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**PERA**

Public Employees  
Retirement Association  
of New Mexico

**INVESTED IN TOMORROW.**

## **Public Employees Retirement Association of New Mexico (PERA)**

**GASB Statement No. 67 Supplemental Report  
Prepared as of June 30, 2018**



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## Section I - Introduction

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The Governmental Accounting Standards Board issued Statement No. 67 (GASB 67), “Financial Reporting for Pension Plans,” in June 2012. GASB 67’s effective date is for plan years beginning after June 15, 2013. This report, prepared as of June 30, 2018 (the Measurement Date), presents information to assist PERA in meeting the requirements of GASB 67. Much of the material provided in this report is based on the data, assumptions and results of the annual actuarial valuation of PERA and the Legislative Division of PERA as of June 30, 2017. The Board adopted new economic and demographic assumptions after the valuation date but prior to the measurement date. The June 30, 2017 liabilities were rolled-forward using these new assumptions to produce the June 30, 2018 liabilities. The actuarial assumptions are included in Appendix A.

Among the assumptions needed for the liability calculation is a Single Equivalent Interest Rate (SEIR). To determine the SEIR, the FNP must be projected into the future for as long as there are anticipated benefits payable under the plan’s provision applicable to the membership and beneficiaries of the Plan on the Measurement Date. If the FNP is projected to not be depleted at any point in the future, which is the current result for PERA, the long term expected rate of return on plan investments expected to be used to finance the benefit payments may be used as the SEIR.

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

To the best of our knowledge, this supplemental report is complete and accurate. It relies on much of the information contained in the annual actuarial valuations of PERA and the Legislative Division of PERA. The annual valuation reports should be distributed along with this report to interested parties. The actuarial calculations were performed by qualified actuaries according to generally accepted actuarial procedures and methods. Further, the calculations were prepared in accordance with the principles of practice prescribed by the Actuarial Standards Board and, in our opinion, meet the requirements of GASB 67. The undersigned are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

## Section I - Introduction

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The sections that follow provide the results of all the necessary calculations for PERA (including the Legislative Division), presented in the order laid out in GASB 67 for note disclosure and Required Supplementary Information (RSI).

Respectfully Submitted,

A handwritten signature in blue ink, reading "Jonathan T. Craven". The signature is fluid and cursive, with the first name being the most prominent.

Jonathan T. Craven, ASA, EA, MAAA, FCA  
Consulting Actuary

A handwritten signature in blue ink, reading "John J. Garrett". The signature is fluid and cursive, with the first name being the most prominent.

John J. Garrett, ASA, MAAA, FCA  
Principal and Consulting Actuary

## Section II – Financial Statement Notes

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The material presented herein will follow the order presented in GASB 67. Paragraph numbers are provided for ease of reference.

The information required by paragraphs 30(a)(1)-(3) are to be supplied by PERA.

The data required by paragraph 30(a)(4) regarding the Plan membership were furnished by PERA. The following table summarizes the membership of the Plan as of June 30, 2017, the Actuarial Valuation Date.

### Membership

Category	Number
Inactive Members or Their Beneficiaries Currently Receiving Benefits	38,197
Inactive Members Entitled to But Not Yet Receiving Benefits	16,384
Active Members	48,862
Total	103,443

The information required by paragraphs 30(a)(5)-(6) as well as paragraphs 30(b)-(f) are to be supplied by PERA. The information required by paragraph 31(a) is provided in the following table. As stated above, the Net Pension Liability is equal to the Total Pension Liability minus the Plan's Net Position. That result as of June 30, 2018 is presented in the table below.

Calculation of the Net Pension Liability (NPL) as of Fiscal Year Ending June 30, 2018	
Total pension liability	\$21,382,639,119
Plan net position	<u>15,210,482,641</u>
Net pension liability	\$ 6,172,156,478
Ratio of plan net position to total pension liability	71.13%

## Section II – Financial Statement Notes

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Paragraph 31(b) requires information regarding the actuarial assumptions used to measure the TPL. The economic and demographic assumptions were adopted by the Board for use in the June 30, 2018 actuarial valuation of PERA, with the only demographic change being mortality assumptions for the Legislative division. Appendix A provides the assumptions used for the measurements contained herein.

