 9 years with contributions expected to remain constant.

In determining the unfunded accrued liability and the contribution rate, the actuarial value of assets as of June 30, 1990 was based upon 100% of the market value of system assets. For subsequent actuarial valuations, the actuarial value of assets is adjusted to reflect actual contributions and benefit payments, an assumed rate of return on the previous year's assets and current year's cash flow at an annual rate of 2.00% with an adjustment to reflect 20% of the difference between the resulting value and the actual market value of System assets.

In developing the unfunded accrued liability contribution rate as of June 30, 1991 and subsequent years, the contribution rate is adjusted to amortize any gains or losses over the remainder of the 9-year period. (Without additional guidance, we have assumed that the unfunded accrued liability determined as of June 30, 2015 will be amortized over 1 year.)

## Appendix C

### Tabulations Used as a Basis for the 2016 Valuation

The following tables give the number and retirement allowances of retired members and beneficiaries classified by age as of July 1, 2016.

**Table 1**

**The Number And Annual Retirement Allowances of Retired Members Distributed By Age As Of July 1, 2016**

#### Service Retirements

Age	Men		Women	
	Number	Amount	Number	Amount
96	1	\$ 32,757		
98	1	10,387		
<b>Total</b>	2	\$ 43,144		

**Table 2**

**The Number And Annual Retirement Allowances of Beneficiaries Distributed By Age As Of July 1, 2016**

#### Active Members' Death Benefits

Age	Men		Women	
	Number	Amount	Number	Amount
65			1	\$ 778
71			1	1,800
72	1	\$ 1,800		
74			1	2,215
79			1	4,500
88			2	9,000
93			1	4,500
95			3	25,979
97			1	4,500
<b>Total</b>	1	\$ 1,800	11	\$ 53,272

## Appendix C (continued)

Table 3

The Number And Annual Retirement Allowances of Beneficiaries Distributed By Age As Of July 1, 2016

Retired Members' Death Benefit

Age	Men		Women	
	Number	Amount	Number	Amount
62	1	\$ 3,575		
68	1	1,670		
69			1	\$ 4,500
73			1	1,047
76			1	4,500
77			2	2,494
78	1	1,350	1	4,500
80			1	4,500
81	1	450	1	1,295
83			1	15,188
84			1	4,500
85			2	12,442
86			1	1,873
87	1	1,923	2	27,115
88			4	28,946
89			4	30,379
90			2	20,340
91			1	7,419
92			5	46,870
93			4	31,432
94			8	47,094
95			6	57,782
96			7	57,554
97			3	20,091
98			5	34,020
99			5	38,660
100			2	16,239
101			2	13,100
103			1	4,500
105			1	7,874
106			1	4,500
<b>Total</b>	<b>5</b>	<b>\$ 8,968</b>	<b>76</b>	<b>\$ 550,754</b>