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**Public Employees Retirement Association (PERA)
of New Mexico
Annual Actuarial Valuation
as of June 30, 2014**



October 30, 2014

The Retirement Board
Public Employees Retirement Association
Santa Fe, New Mexico

Members of the Board:

We have conducted the annual actuarial valuation of the Public Employees Retirement Association (PERA) of New Mexico as of June 30, 2014; the results of the valuation are contained in the following report. The annual valuation is used to determine the sufficiency of the statutory contribution rates and, if necessary, the amount required to fund the annual normal cost and amortize the unfunded actuarial accrued liability over a 30-year period. The results of this valuation apply to the fiscal year beginning July 1, 2014 and ending June 30, 2015 (FY 2015). Information contained in our report for plan years prior to June 30, 2010 is based upon valuations performed by the association's prior actuary.

In performing the valuation, we relied on data supplied by the Public Employees Retirement Association (PERA) and performed limited tests on the data for consistency and reasonableness. In determining the Fund's liabilities, future events, such as investment returns, deaths, retirements, etc., are anticipated based upon the set of actuarial assumptions as approved by the Board.

Future actuarial results may differ significantly from the current results presented in this report due to such factors as the following: fund experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; and changes in plan provisions or applicable law. Since the potential impact of such factors is outside the scope of a normal annual actuarial valuation, an analysis of the range of results is not presented herein.

This is to certify that the undersigned are members of the American Academy of Actuaries and have experience in performing valuations for public retirement systems, that the valuation was prepared in accordance with principles of practice prescribed by the Actuarial Standards Board, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the Fund.

Respectfully submitted,



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



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

TABLE OF CONTENTS

<u>Section</u>	<u>Item</u>	<u>Page No.</u>
I	Board Summary	1
II	Membership Data	13
III	PERA Assets	18
IV	PERA Liabilities	24
V	Actuarial Funding Calculation	29
VI	Accounting Information	36
 <u>Appendices</u>		
A	Additional Membership Data	43
B	Summary of Actuarial Assumptions and Methods	53
C	Summary of Plan Provisions	62

Section I: Board Summary

The table below summarizes the results of the June 30, 2014 actuarial valuation as compared with the prior year.

Table I-1(a): Comparative Summary of Principal Results (All PERA Divisions)

Valuation Date	June 30, 2014	June 30, 2013
Total Annual Payroll	\$ 2,102,265,325	\$ 2,049,737,510
Total Valuation Payroll	\$ 2,175,844,611	\$ 2,131,727,010
Actuarial Accrued Liability (AAL)		
Active and Deferred Vested Members	\$ 6,166,509,262	\$ 6,243,367,726
Retired Members and Survivors	<u>11,617,867,424</u>	<u>10,814,012,296</u>
Total	\$ 17,784,376,686	\$ 17,057,380,022
Actuarial Value of Assets	\$ 13,482,815,522	\$ 12,438,151,665
Funded Ratio	75.8 %	72.9 %
Unfunded Actuarial Accrued Liability (UAAL) (AAL - Actuarial Value of Assets)	\$ 4,301,561,164	\$ 4,619,228,357
Calculation of Required Contribution		
Statutory Contribution Rate		
Employer Contribution Rate	15.04 %	14.59 %
Member Contribution Rate	<u>12.05 %</u>	<u>12.04 %</u>
Total	27.09 %	26.63 %
Less Normal Cost:		
Retirement	11.59 %	14.55 %
Termination	3.79 %	3.42 %
Pre-Retirement Survivors	0.50 %	0.42 %
Disability	<u>0.79 %</u>	<u>0.53 %</u>
Total Normal Cost	16.67 %	18.92 %
Less Administrative Expenses	0.45 %	N/A
Amount Remaining to Amortize UAAL	9.97 %	7.71 %
Amortization Period	40 years	128 years
Increase in Statutory Rate Necessary to Amortize UAAL over 30 Years	1.58 %	4.25 %

Section I: Board Summary

Summary of Key Findings – PERA

An objective of the Board's funding policy is to maximize the stability in the statutory contribution rates while maintaining the adequacy of funding necessary for the actuarial soundness of each Division in the Fund. The Board has set forth criteria for measuring actuarial soundness and making recommendations for adjustments to the statutory rates of each Division. The funding method for PERA determines the sufficiency of statutorily required contribution rates to fund the sum of the annual normal cost, administrative expenses and an amount to fully amortize the unfunded actuarial accrued liability (UAAL) over no more than 30 years for each Division.

The investment earnings of PERA is allocated on the basis of each Divisions' share of the total PERA Fund balance as of the valuation date. Therefore, each Division shares in the asset experience of the total Fund.

- The total PERA Fund experienced an investment return of approximately \$2.12 billion on the market value of assets. The actuarial value of assets smooth the unexpected portion of the market return over a four year period. The return on the actuarial value of assets was 11.94% compared to an expected return of 7.75%. As of June 30, 2014, the actuarial value of assets is 93.7% of market value. Table III-4 provides the development of the actuarial value of assets.
- Based a recent experience study for the five-year period ending June 30, 2013, the economic and demographic assumptions were updated for this valuation. The changes in assumptions resulted in a decrease of \$30.8 million to Fund liabilities and an increase of 0.13% to the funded ratio.
- The total actuarial gain due to the investment experience of the total PERA Fund is \$503.3 million. The loss on non-investment related items totaled \$4.9 million. The net gain due to the plan's experience was \$498.4 million.
- The total decrease to the UAAL of PERA is \$317.7 million and results in an increase to the funded ratio from 72.9% to 75.8%.
- Based on the current statutory rates and actuarial assumptions, the UAAL is projected to be fully amortized in 40 years.

The summary of results and discussion of key findings for each Division begins on the following page.

Section I: Board Summary

Table I-1(b): Comparative Summary of Principal Results (State General Division)

Valuation Date	June 30, 2014	June 30, 2013
Total Annual Payroll	\$ 863,797,166	\$ 835,817,618
Total Valuation Payroll	\$ 894,030,067	\$ 869,250,323
Actuarial Accrued Liability (AAL)		
Active and Deferred Vested Members	\$ 2,592,459,108	\$ 2,658,321,112
Retired Members and Survivors	<u>5,193,531,789</u>	<u>4,865,439,224</u>
Total	\$ 7,785,990,897	\$ 7,523,760,336
Actuarial Value of Assets	\$ 5,334,025,804	\$ 4,996,425,681
Funded Ratio	68.5 %	66.4 %
Unfunded Actuarial Accrued Liability (UAAL) (AAL - Actuarial Value of Assets)	\$ 2,451,965,093	\$ 2,527,334,655
Calculation of Required Contribution		
Statutory Contribution Rate		
Employer Contribution Rate	16.99 %	16.59 %
Member Contribution Rate	<u>8.92 %</u>	<u>8.92 %</u>
Total	25.91 %	25.51 %
Less Normal Cost:		
Retirement	10.73 %	13.18 %
Termination	3.66 %	3.54 %
Pre-Retirement Survivors	0.49 %	0.33 %
Disability	<u>0.87 %</u>	<u>0.53 %</u>
Total Normal Cost	15.75 %	17.58 %
Less Administrative Expenses	0.45 %	N/A
Amount Remaining to Amortize UAAL	9.71 %	7.93 %
Amortization Period	Infinite	Infinite
Increase in Statutory Rate Necessary to Amortize UAAL over 30 Years	6.31 %	8.12 %

Section I: Board Summary

Summary of Key Findings – State General Division

The UAAL decreased from \$2.53 billion to \$2.45 billion and results in a 1.81% of payroll decrease to the annual amount necessary to amortize the UAAL over a 30-year period. The funded ratio increased from 66.4% to 68.5%. Table IV-3 provides the reconciliation of the UAAL. In the course of preparing the valuation report, we note the following key findings:

- The State General Division experienced a net actuarial gain of \$195.4 million during the plan year ended June 30, 2014. The gain is primarily comprised of a \$197.7 million investment related gain which is offset by a \$2.3 million loss due to non-investment related experience which was primarily due to mortality experience and new entrants. Table IV-4 provides the detailed information on the sources and magnitude of actuarial gains and losses.
- The adoption of new economic and demographic assumptions resulted in a \$29.5 million decrease in the UAAL.
- The financing period for the unfunded liability based upon the statutory contribution rates is an infinite period for the sixth consecutive year.