### Long-Term Expected Rate of Return

The long-term expected rate of return on pension plan investments was determined using statistical analysis in which best-estimate 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. The target asset allocation and most recent best estimates of arithmetic real rates of return for each major asset class are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return
Global Equity	43.5%	7.48%
Risk Reduction & Mitigation	21.5	2.37
Credit Oriented Fixed Income	15.0	5.47
Real Assets	20.0	6.48
Total	100.0%	

*Discount rate.* Previously, a select and ultimate rate of return assumption had been adopted for funding purposes but new economic assumptions were adopted for the June 30, 2018 valuations including the change to a 7.25% static rate. The discount rate used to measure the total pension liability is 7.25 percent. The projection of cash flows used to determine the discount rate assumed that future contributions will be made in accordance with statutory rates. On this basis, the pension plan's fiduciary net position together with the expected future contributions are sufficient to provide all projected future benefit payments of current plan members as determined in accordance with GASB Statement No. 67. Therefore, the 7.25% assumed long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

## Section II – Financial Statement Notes

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Paragraph 31(b)(1)(g) requires disclosure of the sensitivity of the net pension liability to changes in the discount rate. The following presents the net pension liability of PERA, calculated using the discount rate of 7.25 percent, as well as what PERA's net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (6.25 percent) or 1-percentage-point higher (8.25 percent) than the current rate:

	<b>1% Decrease 6.25%</b>	<b>Current Discount Rate 7.25%</b>	<b>1% Increase 8.25%</b>
System's net pension liability	\$8,878,471,452	\$6,172,156,478	\$3,942,405,236

June 30, 2017 is the actuarial valuation date upon which the TPL is based (paragraph 31(c)). The TPL was calculated as of June 30, 2017 using the new economic and demographic assumptions adopted by the Board. Standard update procedures were used to roll forward the liabilities to the June 30, 2018 Measurement Date.

## **Section III – Required Supplementary Information**

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There are several tables of Required Supplementary Information (RSI) that are required to be included in PERA's financial statements. The tables for paragraphs 32(a)-(c) are provided on the following pages. The end of year total pension liability (TPL) was determined by "rolling-forward." This method determines the end of year amount by assuming there were no changes in the TPL during the year due to actual experience being different than expected for that plan year. Impact of changes to the assumptions and benefit terms are appropriately measured and provided in the supplementary information. The money-weighted rates of return required for paragraph 32(d) are to be determined by PERA's investment professionals.