Section I: Board Summary

Table I-1(c): Comparative Summary of Principal Results (State Police/Corrections Division)

Valuation Date	June 30, 2014	June 30, 2013
Total Annual Payroll	\$ 91,551,934	\$ 90,225,253
Total Valuation Payroll	\$ 94,756,252	\$ 93,834,263
Actuarial Accrued Liability (AAL)		
Active and Deferred Vested Members	\$ 286,704,115	\$ 311,301,260
Retired Members and Survivors	<u>563,218,677</u>	<u>518,419,678</u>
Total	\$ 849,922,792	\$ 829,720,938
Actuarial Value of Assets	\$1,016,533,008	\$ 926,108,695
Funded Ratio	119.6 %	111.6 %
Unfunded Actuarial Accrued Liability (UAAL) (AAL - Actuarial Value of Assets)	\$ (166,610,216)	\$ (96,387,757)
Calculation of Required Contribution		
Statutory Contribution Rate		
Employer Contribution Rate	25.59 %	25.18 %
Member Contribution Rate	<u>8.71 %</u>	<u>8.72 %</u>
Total	34.30 %	33.90 %
Less Normal Cost:		
Retirement	15.57 %	23.65 %
Termination	3.60 %	2.94 %
Pre-Retirement Survivors	0.46 %	0.78 %
Disability	<u>1.50 %</u>	<u>1.14 %</u>
Total Normal Cost	21.13 %	28.51 %
Less Administrative Expenses	0.45 %	N/A
Amount Remaining to Amortize UAAL	12.72 %	5.39 %
Amortization Period	0	0
Increase in Statutory Rate Necessary to Amortize UAAL over 30 Years	N/A	N/A

Section I: Board Summary

Summary of Key Findings – State Police/Corrections Division

As of June 30, 2014, the actuarial value of assets exceeded accrued liabilities by \$166.6 million. As of June 30, 2013, the accrued liabilities exceeded the actuarial value of assets by \$96.4 million. This represents a decrease in the UAAL of \$70.2 million from the previous year. The normal cost rate decreased from 28.51% to 21.13%. The funded ratio increased from 111.6% to 119.6%. Table IV-3 provides the reconciliation of the UAAL. In the course of preparing the valuation report, we note the following key findings:

- The State Police/Corrections Division experienced a net actuarial gain of \$47.8 million and an increase of 8.0% in the funded ratio during the plan year ended June 30, 2014. The gain is comprised of a \$38.3 million investment related gain and a \$9.5 million gain due to non-investment related experience which was primarily due to salary gains. Table IV-4 provides the detailed information on the sources and magnitude of actuarial gains and losses.
- The adoption of new economic and demographic assumptions resulted in a \$17.3 million decrease in the UAAL.

Section I: Board Summary

Table I-1(d): Comparative Summary of Principal Results (Municipal General Division)

Valuation Date	June 30, 2014	June 30, 2013
Total Annual Payroll	\$ 814,827,128	\$ 803,398,205
Total Valuation Payroll	\$ 843,346,077	\$ 835,534,133
Actuarial Accrued Liability (AAL)		
Active and Deferred Vested Members	\$ 2,103,396,604	\$ 2,109,062,602
Retired Members and Survivors	<u>3,433,780,808</u>	<u>3,206,775,122</u>
Total	\$ 5,537,177,412	\$ 5,315,837,724
Actuarial Value of Assets	\$ 4,515,120,417	\$ 4,108,957,408
Funded Ratio	81.5 %	77.3 %
Unfunded Actuarial Accrued Liability (UAAL) (AAL - Actuarial Value of Assets)	\$ 1,022,056,995	\$ 1,206,880,316
Calculation of Required Contribution		
Statutory Contribution Rate		
Employer Contribution Rate	9.87 %	9.46 %
Member Contribution Rate	<u>13.59 %</u>	<u>13.57 %</u>
Total	23.46 %	23.03 %
Less Normal Cost:		
Retirement	8.76 %	11.04 %
Termination	4.14 %	3.82 %
Pre-Retirement Survivors	0.51 %	0.49 %
Disability	<u>0.69 %</u>	<u>0.47 %</u>
Total Normal Cost	14.10 %	15.82 %
Less Administrative Expenses	0.45 %	N/A
Amount Remaining to Amortize UAAL	8.91 %	7.21 %
Amortization Period	20 years	36 years
Increase in Statutory Rate Necessary to Amortize UAAL over 30 Years	N/A	0.76 %

Section I: Board Summary

Summary of Key Findings – Municipal General Division

The UAAL decreased from \$1.21 billion to \$1.02 billion. The current statutory rate will amortize the UAAL over a 20-year period and now exceeds the required contribution. The funded ratio increased from 77.3% to 81.5%. Table IV-3 provides the reconciliation of the UAAL. In the course of preparing the valuation report, we note the following key findings:

- The Municipal General Division experienced a net actuarial gain of \$203.8 million and a 4.2% increase to the funded ratio during the plan year ended June 30, 2014. The gain is comprised of a \$169.2 million investment related gain and a \$34.6 million gain due to non-investment related experience which was primarily due to retirement experience and salary gains. Table IV-5 provides the detailed information on the sources and magnitude of actuarial gains and losses.
- The adoption of new economic and demographic assumptions resulted in an \$11.9 million increase in the UAAL.

Section I: Board Summary

Table I-1(e): Comparative Summary of Principal Results (Municipal Police Division)

Valuation Date	June 30, 2014	June 30, 2013
Total Annual Payroll	\$ 209,092,483	\$ 201,525,064
Total Valuation Payroll	\$ 216,410,720	\$ 209,586,067
Actuarial Accrued Liability (AAL)		
Active and Deferred Vested Members	\$ 723,213,906	\$ 741,006,828
Retired Members and Survivors	<u>1,540,350,902</u>	<u>1,405,287,798</u>
Total	\$ 2,263,564,808	\$ 2,146,294,626
Actuarial Value of Assets	\$ 1,772,210,104	\$ 1,627,455,783
Funded Ratio	78.3 %	75.8 %
Unfunded Actuarial Accrued Liability (UAAL) (AAL - Actuarial Value of Assets)	\$ 491,354,704	\$ 518,838,843
Calculation of Required Contribution		
Statutory Contribution Rate		
Employer Contribution Rate	18.65 %	18.20 %
Member Contribution Rate	<u>17.23 %</u>	<u>17.15 %</u>
Total	35.88 %	35.35 %
Less Normal Cost:		
Retirement	18.10 %	23.95 %
Termination	3.62 %	2.46 %
Pre-Retirement Survivors	0.46 %	0.36 %
Disability	<u>0.76 %</u>	<u>0.60 %</u>
Total Normal Cost	22.94 %	27.37 %
Less Administrative Expenses	0.45 %	N/A
Amount Remaining to Amortize UAAL	12.49 %	7.98 %
Amortization Period	32 years	Infinite
Increase in Statutory Rate Necessary to Amortize UAAL over 30 Years	0.77 %	5.68 %

Section I: Board Summary

Summary of Key Findings – Municipal Police Division

The UAAL decreased from \$518.8 million to \$491.4 million and results in a 4.91% of payroll decrease to the annual amount necessary to amortize the UAAL over a 30-year period. The funded ratio increased from 75.8% to 78.3%. Table IV-3 provides the reconciliation of the UAAL. In the course of preparing the valuation report, we note the following key findings:

- The Municipal Police Division experienced a net actuarial gain of \$40.6 million and a 2.5% increase to the funded ratio during the plan year ended June 30, 2014. The gain is comprised of a \$66.4 million investment related gain which is offset by a \$25.8 million loss due to non-investment related experience which was primarily due to retirement experience. Table IV-5 provides the detailed information on the sources and magnitude of actuarial gains and losses.
- The adoption of new economic and demographic assumptions resulted in a \$17.9 million decrease in the UAAL.
- The financing period for the unfunded liability based upon the statutory contribution rates is 32 years, compared to an infinite period for the plan year ended June 30, 2013.

Section I: Board Summary

Table I-1(f): Comparative Summary of Principal Results (Municipal Fire Division)

Valuation Date	June 30, 2014	June 30, 2013
Total Annual Payroll	\$ 122,996,614	\$ 118,771,370
Total Valuation Payroll	\$ 127,301,495	\$ 123,522,225
Actuarial Accrued Liability (AAL)		
Active and Deferred Vested Members	\$ 460,735,529	\$ 423,675,924
Retired Members and Survivors	<u>886,985,248</u>	<u>818,090,474</u>
Total	\$ 1,347,720,777	\$ 1,241,766,398
Actuarial Value of Assets	\$ 844,926,189	\$ 779,204,098
Funded Ratio	62.7 %	62.7 %
Unfunded Actuarial Accrued Liability (UAAL) (AAL - Actuarial Value of Assets)	\$ 502,794,588	\$ 462,562,300
Calculation of Required Contribution		
Statutory Contribution Rate		
Employer Contribution Rate	21.56 %	21.02 %
Member Contribution Rate	<u>17.58 %</u>	<u>17.45 %</u>
Total	39.14 %	38.47 %
Less Normal Cost:		
Retirement	22.38 %	25.03 %
Termination	2.84 %	1.85 %
Pre-Retirement Survivors	0.51 %	0.41 %
Disability	<u>0.44 %</u>	<u>0.35 %</u>
Total Normal Cost	26.17 %	27.64 %
Less Administrative Expenses	0.45 %	N/A
Amount Remaining to Amortize UAAL	12.52 %	10.83 %
Amortization Period	Infinite	Infinite
Increase in Statutory Rate Necessary to Amortize UAAL over 30 Years	10.55 %	9.84 %

Section I: Board Summary

Summary of Key Findings – Municipal Fire Division

The UAAL increased from \$462.6 million to \$502.8 million and results in a 0.71% of payroll increase to the annual amount necessary to amortize the UAAL over a 30-year period. The funded ratio remained unchanged at 62.7%. Table IV-3 provides the reconciliation of the UAAL. In the course of preparing the valuation report, we note the following key findings:

- The Municipal Fire Division experienced a net actuarial gain of \$10.8 million. The gain is comprised of a \$31.6 million investment related gain which is offset by a \$20.8 million loss due to non-investment related experience which was primarily due to salary and retirement experience. Table IV-5 provides the detailed information on the sources and magnitude of actuarial gains and losses.
- The adoption of new economic and demographic assumptions resulted in a \$22.0 million increase in the UAAL.
- The financing period for the unfunded liability based upon the statutory contribution rates is an infinite period for the sixth consecutive year.

Section II of the report provides summarized information on the membership data used in the valuation. Section III covers the Fund's assets and Section IV covers the Fund's liabilities. The results of the valuation are provided in Section V and the accounting information is in Section VI. The appendices provide additional information on A) the Fund members, B) the actuarial assumptions and methods, and C) the summary of the benefit provisions of the Fund. It is important to note that all information contained in this report for periods prior to June 30, 2010 were produced by a prior actuarial consulting firm.

Section II: Membership Data

Data regarding the membership of the Fund for use in the valuation were furnished by PERA. The following tables summarize the membership data as of June 30, 2014.

Table II-1: Summary of Membership Data as of June 30, 2014

Group	Count					
	State General	State Police/ Corrections	Municipal General	Municipal Police	Municipal Fire	Totals
Total Active Members	20,015	1,951	21,480	3,685	2,157	49,288
Inactive Members						
Deferred Vested	2,709	128	1,843	175	95	4,950
Other	1,658	188	2,784	202	100	4,932
Total Inactive Members	4,367	316	4,627	377	195	9,882
Retirees						
Service*	13,630	1,198	9,288	2,719	1,555	28,390
Disabled	575	32	415	40	10	1,072
Beneficiaries	1,884	172	1,589	284	171	4,100
Total Retirees	16,089	1,402	11,292	3,043	1,736	33,562
Totals	40,471	3,669	37,399	7,105	4,088	92,732

* Counts include Co-Payees as follows:

State General - 276

State Police – 73

Municipal General - 268

Municipal Police - 206

Municipal Fire - 122

Section II: Membership Data

Table II-2: Summary of Active Membership Valuation Data

Division	Number		Total Payroll		Average Salary	
	2014	2013	2014	2013	2014	2013
State Division						
General	20,015	19,980	\$ 863,797,166	\$ 835,817,618	\$43,157	\$41,833
Police	498	520	29,495,134	30,881,589	59,227	59,388
Adult Corrections	1,123	1,107	49,323,098	47,273,615	43,921	42,704
Juvenile Corrections	330	329	12,733,702	12,070,049	38,587	36,687
Total State Division	21,966	21,936	\$ 955,349,100	\$ 926,042,871	\$43,492	\$42,216
Municipal Division						
General Coverage Plans						
Plan 1	834	910	\$ 26,248,640	\$ 25,297,944	\$31,473	\$27,800
Plan 2	6,316	6,479	221,652,325	221,597,787	35,094	34,202
Plan 3	12,885	13,266	507,644,587	499,681,822	39,398	37,666
Plan 4	726	732	25,066,641	23,847,678	34,527	32,579
Detention Officers Plan 1	719	736	34,214,935	32,972,974	47,587	44,800
Total General	21,480	22,123	\$ 814,827,128	\$ 803,398,205	\$37,934	\$36,315
Police Coverage Plans						
Plan 1	121	139	\$ 5,274,854	\$ 6,165,182	\$43,594	\$44,354
Plan 2	49	66	1,973,342	2,466,039	40,272	37,364
Plan 3	71	66	3,134,545	2,828,045	44,149	42,849
Plan 4	122	132	5,495,745	5,952,053	45,047	45,091
Plan 5	3,322	3,341	193,213,997	184,113,745	58,162	55,107
Total Police	3,685	3,744	\$ 209,092,483	\$ 201,525,064	\$56,742	\$53,826
Fire Coverage Plans						
Plan 1	24	51	\$ 863,396	\$ 2,229,231	\$35,975	\$43,710
Plan 2	11	23	481,600	1,146,867	43,782	49,864
Plan 3	4	4	162,129	119,128	40,532	29,782
Plan 4	11	10	532,525	465,654	48,411	46,565
Plan 5	2,107	2,121	120,956,964	114,810,490	57,407	54,130
Total Fire	2,157	2,209	\$ 122,996,614	\$ 118,771,370	\$57,022	\$53,767
Total Municipal Division	27,322	28,076	\$1,146,916,225	\$1,123,694,639	\$41,978	\$40,023
Total PERA	49,288	50,012	\$2,102,265,325	\$2,049,737,510	\$42,653	\$40,985

Section II: Membership Data

Table II-3: Summary of Deferred Vested Members as of June 30, 2014

Division	Number	Average Age	Average Service	Average Annual Benefit
State Division				
General	2,709	51.61	9.03	\$ 11,494
Police/Hazardous Duty	<u>128</u>	48.22	9.64	10,091
Total State Division	2,837	51.45	9.06	\$ 11,431
Municipal Division				
General	1,843	52.12	9.20	\$ 9,218
Police	175	45.49	9.23	12,668
Fire	<u>95</u>	42.82	7.71	11,528
Total Municipal Division	2,113	51.15	9.14	\$ 9,608
PERA Totals	4,950	51.33	9.09	\$ 10,653

Section II: Membership Data

Table II-4: Summary of Retirees and Survivors as of June 30, 2014

Type of Retirement	Division					
	State General	State Police/ Corrections	Municipal General	Municipal Police	Municipal Fire	Total
Service						
Number	13,630	1,198	9,288	2,719	1,555	28,390
Total Annual Benefits	\$397,383,243	\$ 38,524,459	\$249,433,208	\$103,499,130	\$61,076,571	\$849,916,611
Avg Annual Benefit	\$ 29,155	\$ 32,157	\$ 26,855	\$ 38,065	\$ 39,278	\$ 29,937
Avg Age	68.28	62.13	67.46	58.70	60.51	66.41
Disability						
Number	575	32	415	40	10	1,072
Total Annual Benefits	\$ 9,200,843	\$ 502,697	\$ 6,365,450	\$ 876,924	\$ 262,635	\$ 17,208,549
Avg Annual Benefit	\$ 16,001	\$ 15,709	\$ 15,338	\$ 21,923	\$ 26,264	\$ 16,053
Avg Age	55.89	56.78	54.96	48.14	54.18	55.25
Survivors						
Number	1,884	172	1,589	284	171	4,100
Total Annual Benefits	\$ 31,639,078	\$ 3,723,550	\$ 24,682,042	\$ 6,742,442	\$ 4,910,488	\$ 71,697,600
Avg Annual Benefit	\$ 16,794	\$ 21,649	\$ 15,533	\$ 23,741	\$ 28,716	\$ 17,487
Avg Age	69.56	63.66	69.37	65.21	70.33	68.97
Total						
Number	16,089	1,402	11,292	3,043	1,736	33,562
Total Annual Benefits	\$438,223,164	\$ 42,750,706	\$280,480,700	\$111,118,496	\$66,249,694	\$938,822,760
Avg Annual Benefit	\$ 27,237	\$ 30,493	\$ 24,839	\$ 36,516	\$ 38,162	\$ 27,973
Avg Age	67.99	62.20	67.27	59.17	61.44	66.37

Section II: Membership Data

Table II-5: Summary of Historical Active Membership Valuation Data by Division

Valuation Date	Number	Annual Payroll	Average Annual Pay	% Change In Average Pay
State General Division				
6/30/2014	20,015	\$ 863,797,166	\$ 43,157	3.17 %
6/30/2013	19,980	835,817,618	41,833	0.57 %
6/30/2012	19,325	803,873,875	41,598	(0.31)%
6/30/2011	19,614	818,428,532	41,727	0.53 %
6/30/2010	20,867	866,094,897	41,505	(0.31)%
State Police/Corrections Division				
6/30/2014	1,951	\$ 91,551,934	\$ 46,926	1.73 %
6/30/2013	1,956	90,225,253	46,127	1.43 %
6/30/2012	1,916	87,137,037	45,479	2.13 %
6/30/2011	1,881	83,759,230	44,529	1.50 %
6/30/2010	2,001	87,783,090	43,870	(3.83)%
Municipal General Division				
6/30/2014	21,480	\$ 814,827,128	\$ 37,934	4.46 %
6/30/2013	22,123	803,398,205	36,315	(1.66)%
6/30/2012	21,434	791,529,406	36,929	4.56 %
6/30/2011	20,848	736,339,828	35,319	(2.70)%
6/30/2010	20,584	747,207,121	36,300	11.61 %
Municipal Police Division				
6/30/2014	3,685	\$ 209,092,483	\$ 56,742	5.42 %
6/30/2013	3,744	201,525,064	53,826	0.28 %
6/30/2012	3,660	196,453,568	53,676	2.86 %
6/30/2011	3,603	188,010,463	52,182	0.45 %
6/30/2010	3,581	186,026,978	51,948	3.65 %
Municipal Fire Division				
6/30/2014	2,157	\$ 122,996,614	\$ 57,022	6.05 %
6/30/2013	2,209	118,771,370	53,767	0.18 %
6/30/2012	2,148	115,286,221	53,671	4.45 %
6/30/2011	2,111	108,475,708	51,386	(0.32)%
6/30/2010	2,064	106,404,835	51,553	3.39 %

Table II-6: Summary of Historical Active Membership Valuation Data for All Divisions

Valuation Date	Number	Annual Payroll	Average Annual Pay	% Change In Average Pay
6/30/2014	49,288	\$ 2,102,265,325	\$ 42,653	4.07 %
6/30/2013	50,012	2,049,737,510	40,985	(0.36)%
6/30/2012	48,483	1,994,280,107	41,134	2.16 %
6/30/2011	48,057	1,935,013,761	40,265	(0.83)%
6/30/2010	49,097	1,993,516,921	40,604	4.89 %

Section III: PERA Assets

The following tables provide a summary of PERA’s market value and actuarial value of assets (excluding Legislative Division) as of June 30, 2014.