## Section III – Required Supplementary Information

### SCHEDULE OF CHANGES IN THE NET PENSION LIABILITY GASB 67 Paragraph 32(a)

	2014	2015	2016	2017	2018
<b>Total pension liability</b>					
Service Cost	\$ 418,995,891	\$ 389,052,473	\$ 390,220,766	\$ 405,560,569	\$ 376,310,442
Interest	1,286,996,350	1,335,949,923	1,393,557,454	1,452,723,072	1,462,669,395
Benefit changes	-	-	-	-	-
Difference between expected and actual experience	-	59,112,343	330,750,820	(584,186,354)	113,712,339
Changes of assumptions	(91,856,820)	-	424,791,570	(62,778,144)	545,509,838
Benefit payments	(905,329,141)	(966,236,566)	(1,024,399,237)	(1,084,818,276)	(1,133,417,826)
Refunds of contributions	(47,376,975)	(46,010,197)	(44,937,505)	(44,396,305)	(50,288,373)
<b>Net change in total pension liability</b>	<b>\$ 661,429,305</b>	<b>\$ 771,867,976</b>	<b>\$ 1,469,983,868</b>	<b>\$ 82,104,562</b>	<b>\$ 1,314,495,815</b>
<b>Total pension liability - beginning</b>	<b>\$17,082,757,593</b>	<b>\$17,744,186,898</b>	<b>\$18,516,054,874</b>	<b>\$19,986,038,742</b>	<b>\$20,068,143,304</b>
<b>Total pension liability - ending (a)</b>	<b>\$17,744,186,898</b>	<b>\$18,516,054,874</b>	<b>\$19,986,038,742</b>	<b>\$20,068,143,304</b>	<b>\$21,382,639,119</b>
<b>Plan net position</b>					
Contributions - employer <sup>1</sup>	\$ 370,766,329	\$ 317,163,961	\$ 324,751,997	\$ 332,473,332	\$ 319,499,468
Contributions - member <sup>2</sup>	174,037,205	258,919,779	265,529,178	272,829,112	282,847,487
Net investment income	2,118,284,928	251,488,279	47,444,548	1,500,758,585	1,004,226,605
Benefit payments	(905,329,141)	(966,236,566)	(1,024,399,237)	(1,084,818,276)	(1,133,417,826)
Administrative expense	(10,336,324)	(9,885,765)	(10,753,722)	(11,505,774)	(12,667,256)
Refunds of contributions	(47,376,975)	(46,010,197)	(44,937,505)	(44,396,305)	(50,288,373)
Other	17,005,791	25,296,313	12,317,520	471,465	2,109,772
<b>Net change in plan net position</b>	<b>\$ 1,717,051,813</b>	<b>\$ (169,264,196)</b>	<b>\$ (430,047,221)</b>	<b>\$ 965,812,139</b>	<b>\$ 412,309,877</b>
<b>Plan net position - beginning</b>	<b>\$12,707,740,926</b>	<b>\$14,424,792,739</b>	<b>\$14,255,528,543</b>	<b>\$13,826,658,367</b>	<b>\$14,798,917,909</b>
Prior period adjustments	-	-	1,177,045	6,447,403	(745,145)
<b>Plan net position - beginning, Restated</b>	<b>\$12,707,740,926</b>	<b>\$14,424,792,739</b>	<b>\$14,256,705,588</b>	<b>\$13,833,105,770</b>	<b>\$14,798,172,764</b>
<b>Plan net position - ending (b)</b>	<b>\$14,424,792,739</b>	<b>\$14,255,528,543</b>	<b>\$13,826,658,367</b>	<b>\$14,798,917,909</b>	<b>\$15,210,482,641</b>
<b>Net pension liability - ending (a) - (b)</b>	<b>\$ 3,319,394,159</b>	<b>\$ 4,260,526,331</b>	<b>\$ 6,159,380,375</b>	<b>\$ 5,269,225,395</b>	<b>\$ 6,172,156,478</b>

<sup>1</sup> Includes \$74,357,341 of employer paid plan member contributions for 2014 (in accordance with Question 40 in the GASB 67 Implementation Guide). The 2017 amount has been revised to align with GASB 68 reporting.

<sup>2</sup> Includes service purchases. The 2017 amount has been revised to align with GASB 68 reporting.

## Section III – Required Supplementary Information

### SCHEDULE OF THE NET PENSION LIABILITY GASB 67 Paragraph 32(b)

	2014	2015	2016	2017	2018
Total pension liability	\$ 17,744,186,898	\$18,516,054,874	\$19,986,038,742	\$20,068,143,304	\$21,382,639,119
Plan net position	<u>14,424,792,739</u>	<u>14,255,528,543</u>	<u>13,826,658,367</u>	<u>14,798,917,909</u>	<u>15,210,482,641</u>
Net pension liability	\$ 3,319,394,159	\$ 4,260,526,331	\$ 6,159,380,375	\$ 5,269,225,395	\$ 6,172,156,478
Ratio of plan net position to total pension liability	81.29%	76.99%	69.18%	73.74%	71.13%
Covered-employee payroll	\$ 2,102,265,325	\$ 2,248,254,276	\$ 2,326,943,176	\$ 2,193,888,677	\$ 2,265,036,299
Net pension liability as a percentage of covered-employee payroll	157.90%	189.50%	264.70%	240.18%	272.50%