Table III-1: Market Value Summary as of June 30, 2014

Division	June 30, 2014	June 30, 2013
State General	\$ 5,694,052,027	\$ 5,092,870,789
State Police/Corrections	1,085,145,076	943,985,205
Municipal General	4,819,873,677	4,188,271,875
Municipal Police	1,891,827,469	1,658,870,270
Municipal Fire	901,955,457	794,244,935
Total Market Value of Assets	\$ 14,392,853,706	\$ 12,678,243,074

Table III-2: Actuarial Value Summary as of June 30, 2014

Division	June 30, 2014	June 30, 2013
State General	\$ 5,334,025,804	\$ 4,996,425,681
State Police/Corrections	1,016,533,008	926,108,695
Municipal General	4,515,120,417	4,108,957,408
Municipal Police	1,772,210,104	1,627,455,783
Municipal Fire	844,926,189	779,204,098
Total Actuarial Value of Assets	\$ 13,482,815,522	\$ 12,438,151,665

Section III: PERA Assets

The following tables provide information on PERA's assets at market value and cash flow.

Table III-3: Market Value Reconciliation (Total PERA with Legislature)

	June 30, 2014	June 30, 2013
Beginning of Year Market Value	\$ 12,707,740,926	\$ 11,600,023,988
Audit Adjustment	17,005,791	9,209,724
Revised Beginning of Year Market Value	\$ 12,724,746,717	\$ 11,609,233,712
Revenues:		
a. Member Contributions	238,695,585	226,164,967
b. Employer Contributions	301,601,232	285,560,291
c. Purchases of Service	8,214,497	9,132,788
d. Investment Income		
1. Adjustments of investments to market value	1,047,667,764	807,617,924
2. Interest, dividends, etc.	297,102,152	293,385,358
3. Realized gains (losses)	813,198,725	414,433,852
4. Security lending	(8,645,811)	(14,121,020)
e. Other Income	384,312	429,831
f. Total Revenues	\$ 2,698,218,456	\$ 2,022,603,991
Expenditures:		
a. Benefit Payments	905,329,140	842,710,961
b. Refunds of Member Contributions	47,376,975	45,113,887
c. Investment Expenses	31,422,215	27,660,154
d. Administrative Expenses	10,336,324	8,611,775
e. Total Expenditures	\$ 994,464,654	\$ 924,096,777
End of Year Market Value	\$ 14,428,500,519	\$ 12,707,740,926

The market value rate of return for the plan year is 16.92% on an adjusted basis and 17.08% on an unadjusted basis. These returns are based on a simplified dollar-weighted basis which may not match more precise time-weighted return calculations. PERA's cash flow is (3.28)% as a percentage of average market value. A mature system such as PERA is expected to exhibit negative net cash flow as the number of members receiving benefit payments becomes a larger portion of total membership. There are 1.47 contributing active members for each member receiving a benefit as of June 30, 2014. We expect this measure to decline over future years and result in an increase in the percentage of negative cash flow.

Section III: PERA Assets

The actuarial value of assets represents a "smoothed" value developed with the purpose of dampening the impact of market volatility on the assets used in determining valuation results. The actuarial value of assets has been calculated by spreading the recognition of excess investment income over four years. The amount of excess investment income in each year is the difference between expected actuarial value investment income and actual market value investment income. Table III-4 provides the calculation of the amount of the current year excess investment income to be phased-in as well as the amount of deferred investment income from the prior years.

**Table III-4: Development of Actuarial Value of Assets as of June 30, 2014
(Total PERA with Legislative Division)**

A. Actuarial Value Beginning of Year		\$	12,467,090,908
B. Market Value End of Year			14,428,500,519
C. Revised Market Value Beginning of Year			12,724,746,717
D. Cash Flow			
D1. Contributions		\$	540,296,817
D2. Service Purchases			8,214,497
D3. Benefit Payments and Refunds			(952,706,115)
D4. Administrative Expenses			(10,336,324)
D5. Net		\$	(414,531,125)
E. Investment Income			
E1. Market Total (B - C - D5)		\$	2,118,284,927
E2. Assumed Rate			7.75%
E3. Amount for Immediate Recognition			950,136,464
E4. Amount for Phased-In Recognition			1,168,148,463
F. Phased-In Recognition of Investment Income			
F1. Current Year: 0.25 *E4		\$	292,037,116
F2. First Prior Year (2012/2013)	\$ 577,809,753 x 25%		144,452,438
F3. Second Prior Year (2011/2012)	(1,010,896,575) x 25%		(252,724,144)
F4. Third Prior Year (2010/2011)	1,250,963,970 x 25%		312,740,993
F5. Total Recognized Investment Gain		\$	496,506,403
G. Audit Adjustment		\$	17,005,791
H. Actuarial Value End of Year			\$13,516,208,441
(A + D5 + E3 + F5 + G)			
I. Difference Between Market & Actuarial Values		\$	912,292,078
J. Rate of Return on Actuarial Value			11.94 %
K. Actuarial Value as a Percentage of Market Value			93.68 %

Section III: PERA Assets

Table III-5: Allocation of Actuarial Value by Division as of June 30, 2014

	State Division		PERA Totals w/o Legislative
	General	Police	
Member Contribution Fund	\$ 826,785,813	\$ 57,705,918	\$ 2,320,509,904
Employer Contribution Fund	1,593,450,860	408,143,930	3,873,946,075
Retirement Reserve Fund	3,273,815,354	619,295,228	8,198,397,727
Total Fund Balances	\$ 5,694,052,027	\$ 1,085,145,076	\$ 14,392,853,706
Approximate % of Total Fund Balance*	39.56%	7.54%	100%
Actuarial Value Adjustment*	(360,026,223)	(68,612,068)	(910,038,184)
Total Actuarial Value of Assets	\$ 5,334,025,804	\$ 1,016,533,008	\$ 13,482,815,522

	Municipal Division			PERA Totals w/o Legislative
	General	Police	Fire	
Member Contribution Fund	\$ 1,023,202,668	\$ 249,816,375	\$ 162,999,130	\$ 2,320,509,904
Employer Contribution Fund	1,210,603,814	493,602,833	168,144,638	3,873,946,075
Retirement Reserve Fund	2,586,067,195	1,148,408,261	570,811,689	8,198,397,727
Total Fund Balances	\$ 4,819,873,677	\$ 1,891,827,469	\$ 901,955,457	\$ 14,392,853,706
Approximate % of Total Fund Balance*	33.49%	13.14%	6.27%	100.00%
Actuarial Value Adjustment*	(304,753,260)	(119,617,365)	(57,029,268)	(910,038,184)
Total Actuarial Value of Assets	\$ 4,515,120,417	\$ 1,772,210,104	\$ 844,926,189	\$ 13,482,815,522

* The actuarial value adjustment is the difference between the actuarial value of assets derived in Table III-4 and the total fund balance at market value. It was allocated to each group in proportion to the Total PERA Fund Balance. Please note that the Legislature Division accounted for approximately 0.25% of the Total PERA Fund Balance and is detailed in a separate report.

Section III: PERA Assets

The actuarial valuation assumes the rate of investment return on the assets of the Fund is 7.75% annually. This assumption is based upon the reasonable long-term expected return on the assets. In each year, the Fund will experience actuarial gains and losses due to the actual investment return of the assets. Table III-6 provides the calculation of the gain or loss due to the investment experience on the actuarial value of assets for the year ending June 30, 2014.

Table III-6: Actuarial Investment Gain (Loss) for the Year Ending June 30, 2014
(Dollar Amounts in Millions)

	State General	State Police/ Corrections	Municipal General	Municipal Police	Municipal Fire	Total
1. Beginning of Year Actuarial Value of Assets (AVA)	\$ 4,996.4	\$ 926.1	\$ 4,109.0	\$ 1,627.5	\$ 779.2	\$ 12,438.2
2. Employee and Employer Contributions	197.4	24.6	215.4	66.2	40.7	544.2
3. Benefit Payments	(435.5)	(43.5)	(293.9)	(112.2)	(66.0)	(951.1)
4. Interest [1 x 7.75% + (2 + 3) x 7.75% x 0.5]	<u>378.0</u>	<u>71.0</u>	<u>315.4</u>	<u>124.3</u>	<u>59.4</u>	<u>948.2</u>
5. Expected End of Year AVA (1 + 2 + 3 + 4)	\$ 5,136.3	\$ 978.2	\$ 4,345.9	\$ 1,705.8	\$ 813.3	\$ 12,979.5
6. Actual End of Year AVA	<u>5,334.0</u>	<u>1,016.5</u>	<u>4,515.1</u>	<u>1,772.2</u>	<u>844.9</u>	<u>13,482.8</u>
7. Actuarial Investment Gain (Loss) (6 - 5)	\$ 197.7	\$ 38.3	\$ 169.2	\$ 66.4	\$ 31.6	\$ 503.3

Section III: PERA Assets

Statutory Reserve Transfers

Each year following receipt of the report of the annual actuarial valuation, the excess, if any, of the actuarial present value of pensions and refunds being paid or likely to be paid to members and survivors over the balance in the retirement reserve fund (RRF) shall be transferred to the retirement reserve fund from the employers accumulation fund (EAF). Table III-7 shows the necessary transfer amounts.