## Section III – Required Supplementary Information

### SCHEDULE OF EMPLOYER CONTRIBUTIONS GASB 67 Paragraph 32(c)

	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Contractually required contributions*	\$ 319,499,468	\$ 332,473,332	\$ 324,751,997	\$ 317,163,961	\$ 370,766,329	\$ 285,560,291	\$ 274,905,978	\$ 283,376,830	\$ 291,683,000	\$ 311,081,925
Actual employer contributions*	<u>319,499,468</u>	<u>332,473,332</u>	<u>324,751,997</u>	<u>317,163,961</u>	<u>370,766,329</u>	<u>285,560,291</u>	<u>274,905,978</u>	<u>283,376,830</u>	<u>291,683,000</u>	<u>311,081,925</u>
Annual contribution deficiency (excess)	0	0	0	0	0	0	0	0	0	0
Covered-employee payroll	\$2,265,036,299	\$2,193,888,677	\$2,326,943,176	\$2,248,254,276	\$2,102,265,325	\$2,049,737,510	\$1,994,280,107	\$1,935,013,761	\$1,993,516,921	\$2,081,259,498
Actual contributions as a percentage of covered-employee payroll	14.11%	15.15%	13.96%	14.11%	17.64%	13.93%	13.78%	14.64%	14.63%	14.95%

\*Includes \$74,357,341 of employer paid plan member contributions for 2014 (in accordance with Question 40 in the GASB 67 Implementation Guide). The 2017 amount has been revised to align with GASB 68 reporting.

## Section IV: Notes to Required Schedules

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### Summary of Actuarial Methods and Assumptions for Valuation

Actuarial valuation date	June 30, 2017
Actuarial cost method	Entry Age Normal
Amortization method	Level Percentage of Pay
Amortization period	Solved for based on statutory rates
Asset valuation method	4 Year Smoothed Market Value
Actuarial Assumptions:	
Investment rate of return*	7.25% annual rate, net of investment expense
Administrative Expenses	0.50% of payroll
Payroll Growth	3.00%
Projected salary increases*	3.25% to 13.50% annual rate
*Includes inflation at	
	2.50%

In addition, under paragraph 34, the following should be noted regarding the RSI:

The actuarial assumptions utilized in developing the TPL are those contained in Appendix A of this report. The Board adopted updated economic assumptions as follows:

Assumption	Previous	Current
Rate of Inflation	2.25% select and 2.75% ultimate	2.50% static
Investment Rate of Return	7.25% select and 7.75% ultimate	7.25% static
Rate of Payroll Growth	2.75% select and 3.25% ultimate	3.00% static
Administrative Expenses	0.45% of payroll	0.50% of payroll

## Section IV: Notes to Required Schedules

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In addition, new demographic assumptions and methods were adopted as follows:

Summary of Changes	
<b>Withdrawal</b>	Minor changes to Muni Police and Muni Fire divisions which reduce rates after 7 years of service.
<b>Retirement</b>	Changes to current assumed rates of retirement that reduce the number expected retirements.
<b>Mortality</b>	Adoption of the RPH-2014 Blue Collar mortality table with female age forward one year. Future improvement in mortality rates is assumed us 60% of the MP-2017 projection scale generationally.
<b>Disability</b>	Lowered rates for State Police, Muni General males, and Muni Police divisions.
<b>Salary Increase Above Wage Inflation</b>	Changes to the service based rates of salary increases which generally reflect lower rates of salary growth.