Table III-7: Statutory Reserve Transfers as of June 30, 2014

Division	Reported Fund Balances	Actuarial Present Value of Pensions Being Paid	Transfer
State General			
Members Contribution Fund	\$ 826,785,813		
Employers Accumulation Fund	1,593,450,860		\$ (1,919,716,435)
Retirement Reserve Fund	3,273,815,354	\$ 5,193,531,789	1,919,716,435
State Police/Corrections			
Members Contribution Fund	57,705,918		
Employers Accumulation Fund	408,143,930		-
Retirement Reserve Fund	619,295,228	563,218,677	-
Municipal General			
Members Contribution Fund	1,023,202,668		
Employers Accumulation Fund	1,210,603,814		(847,713,613)
Retirement Reserve Fund	2,586,067,195	3,433,780,808	847,713,613
Municipal Police			
Members Contribution Fund	249,816,375		
Employers Accumulation Fund	493,602,833		(391,942,641)
Retirement Reserve Fund	1,148,408,261	1,540,350,902	391,942,641
Municipal Fire			
Members Contribution Fund	162,999,130		
Employers Accumulation Fund	168,144,638		(316,173,559)
Retirement Reserve Fund	570,811,689	886,985,248	316,173,559
Total End of Year Market Value	\$ 14,392,853,706		

Section IV: PERA Liabilities

The total actuarial present value of benefits is the value as of the valuation date of all future benefits expected to be paid to current members of the Fund. An actuarial cost method allocates each individual's present value of benefits to past and future years of service. The actuarial accrued liability includes the portion of the active member present value of benefits allocated to past service as well as the entire present value of benefits for retirees, beneficiaries and inactive members. The portion of the actuarial present value allocated to the future service of active members is called the present value of future normal costs. Table IV-1 presents the calculation and allocation of the actuarial present value of benefits.

Table IV-1: Calculation and Allocation of the Actuarial Present Value as of June 30, 2014

	Actuarial Accrued Liability	Present Value of Future Normal Cost	Total Actuarial Present Value
Active Members			
Service Retirement	\$ 5,383,194,759	\$ 1,810,422,680	\$ 7,193,617,439
Termination Benefits	248,238,688	597,965,027	846,203,715
Survivor Benefits	88,700,810	73,601,507	162,302,317
Disability Retirement	110,202,837	121,157,671	231,360,508
Total for Active Members	\$ 5,830,337,094	\$ 2,603,146,885	\$ 8,433,483,979
Inactive Members	\$ 336,172,168		\$ 336,172,168
Retirees and Beneficiaries			
Service Retirements	\$ 10,625,907,116		\$ 10,625,907,116
Beneficiaries	733,016,854		733,016,854
Disability Retirements	258,943,454		258,943,454
Total for Retirees and Beneficiaries	\$ 11,617,867,424		\$ 11,617,867,424
Total	\$ 17,784,376,686	\$ 2,603,146,885	\$ 20,387,523,571

Under the valuation funding method, an unfunded actuarial accrued liability (UAAL) exists to the extent that the actuarial accrued liability exceeds the actuarial value of assets as presented in Section III. The calculation of the UAAL by Division as of the valuation date is shown in Table IV-2 on the following page.

Section IV: PERA Liabilities

Table IV-2: Calculation of the Unfunded Actuarial Accrued Liability and Funded Ratio
(Dollar Amounts in Millions)

	State General	State Police/ Corrections	Municipal General	Municipal Police	Municipal Fire
1. Actuarial Accrued Liability	\$ 7,786.0	\$ 849.9	\$ 5,537.2	\$ 2,263.6	\$ 1,347.7
2. Actuarial Value of Assets	5,334.0	1,016.5	4,515.1	1,772.2	844.9
3. Unfunded Actuarial Accrued Liability (1-2)	2,452.0	(166.6)	1,022.1	491.4	502.8
Funded Ratio (2 / 1)	68.5%	119.6%	81.5%	78.3%	62.7%

Although the terminology used to describe the excess of PERA's actuarial accrued liability over the actuarial value of assets is called the "unfunded" actuarial accrued liability, the calculated annual contribution rates in the valuation include an annual amortization payment required to fully amortize the UAAL within 30 years. In some cases, the current statutory rates are less than these calculated rates.

The funded ratio is the ratio of the actuarial value of assets (Table III-2) divided by the actuarial accrued liability (Table IV-1) as of the valuation date. As of June 30, 2014, the funded ratio of PERA is 75.8% as compared to a ratio of 72.9% as of June 30, 2013. Due to the recognition of the investment gain from the 2014 plan year, there has been a general increase in the funded ratio across all divisions. The ratio is a commonly used measure of the funding progress and can be useful in reviewing the historical trend of a Fund's funding progress. Such a review should also consider the impact to this measure over the historical period due to changes to fund benefits, changes to the actuarial assumptions and methods, and the significant impact that investment experience can have on the ratio over short-term periods. We caution that no single "point in time" measure can provide a universal basis for comparing one plan's funded status to another.

Section IV: PERA Liabilities

The calculation of PERA's actuarial assets and liabilities requires the use of several assumptions concerning the future experience of PERA and its members. In each annual valuation, the latest year of actual experience is compared to that expected by the prior valuation. The differences are actuarial gains and losses which decrease or increase the UAAL. Table IV-3 provides the reconciliation of the UAAL.

Table IV-3: Reconciliation of the UAAL
(Dollar Amounts in Millions)

	State General	State Police/ Corrections	Municipal General	Municipal Police	Municipal Fire
1. Beginning of Year UAAL	\$ 2,527.3	\$ (96.4)	\$ 1,206.9	\$ 518.8	\$ 462.6
2. Normal Cost	152.8	26.8	132.2	57.4	34.1
3. Contributions	(197.4)	(24.6)	(215.4)	(66.2)	(40.7)
4. Interest [1 x 7.75% + (2 + 3) x 7.75% x 0.5]	194.2	(7.3)	90.3	39.9	35.6
5. Expected UAAL before changes (1 + 2 + 3 + 4)	2,676.9	(101.5)	1,214.0	549.9	491.6
6. Assumption Changes	(29.5)	(17.3)	11.9	(17.9)	22.0
7. Plan Changes	0	0	0	0	0
8. Expected UAAL after changes (5 + 6 + 7)	2,647.4	(118.8)	1,225.9	532.0	513.6
9. Actual UAAL	2,452.0	(166.6)	1,022.1	491.4	502.8
10. Total Actuarial Gain (Loss)	195.4	47.8	203.8	40.6	10.8

Tables IV-4 and IV-5 on the following pages provide details of the sources of actuarial gains and losses for state divisions and municipal divisions respectively.

Section IV: PERA Liabilities

Table IV-4: Actuarial Gains & Losses by Source for State Divisions
(Dollar Amounts in Millions)

Source	State General			State Police/Corrections		
	UAAL	Funded Ratio	Contribution Rate*	UAAL	Funded Ratio	Contribution Rate*
Expected Value	\$2,676.9	65.7 %	17.00 %	(\$101.5)	111.6 %	(5.97)%
Retirement	(4.3)	0.1 %	(0.04)%	2.1	(0.3)%	0.12 %
Disability	8.1	(0.2)%	0.07 %	1.2	(0.2)%	0.07 %
Pre-Retirement Death	0.4	(0.0)%	0.00 %	0.2	(0.0)%	0.01 %
Withdrawal	(19.7)	0.4 %	(0.18)%	(5.8)	0.8 %	(0.33)%
Pay Increases	(38.8)	0.9 %	(0.35)%	(13.5)	1.9 %	(0.76)%
New Entrants	37.4	(0.8)%	0.33 %	3.0	(0.4)%	0.17 %
Post-Retirement Death	22.5	(0.5)%	0.20 %	2.5	(0.3)%	0.14 %
Data Adjustments	(2.7)	0.1 %	(0.02)%	0.8	(0.1)%	0.05 %
Other	(0.6)	0.0 %	(0.01)%	0.0	0.0 %	0.00 %
Investment Return	(197.7)	2.6 %	(1.77)%	(38.3)	4.3 %	(2.16)%
Total (Gain) or Loss	(\$195.4)	2.5 %	(1.75)%	(\$47.8)	5.6 %	(2.69)%
Assumption Changes	(29.5)	0.3 %	0.77 %	(17.3)	2.4 %	(1.61)%
Plan Changes	0.0	0.0 %	0.00 %	0.0	0.0 %	0.00 %
Actual Value	\$2,452.0	68.5 %	16.02 %	(\$166.6)	119.6 %	(10.27)%

* Impact on Contribution Rate based on 30 year period and current valuation payroll.

Section IV: PERA Liabilities

Table IV-5: Actuarial Gains & Losses by Source for Municipal Divisions
(Dollar Amounts in Millions)

Source	Municipal General			Municipal Police			Municipal Fire		
	UAAL	Funded Ratio	Contribution Rate*	UAAL	Funded Ratio	Contribution Rate*	UAAL	Funded Ratio	Contribution Rate*
Expected Value	\$1,214.0	78.2 %	8.02 %	\$549.9	75.6 %	14.48 %	\$491.6	62.3 %	21.29 %
Retirement	(11.3)	0.2 %	(0.08)%	20.8	(0.7)%	0.79 %	4.8	(0.2)%	0.24 %
Disability	7.7	(0.1)%	0.05 %	1.3	(0.0)%	0.05 %	0.3	(0.0)%	0.01 %
Pre-Retirement Death	(0.4)	0.0 %	(0.00)%	0.1	(0.0)%	0.00 %	0.0	0.0 %	0.00 %
Withdrawal	(9.0)	0.1 %	(0.06)%	(4.9)	0.2 %	(0.19)%	0.1	(0.0)%	0.00 %
Pay Increases	(34.8)	0.5 %	(0.25)%	(0.9)	0.0 %	(0.03)%	9.2	(0.5)%	0.46 %
New Entrants	27.7	(0.4)%	0.20 %	8.8	(0.3)%	0.34 %	3.3	(0.2)%	0.16 %
Post-Retirement Death	(3.9)	0.1 %	(0.03)%	4.8	(0.2)%	0.18 %	2.9	(0.1)%	0.14 %
Data Adjustments	(10.2)	0.2 %	(0.07)%	(4.3)	0.2 %	(0.16)%	0.3	(0.0)%	0.01 %
Other	(0.4)	0.0 %	(0.00)%	0.1	(0.0)%	0.00 %	(0.1)	0.0 %	(0.00)%
Investment Return	(169.2)	3.0 %	(1.20)%	(66.4)	3.0 %	(2.53)%	(31.6)	2.5 %	(1.58)%
Total (Gain) or Loss	(\$203.8)	3.5 %	(1.44)%	(\$40.6)	2.1 %	(1.55)%	(\$10.8)	1.4 %	(0.54)%
Assumption Changes	11.9	(0.2)%	0.50 %	(17.9)	0.6 %	0.33 %	22.0	(1.0)%	2.32 %
Plan Changes	0.0	0.0 %	0.00 %	0.0	0.0 %	0.00 %	0.0	0.0 %	0.00 %
Actual Value	\$1,022.1	81.5 %	7.08 %	\$491.4	78.3 %	13.26 %	\$502.8	62.7 %	23.07 %

* Impact on Contribution Rate based on 30 year period and current valuation payroll.