## Appendix A: Actuarial Assumptions

### Actuarial Assumptions Used for Determining the Total Pension Liability (TPL)

#### Economic Assumptions (effective with June 30, 2018 valuation)

**Assumed Rate of Investment Return.** 7.25% per annum net of investment expenses.

**Discount Rate for Determining the TPL:** 7.25%.

**20-Year Municipal Bond Rate as of Measurement Date:** N/A.

**Administrative Expenses.** 0.50% of payroll.

**Price Inflation.** 2.50% per annum, compounded annually.

**Salary Increases.** Salary increases occur in recognition of (i) individual merit and longevity, (ii) inflation-related depreciation of the purchasing power of salaries, and (iii) other factors such as productivity gains and competition from other employers for personnel. Sample rates follow:

Attributable to:	Annual Rates of Salary Increase for Sample Years of Service				
	1	5	10	15	20
General Increase in Wage Level Due to:					
Inflation	2.50%	2.50%	2.50%	2.50%	2.50%
Other Factors	0.75	0.75	0.75	0.75	0.75
Increase Due to Merit/Longevity:					
State General	5.00	1.25	0.50	0.00	0.00
State Police	10.25	5.75	1.25	1.25	1.25
State Corrections	9.75	3.50	2.00	1.50	1.50
Municipal General*	2.50	1.50	0.50	0.00	0.00
Municipal Police	7.75	2.75	1.50	0.75	0.75
Municipal Fire	7.75	2.75	1.50	1.25	1.25

\* Includes Municipal Detention Officers

## Appendix A: Actuarial Assumptions

In the following schedules, State Corrections includes Adult Corrections Officers, Juvenile Corrections Officers and Municipal Detention Officers unless otherwise noted.

**Mortality Assumption.** The mortality assumptions are based on the RPH-2014 Blue Collar mortality table with female ages set forward one year. Future improvement in mortality rates is assumed using 60% of the MP-2017 projection scale generationally. For non-public safety groups, 25% of in-service deaths are assumed to be duty related and 35% are assumed to be duty-related for public safety groups.

Rates are shown for sample ages in the following schedule. Note that sex distinct mortality rates are used solely for determining the funded status and contribution rate adequacy. All benefit amounts are based on merged gender mortality rates.

Sample Mortality Rates (Base Rates)								
Pre-Commencement			Post-Commencement			Post-Commencement		
Age	Male	Female	Age	Male	Female	Age	Male	Female
25	0.000733	0.000244	35	0.001793	0.001169	80	0.053460	0.042932
30	0.000717	0.000317	40	0.002156	0.001611	85	0.088524	0.072752
35	0.000797	0.000417	45	0.003275	0.002671	90	0.146859	0.125111
40	0.000958	0.000598	50	0.005604	0.004235	95	0.223428	0.197901
45	0.001455	0.001013	55	0.007342	0.005165	100	0.313988	0.291040
50	0.002490	0.001685	60	0.009893	0.006890	105	Disabled retirees use the same assumption as healthy lives.	
55	0.004071	0.002510	65	0.014089	0.010092	110		
60	0.006743	0.003606	70	0.021101	0.016038	115		
65	0.011612	0.005456	75	0.032952	0.026199	120		

## Appendix A: Actuarial Assumptions

### Rates of Retirement

**First Eligibility Rates:** These rates are used to measure the probability of members retiring in the first year eligible for retirement at the indicated ages.

Sample Percent Retiring at First Eligibility by Age									
Ages	State General		State Police		State	Municipal General		Municipal	Municipal
	Male	Female	Tier 1	Tier 2	Corrections	Male	Female	Police	Fire
40	25%	25%	25%	40%	40%	20%	25%	30%	30%
45	25	25	25	40	40	20	25	30	25
50	25	25	25	40	40	20	25	30	20
55	25	25	25	40	40	20	25	30	25
60	30	25	50	40	35	15	25	30	20
65	25	25	100	100	35	15	25	30	20
70	25	20			100	20	15	100	100
75	25	20				20	15		
80	100	100				100	100		

**Subsequent Eligibility Rates:** These rates are used to measure the probability of members retiring after the first year eligible for retirement at the indicated ages.