Section V: Actuarial Funding Calculation

Section IV of this report presented PERA's actuarial accrued liability as the portion of the present value of benefits allocated to past years of service. The portion of the active members' present value of benefits allocated to future years of service is funded through annual normal cost contributions comprised of both active member and employer contributions.

The annual required contribution rate is the percentage of valuation payroll necessary to fund the annual normal cost of the Fund and fully amortize the UAAL over 30 years in accordance with the Board's funding objectives. The calculated rate is expected to remain constant over the remaining amortization period and is provided in Table V-1.

Table V-1(a): Valuation Results for State General Division

	June 30, 2014	June 30, 2013
1. Total Valuation Payroll	\$ 894,030,067	\$ 869,250,323
2. Present Value of Future Benefits	8,756,027,758	8,628,761,867
3. Present Value of Future Normal Costs	970,036,861	1,105,001,531
4. Actuarial Accrued Liability (2 - 3)	\$7,785,990,897	\$7,523,760,336
5. Actuarial Value of Assets	5,334,025,804	4,996,425,681
6. Unfunded Actuarial Accrued Liability (UAAL) (4 - 5)	\$2,451,965,093	\$2,527,334,655
7. UAAL Amortization Payment (30 year funding)	\$ 143,214,004	\$ 139,506,214
a. Amortization Payment as a Percent of Payroll (7 / 1)	16.02 %	16.05 %
8. Total Normal Cost	\$ 140,823,274	\$ 152,815,151
a. Normal Cost as a Percent of Payroll (8 / 1)	15.75 %	17.58 %
9. Expected Administrative Expenses	\$ 4,023,135	N/A
a. Administrative Expense as a Percent of Payroll (9 / 1)	0.45 %	N/A
10. Actuarially Determined Contribution (ADC)	\$ 288,060,413	\$ 292,321,365
a. ADC Rate (7a + 8a + 9a)	32.22 %	33.63 %
11. Expected Statutory Contribution Rates		
a. Employer Contribution Rate	16.99 %	16.59 %
b. Member Contribution Rate	<u>8.92 %</u>	<u>8.92 %</u>
c. Total Statutory Contribution Rate (a + b)	25.91 %	25.51 %
12. (Excess) Shortfall of Statutory Rates (10a - 11c)	6.31 %	8.12 %

Section V: Actuarial Funding Calculation

Table V-1(b): Valuation Results for State Police/Correction Division

	June 30, 2014	June 30, 2013
1. Total Valuation Payroll	\$ 94,756,252	\$ 93,834,263
2. Present Value of Future Benefits	1,003,530,287	1,097,841,737
3. Present Value of Future Normal Costs	153,607,495	268,120,799
4. Actuarial Accrued Liability (2 - 3)	\$ 849,922,792	\$ 829,720,938
5. Actuarial Value of Assets	1,016,533,008	926,108,695
6. Unfunded Actuarial Accrued Liability (UAAL) (4 - 5)	\$(166,610,216)	\$ (96,387,757)
7. UAAL Amortization Payment (30 year funding)	\$ (9,731,344)	\$ (5,320,503)
a. Amortization Payment as a Percent of Payroll (7 / 1)	(10.27)%	(5.67)%
8. Total Normal Cost	\$ 20,024,447	\$ 26,753,328
a. Normal Cost as a Percent of Payroll (8 / 1)	21.13 %	28.51 %
9. Expected Administrative Expenses	\$ 426,403	N/A
a. Administrative Expense as a Percent of Payroll (9 / 1)	0.45 %	N/A
10. Actuarially Determined Contribution (ADC)	\$ 10,719,506	\$ 21,432,825
a. ADC Rate (7a + 8a + 9a)	11.31 %	22.84 %
11. Expected Statutory Contribution Rates		
a. Employer Contribution Rate	25.59 %	25.18 %
b. Member Contribution Rate	8.71 %	8.72 %
c. Total Statutory Contribution Rate (a + b)	34.30 %	33.90 %
12. (Excess) Shortfall of Statutory Rates (10a - 11c)	(22.99)%	(11.06)%

Section V: Actuarial Funding Calculation

Table V-1(c): Valuation Results for Municipal General Division

	June 30, 2014	June 30, 2013
1. Total Valuation Payroll	\$ 843,346,077	\$ 835,534,133
2. Present Value of Future Benefits	6,345,746,412	6,287,706,445
3. Present Value of Future Normal Costs	<u>808,569,000</u>	<u>971,868,721</u>
4. Actuarial Accrued Liability (2 - 3)	\$5,537,177,412	\$5,315,837,724
5. Actuarial Value of Assets	<u>4,515,120,417</u>	<u>4,108,957,408</u>
6. Unfunded Actuarial Accrued Liability (UAAL) (4 - 5)	\$1,022,056,995	\$1,206,880,316
7. UAAL Amortization Payment (30 year funding)	\$ 59,696,150	\$ 66,618,524
a. Amortization Payment as a Percent of Payroll (7 / 1)	7.08 %	7.97 %
8. Total Normal Cost	\$ 118,924,461	\$ 132,154,147
a. Normal Cost as a Percent of Payroll (8 / 1)	14.10 %	15.82 %
9. Expected Administrative Expenses	\$ 3,795,057	N/A
a. Administrative Expense as a Percent of Payroll (9 / 1)	0.45 %	N/A
10. Actuarially Determined Contribution (ADC)	\$ 182,415,668	\$ 198,772,671
a. ADC Rate (7a + 8a + 9a)	21.63 %	23.79 %
11. Expected Statutory Contribution Rates		
a. Employer Contribution Rate	9.87 %	9.46 %
b. Member Contribution Rate	<u>13.59 %</u>	<u>13.57 %</u>
c. Total Statutory Contribution Rate (a + b)	23.46 %	23.03 %
12. (Excess) Shortfall of Statutory Rates (10a - 11c)	(1.83)%	0.76 %

Section V: Actuarial Funding Calculation

Table V-1(d): Valuation Results for Municipal Police Division

	June 30, 2014	June 30, 2013
1. Total Valuation Payroll	\$ 216,410,720	\$ 209,586,067
2. Present Value of Future Benefits	2,647,059,264	2,656,852,961
3. Present Value of Future Normal Costs	383,494,456	510,558,335
4. Actuarial Accrued Liability (2 - 3)	\$2,263,564,808	\$2,146,294,626
5. Actuarial Value of Assets	1,772,210,104	1,627,455,783
6. Unfunded Actuarial Accrued Liability (UAAL) (4 - 5)	\$ 491,354,704	\$ 518,838,843
7. UAAL Amortization Payment (30 year funding)	\$ 28,698,971	\$ 28,639,358
a. Amortization Payment as a Percent of Payroll (7 / 1)	13.26 %	13.66 %
8. Total Normal Cost	\$ 49,639,662	\$ 57,356,190
a. Normal Cost as a Percent of Payroll (8 / 1)	22.94 %	27.37 %
9. Expected Administrative Expenses	\$ 973,848	N/A
a. Administrative Expense as a Percent of Payroll (9 / 1)	0.45 %	N/A
10. Actuarially Determined Contribution (ADC)	\$ 79,312,481	\$ 85,995,548
a. ADC Rate (7a + 8a + 9a)	36.65 %	41.03 %
11. Expected Statutory Contribution Rates		
a. Employer Contribution Rate	18.65 %	18.20 %
b. Member Contribution Rate	17.23 %	17.15 %
c. Total Statutory Contribution Rate (a + b)	35.88 %	35.35 %
12. (Excess) Shortfall of Statutory Rates (10a - 11c)	0.77 %	5.68 %

Section V: Actuarial Funding Calculation

Table V-1(e): Valuation Results for Municipal Fire Division

	June 30, 2014	June 30, 2013
1. Total Valuation Payroll	\$ 127,301,495	\$ 123,522,225
2. Present Value of Future Benefits	1,635,159,850	1,582,593,576
3. Present Value of Future Normal Costs	287,439,073	340,827,178
4. Actuarial Accrued Liability (2 - 3)	\$1,347,720,777	\$1,241,766,398
5. Actuarial Value of Assets	844,926,189	779,204,098
6. Unfunded Actuarial Accrued Liability (UAAL) (4 - 5)	\$ 502,794,588	\$ 462,562,300
7. UAAL Amortization Payment (30 year funding)	\$ 29,367,150	\$ 25,532,952
a. Amortization Payment as a Percent of Payroll (7 / 1)	23.07 %	20.67 %
8. Total Normal Cost	\$ 33,310,975	\$ 34,146,659
a. Normal Cost as a Percent of Payroll (8 / 1)	26.17 %	27.64 %
9. Expected Administrative Expenses	\$ 572,857	N/A
a. Administrative Expense as a Percent of Payroll (9 / 1)	0.45 %	N/A
10. Actuarially Determined Contribution (ADC)	\$ 63,250,982	\$ 59,679,611
a. ADC Rate (7a + 8a + 9a)	49.69 %	48.31 %
11. Expected Statutory Contribution Rates		
a. Employer Contribution Rate	21.56 %	21.02 %
b. Member Contribution Rate	17.58 %	17.45 %
c. Total Statutory Contribution Rate (a + b)	39.14 %	38.47 %
12. (Excess) Shortfall of Statutory Rates (10a - 11c)	10.55 %	9.84 %

Section V: Actuarial Funding Calculation

Table V-1(f): Valuation Results for All PERA Divisions

	June 30, 2014	June 30, 2013
1. Total Valuation Payroll	\$ 2,175,844,611	\$ 2,131,727,010
2. Present Value of Future Benefits	20,387,523,571	20,253,756,586
3. Present Value of Future Normal Costs	2,603,146,885	3,196,376,564
4. Actuarial Accrued Liability (2 - 3)	\$17,784,376,686	\$17,057,380,022
5. Actuarial Value of Assets	13,482,815,522	12,438,151,665
6. Unfunded Actuarial Accrued Liability (UAAL) (4 - 5)	\$ 4,301,561,164	\$ 4,619,228,357
7. UAAL Amortization Payment (30 year funding)	\$ 251,244,930	\$ 254,976,546
a. Amortization Payment as a Percent of Payroll (7 / 1)	11.55 %	11.96 %
8. Total Normal Cost	\$ 362,722,819	\$ 403,225,475
a. Normal Cost as a Percent of Payroll (8 / 1)	16.67 %	18.92 %
9. Expected Administrative Expenses	\$ 9,791,301	N/A
a. Administrative Expense as a Percent of Payroll (9 / 1)	0.45 %	N/A
10. Actuarially Determined Contribution (ADC)	\$ 623,759,050	\$ 658,202,021
a. ADC Rate (7a + 8a + 9a)	28.67 %	30.88 %
11. Expected Statutory Contribution Rates		
a. Employer Contribution Rate	15.04 %	14.59 %
b. Member Contribution Rate	12.05 %	12.04 %
c. Total Statutory Contribution Rate (a + b)	27.09 %	26.63 %
12. (Excess) Shortfall of Statutory Rates (10a - 11c)	1.58 %	4.25 %

Table V-2: Contribution Rate Summary

Division	Employer Only		
	Current Statutory Rate	30-year Rate	Difference
State General	16.99 %	23.30 %	6.31 %
State Police/Corrections	25.59 %	2.60 %	(22.99)%
Municipal General	9.87 %	8.04 %	(1.83)%
Municipal Police	18.65 %	19.42 %	0.77 %
Municipal Fire	21.56 %	32.11 %	10.55 %
PERA Total	15.04 %	16.62 %	1.58 %

Section V: Actuarial Funding Calculation

Table V-3: Statutory Contribution Rate Summary

Division and Coverage Plan	Contribution Rates	
	Member	Employer
State Division		
General Coverage Plan 3	8.92 %	16.99 %
Police and Adult Corrections Plan 1	9.10 %	25.50 %
Hazardous Duty (Juvenile Correctional Officers) Plan 2	6.28 %	26.12 %
Weighted Average for Police/Corrections*	8.71 %	25.59 %
Municipal Division		
General Coverage Plans		
Plan 1	8.50 %	7.40 %
Plan 2	10.65 %	9.55 %
Plan 3	14.65 %	9.55 %
Plan 4	17.15 %	12.05 %
Detention Officers Plan 1	18.15 %	17.05 %
Weighted Average*	13.59 %	9.87 %
Police Coverage Plans		
Plan 1	8.50 %	10.40 %
Plan 2	8.50 %	15.40 %
Plan 3	8.50 %	18.90 %
Plan 4	13.85 %	18.90 %
Plan 5	17.80 %	18.90 %
Weighted Average*	17.23 %	18.65 %
Fire Coverage Plans		
Plan 1	9.50 %	11.40 %
Plan 2	9.50 %	17.90 %
Plan 3	9.50 %	21.65 %
Plan 4	14.30 %	21.65 %
Plan 5	17.70 %	21.65 %
Weighted Average*	17.58 %	21.56 %

* PERA financial records do not provide an asset breakdown by coverage plan which necessitates the use of a weighted average contribution rate for the purpose of comparing assets to the actuarial accrued liability and determining the financing period for the unfunded actuarial accrued liability. Contribution rates are weighted by payroll.

Section VI: Accounting Information

The tables provided in this section present information relevant for the annual financial reporting of PERA. GASB Statement No. 67 required disclosure information will be provided in a separate supplemental report. GASB Statement No. 25 information is provided below.

Table VI-1: GASB Statement No. 25 Schedule of Funding Progress

Actuarial Valuation Date	Actuarial Value of Plan Assets (a)	Actuarial Liability (AAL) Entry Age (b)	Unfunded AAL (UAAL) (b - a)	Funded Ratio (a / b)	Annual Payroll (c)	UAAL as a Percentage of Annual Payroll ((b - a) / c)
6/30/2014	\$ 13,482,815,522	\$ 17,784,376,686	\$4,301,561,164	75.8 %	\$2,102,265,325	204.6 %
6/30/2013	12,438,151,665	17,057,380,022	4,619,228,357	72.9 %	2,049,737,510	225.4 %
6/30/2012	11,612,047,019	17,788,043,847	6,175,996,828	65.3 %	1,994,280,107	309.7 %
6/30/2011	11,855,217,373	16,826,392,409	4,971,175,036	70.5 %	1,935,013,761	256.9 %
6/30/2010	12,243,712,850	15,601,461,460	3,357,748,610	78.5 %	1,993,516,921	168.4 %
6/30/2009	12,553,985,916	14,908,279,200	2,354,293,284	84.2 %	2,081,259,498	113.1 %
6/30/2008	12,816,218,012	13,740,335,321	924,117,309	93.3 %	1,965,064,160	47.0 %
6/30/2007	12,032,214,874	12,962,480,229	930,265,355	92.8 %	1,908,519,615	48.7 %
6/30/2006	10,850,217,103	11,781,722,238	931,505,135	92.1 %	1,774,918,446	52.5 %
6/30/2005	9,997,484,609	10,902,768,775	905,284,166	91.7 %	1,607,838,716	56.3 %
6/30/2004	9,267,268,071	9,950,224,296	682,956,225	93.1 %	1,499,069,439	45.6 %

Table VI-2: Schedule of Employer Contributions

Fiscal Year Ended June 30	Actuarial Valuation Date	Annual Required Contribution (ARC)*
2015	6/30/2014	\$361,480,396*
2014	6/30/2013	373,492,681
2013	6/30/2012	523,617,049
2012	6/30/2011	466,059,490
2011	6/30/2010	355,192,459
2010	6/30/2009	327,447,665
2009	6/30/2008	302,068,680
2008	6/30/2007	292,578,920
2007	6/30/2006	256,298,224
2006	6/30/2005	235,066,020
2005	6/30/2004	219,163,952

* Current ARC is projected amount based on expected increase in payroll. Actual ARC will be based on actual payroll for the plan year when known.

Section VI: Accounting Information

Table VI-3: Solvency Test by Division

State General

Valuation Date	Aggregate Accrued Liabilities For				Actuarial Value of Assets	Portion of Accrued Liabilities Covered by Actuarial Value of Assets		
	(1) Active Member Contributions	(2) Retirees, Survivors and Inactive Members	(3) Active Members (Employer Financed Portion)			(1)	(2)	(3)
6/30/2014	\$ 826,785,813	\$ 5,390,816,297	\$ 1,568,388,787	\$ 5,334,025,804	100.00%	83.61%	0.00%	
6/30/2013	841,174,061	5,064,595,209	1,617,991,066	4,996,425,681	100.00	82.05	0.00	
6/30/2012	787,435,758	5,117,428,346	1,914,051,334	4,724,562,943	100.00	76.94	0.00	
6/30/2011	796,011,595	4,725,622,520	1,961,725,462	4,883,299,367	100.00	86.49	0.00	
6/30/2010	801,399,015	4,253,964,884	1,931,877,225	5,053,620,284	100.00	99.96	0.00	

State Police/Corrections

Valuation Date	Aggregate Accrued Liabilities For				Actuarial Value of Assets	Portion of Accrued Liabilities Covered by Actuarial Value of Assets		
	(1) Active Member Contributions	(2) Retirees, Survivors and Inactive Members	(3) Active Members (Employer Financed Portion)			(1)	(2)	(3)
6/30/2014	\$ 57,705,918	\$ 569,659,307	\$ 222,557,567	\$ 1,016,533,008	100.00%	100.00%	100.00%	
6/30/2013	58,260,570	525,211,454	246,248,914	926,108,695	100.00	100.00	100.00	
6/30/2012	54,156,044	561,452,471	278,404,119	851,976,386	100.00	100.00	84.90	
6/30/2011	53,270,846	522,073,854	271,764,015	862,058,143	100.00	100.00	100.00	
6/30/2010	54,011,741	468,885,120	260,549,805	889,169,394	100.00	100.00	100.00	