Sample Percent Retiring After First Eligibility by Age*										
Ages	State General		State Police**		State	Municipal General		Municipal Police***		Municipal
	Male	Female	Tier 1	Tier 2	Corrections	Male	Female	Tier 1	Tier 2	Fire
40	25%	25%	35%	20%	20%	20%	25%	35%	40%	30%
45	25	25	35	20	20	20	25	35	40	25
50	25	25	35	20	20	20	25	35	40	20
55	25	25	35	20	20	20	25	35	40	25
60	20	35	50	20	20	15	15	35	30	20
65	30	35	100	100	20	15	10	30	30	20
70	25	20			100	20	15	100	100	100
75	25	20				20	15			
80	100	100				100	100			

\* Rates are 70% at 30 years of service for all ages except State General and Municipal General Tier 2 uses 75% at 36 years of service and Municipal Police Tier 1 uses 75% at 26 years of service.

\*\* Rates for State Police Tier 1 are 45% at 27 years of service, 55% at 28 years of service, and 65% at 29 years of service.

\*\*\* Rates for Municipal Police Tier 1 are 35% at 21 years of service, 40% at 22 years of service, and 45% at 23 years of service, 55% at 24 years of service, and 65% at 25 years of service

\*\*\* Rates for Municipal Police Tier 2 are 35% at 25 years of service, 40% at 26 years of service, and 45% at 27 years of service, 55% at 28 years of service, and 65% at 29 years of service.



## Appendix A: Actuarial Assumptions

**Rates of Withdrawal from Active Membership.** The rates are used to measure probabilities of active members terminating for a reason other than disability or death. The rates do not apply to members who are within the retirement rate range. Assumptions for State General and Municipal General are gender distinct and both based on age and service. Assumptions for all other plans are not gender distinct and are service related only; these rates do not vary by age.

State General Males					
Rates of Active Members Terminating During Year					
	Sample Service (Yr):				
Sample Ages	2	4	6	8	10+
20	18.76%	10.86%	8.21%	7.78%	5.11%
25	17.72	11.06	8.10	7.07	4.65
30	16.45	11.27	7.97	6.18	4.13
35	15.31	10.81	7.59	5.58	3.89
40	14.30	9.97	7.08	5.40	3.86
45	13.55	9.06	6.63	5.40	3.86
50	13.26	8.45	6.49	5.40	3.86
55	13.26	8.37	6.49	5.40	3.86
60	13.26	8.37	6.49	5.40	3.86
65	13.26	8.37			
70	13.26	8.37			

State General Females					
Rates of Active Members Terminating During Year					
	Sample Service (Yr):				
Sample Ages	2	4	6	8	10+
20	18.13%	11.95%	8.22%	6.05%	4.83%
25	17.76	11.95	8.02	5.81	4.25
30	17.28	11.89	7.81	5.54	3.55
35	16.34	11.23	7.45	5.28	3.46
40	15.22	10.24	6.99	5.06	3.46
45	14.19	9.20	6.58	4.95	3.46
50	13.52	8.55	6.45	4.80	3.46
55	13.37	8.50	6.45	4.70	3.46
60	13.37	8.50	6.45	4.70	3.46
65	13.37	8.50			
70	13.37	8.50			

## Appendix A: Actuarial Assumptions

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### Rates of Withdrawal from Active Membership (cont.)

Municipal General Males					
Rates of Active Members Terminating During Year					
Sample Ages	Sample Service (Yr):				
	2	4	6	8	10+
20	21.70%	14.59%	11.29%	8.93%	8.54%
25	20.00	13.52	10.26	8.05	7.32
30	17.73	12.04	8.96	6.94	5.69
35	15.77	10.65	8.01	6.20	4.61
40	14.06	9.37	7.29	5.73	3.92
45	12.80	8.39	6.87	5.58	3.65
50	12.20	8.01	6.79	5.58	3.65
55	12.18	8.01	6.79	5.58	3.65
60	12.18	8.01	6.79	5.58	3.65
65	12.18	8.01			
70	12.18	8.01			

Municipal General Females					
Rates of Active Members Terminating During Year					
Sample Ages	Sample Service (Yr):				
	2	4	6	8	10+
20	24.40%	17.77%	14.41%	11.94%	7.51%
25	21.96	16.06	12.80	10.32	6.38
30	18.85	13.77	10.63	8.16	4.94
35	16.69	11.96	9.08	6.70	4.09
40	15.16	10.49	7.84	5.74	3.67
45	14.28	9.49	6.50	5.31	3.62
50	14.01	9.14	6.50	5.30	3.62
55	14.01	9.14	6.50	5.30	3.62
60	14.01	9.14	6.50	5.30	3.62
65	14.01	9.14			
70	14.01	9.14			

## Appendix A: Actuarial Assumptions

### Rates of Withdrawal from Active Membership (cont.)

Service Based Rates of Active Members Terminating During Year					
	Sample Service (Yr):				
All Ages	1	3	5	7	8+
State Police	8.00%	7.00%	4.00%	4.00%	4.00%
State Corrections	20.00	16.00	9.00	8.00	5.75
Municipal Detention	22.00	16.00	10.00	10.00	6.00
Municipal Police	14.00	9.50	6.80	5.15	3.50
Municipal Fire	10.00	7.50	5.00	3.30	2.75

**Rates of Disability.** The rates are used to measure the probabilities of active members becoming disabled. Rates for sample ages follow. For non-public safety groups, 25% disabilities are assumed to be duty related and 35% are assumed to be duty-related for public safety groups.

Rates Becoming Disabled at Indicated Ages (State Division)				
Sample Ages	State General		State	State
	Male	Female	Police	Corrections
25	0.02%	0.02%	0.03%	0.14%
30	0.04	0.03	0.06	0.16
35	0.08	0.06	0.08	0.21
40	0.13	0.12	0.21	0.27
45	0.24	0.20	0.25	0.46
50	0.41	0.39	0.41	0.90
55	0.57	0.61	0.95	1.40
60	0.74	0.73	1.39	1.88
65	0.75	0.73	1.39	1.88

Rates Becoming Disabled at Indicated Ages (Municipal Division)					
Sample Ages	Municipal General		Municipal	Municipal	Municipal
	Male	Female	Detention	Police	Fire
25	0.03%	0.04%	0.06%	0.01%	0.02%
30	0.06	0.04	0.10	0.01	0.02
35	0.09	0.04	0.15	0.05	0.02
40	0.13	0.06	0.22	0.11	0.08
45	0.18	0.14	0.32	0.18	0.08
50	0.30	0.25	0.51	0.28	0.33
55	0.49	0.39	0.85	0.46	0.33
60	0.60	0.51	1.04	0.74	1.17
65	0.62	0.59	1.07	1.08	1.17

## Appendix A: Actuarial Assumptions

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### Miscellaneous and Technical Assumptions

<b>Marriage Assumption:</b>	100% of males and 100% of females are assumed to be married for purposes of death-in-service benefits. Male spouses are assumed to be three years older than female spouses. It is assumed that spouses have no eligible children for purposes of death-in-service benefits.
<b>Pay Increase Timing:</b>	Beginning of plan year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date.
<b>Decrement Timing:</b>	All decrements are assumed to occur at the beginning of the plan year.
<b>Eligibility Testing:</b>	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
<b>Decrement Relativity:</b>	Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.
<b>Decrement Operation:</b>	Neither disability nor withdrawal decrements operate during retirement eligibility.
<b>Loads:</b>	Retiree liabilities were increased by 1% to account for the pop-up provision.
<b>Incidence of Contributions:</b>	Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report and the actual payroll payable at the time contributions are made.
<b>Benefit Service:</b>	Exact fractional service is used to determine the amount of benefit payable.
<b>Data Changes:</b>	For missing dates of birth for active members, we assumed to enter the system at the average entry age. For retiree records with a joint and survivor option and a missing beneficiary date of birth, the beneficiary was assumed to be 3 years younger if the member was male and 3 years older if the member was female.