Section VI: Accounting Information

Municipal General

Valuation Date	Aggregate Accrued Liabilities For				Portion of Accrued Liabilities Covered by Actuarial Value of Assets		
	(1) Active Member Contributions	(2) Retirees, Survivors and Inactive Members	(3) Active Members (Employer Financed Portion)	Actuarial Value of Assets	(1)	(2)	(3)
6/30/2014	\$1,023,202,668	\$ 3,548,792,552	\$ 965,182,192	\$ 4,515,120,417	100.00%	98.40%	0.00%
6/30/2013	1,000,561,795	3,309,385,678	1,005,890,251	4,108,957,408	100.00	93.93	0.00
6/30/2012	949,311,379	3,336,286,064	1,192,111,747	3,808,143,673	100.00	85.69	0.00
6/30/2011	926,331,337	3,086,715,812	1,107,402,880	3,845,662,093	100.00	94.58	0.00
6/30/2010	925,603,163	2,755,080,040	1,057,656,417	3,960,653,469	100.00	100.00	26.47

Municipal Police

Valuation Date	Aggregate Accrued Liabilities For				Portion of Accrued Liabilities Covered by Actuarial Value of Assets		
	(1) Active Member Contributions	(2) Retirees, Survivors and Inactive Members	(3) Active Members (Employer Financed Portion)	Actuarial Value of Assets	(1)	(2)	(3)
6/30/2014	\$ 249,816,375	\$ 1,551,716,281	\$ 462,032,152	\$ 1,772,210,104	100.00%	98.11%	0.00%
6/30/2013	247,882,167	1,413,249,313	485,163,146	1,627,455,783	100.00	97.62	0.00
6/30/2012	231,924,646	1,488,001,979	566,994,541	1,504,516,513	100.00	85.52	0.00
6/30/2011	231,902,509	1,374,649,843	540,837,909	1,527,062,745	100.00	94.22	0.00
6/30/2010	229,843,016	1,233,854,770	503,208,106	1,575,381,241	100.00	100.00	22.19

Municipal Fire

Valuation Date	Aggregate Accrued Liabilities For				Portion of Accrued Liabilities Covered by Actuarial Value of Assets		
	(1) Active Member Contributions	(2) Retirees, Survivors and Inactive Members	(3) Active Members (Employer Financed Portion)	Actuarial Value of Assets	(1)	(2)	(3)
6/30/2014	\$ 162,999,130	\$ 893,055,155	\$ 291,666,492	\$ 844,926,189	100.00%	76.36%	0.00%
6/30/2013	163,287,521	822,738,793	255,740,084	779,204,098	100.00	74.86	0.00
6/30/2012	147,973,606	875,612,944	286,898,869	722,847,504	100.00	65.65	0.00
6/30/2011	146,327,512	816,875,672	264,880,643	737,135,025	100.00	72.33	0.00
6/30/2010	146,535,083	730,613,903	248,379,172	764,888,462	100.00	84.64	0.00

Section VI: Accounting Information

Table VI-3: Solvency Test for All PERA Divisions

PERA Totals

Valuation Date	Aggregate Accrued Liabilities For				Actuarial Value of Assets	Portion of Accrued Liabilities Covered by Actuarial Value of Assets		
	(1) Active Member Contributions	(2) Retirees, Survivors and Inactive Members	(3) Active Members (Employer Financed Portion)			(1)	(2)	(3)
6/30/2014	\$2,320,509,904	\$ 11,954,039,592	\$ 3,509,827,190	\$ 13,482,815,522	100.00%	93.38%	0.00%	
6/30/2013	2,311,166,114	11,135,180,447	3,611,033,461	12,438,151,665	100.00	90.95	0.00	
6/30/2012	2,170,801,433	11,378,781,804	4,238,460,610	11,612,047,019	100.00	82.97	0.00	
6/30/2011	2,153,843,799	10,525,937,701	4,146,610,909	11,855,217,373	100.00	92.17	0.00	
6/30/2010	2,157,392,018	9,442,398,717	4,001,670,725	12,243,712,850	100.00	100.00	16.09	

Section VI: Accounting Information

**Table VI-4: Schedule of Retirants Added to and Removed from Rolls by Division
State General**

Valuation Date	Added to Rolls		Removed from Rolls		Rolls End of Year		% Increase in Annual Allowances	Average Annual Allowances
	Number Added	Annual Allowances	Number Removed	Annual Allowances	Number	Annual Allowances		
6/30/2014	1,150	\$37,217,020	379	\$ 7,574,003	16,089	\$438,223,164	7.26%	\$ 27,237
6/30/2013	1,285	43,656,998	358	7,006,726	15,318	408,580,147	9.85	26,673
6/30/2012	1,075	35,697,983	323	5,911,795	14,391	371,929,875	8.71	25,845
6/30/2011	1,005	34,914,890	347	6,179,881	13,639	342,143,687	9.17	25,086
6/30/2010	858	30,142,074	319	5,583,947	12,981	313,408,678	8.50	24,144

State Police/Corrections

Valuation Date	Added to Rolls		Removed from Rolls		Rolls End of Year		% Increase in Annual Allowances	Average Annual Allowances
	Number Added	Annual Allowances	Number Removed	Annual Allowances	Number	Annual Allowances		
6/30/2014	110	\$ 4,049,560	34	\$ 937,729	1,402	\$42,750,706	7.85%	\$ 30,493
6/30/2013	60	2,706,075	23	725,085	1,326	39,638,875	5.26	29,894
6/30/2012	83	3,323,294	21	561,598	1,289	37,657,885	7.91	29,215
6/30/2011	90	3,480,618	20	507,415	1,227	34,896,189	9.31	28,440
6/30/2010	67	2,521,381	18	337,044	1,157	31,922,986	7.35	27,591

Section VI: Accounting Information

Municipal General

Valuation Date	Added to Rolls		Removed from Rolls		Rolls End of Year		% Increase in Annual Allowances	Average Annual Allowances
	Number Added	Annual Allowances	Number Removed	Annual Allowances	Number	Annual Allowances		
6/30/2014	849	\$24,476,772	268	\$ 4,923,518	11,292	\$280,480,700	7.49%	\$ 24,839
6/30/2013	933	29,438,538	281	4,828,481	10,711	260,927,446	10.41	24,361
6/30/2012	761	23,166,131	240	3,984,904	10,059	236,317,389	8.83	23,493
6/30/2011	767	23,981,216	269	3,952,559	9,538	217,136,162	10.16	22,765
6/30/2010	741	22,219,130	234	3,359,126	9,040	197,107,505	10.58	21,804

Municipal Police

Valuation Date	Added to Rolls		Removed from Rolls		Rolls End of Year		% Increase in Annual Allowances	Average Annual Allowances
	Number Added	Annual Allowances	Number Removed	Annual Allowances	Number	Annual Allowances		
6/30/2014	222	\$10,277,993	34	\$ 988,805	3,043	\$111,118,496	9.12%	\$ 36,516
6/30/2013	177	8,276,701	46	1,276,954	2,855	101,829,308	7.38	35,667
6/30/2012	183	8,670,002	33	967,953	2,724	94,829,561	8.84	34,813
6/30/2011	166	8,033,315	30	821,737	2,574	87,127,512	9.02	33,849
6/30/2010	166	7,192,629	26	676,463	2,438	79,915,934	8.88	32,779

Municipal Fire

Valuation Date	Added to Rolls		Removed from Rolls		Rolls End of Year		% Increase in Annual Allowances	Average Annual Allowances
	Number Added	Annual Allowances	Number Removed	Annual Allowances	Number	Annual Allowances		
6/30/2014	112	\$ 5,738,384	29	\$ 946,274	1,736	\$66,249,694	7.80%	\$ 38,162
6/30/2013	70	4,239,651	20	590,379	1,653	61,457,584	6.31	37,179
6/30/2012	86	4,861,646	31	901,384	1,603	57,808,312	7.35	36,063
6/30/2011	98	5,203,080	23	617,946	1,548	53,848,050	9.31	34,786
6/30/2010	77	4,123,767	16	542,892	1,473	49,262,916	7.84	33,444

Section VI: Accounting Information

Table VI-4: Schedule of Retirants Added to and Removed from Rolls for All PERA Divisions

PERA Totals

Valuation Date	Added to Rolls		Removed from Rolls		Rolls End of Year		% Increase in Annual Allowances	Average Annual Allowances
	Number Added	Annual Allowances	Number Removed	Annual Allowances	Number	Annual Allowances		
6/30/2014	2,443	\$81,759,729	744	\$15,370,329	33,562	\$ 938,822,760	7.61%	\$ 27,973
6/30/2013	2,525	88,317,963	728	14,427,625	31,863	872,433,360	9.25	27,381
6/30/2012	2,188	75,719,056	648	12,327,634	30,066	798,543,022	8.62	26,560
6/30/2011	2,126	75,613,119	689	12,079,538	28,526	735,151,600	9.46	25,771
6/30/2010	1,909	66,198,980	613	10,499,472	27,089	671,618,019	9.04	24,793

Table VI-5: Summary of Actuarial Methods and Assumptions

Valuation date	June 30, 2014
Actuarial cost method	Entry Age Normal
Amortization method	Level Percent of Payroll, Open
Payroll growth rate	3.50%
Remaining amortization period	30 years
Asset valuation method	4-year Smoothed Market
Actuarial assumptions:	
Investment rate of return*	7.75%
Administrative expenses	0.45% of payroll
Projected salary increases*	4.00% – 14.25%
Post-retirement benefit increases	2.00% compounded annually (2.50% for certain retirees and disabled participants with annual benefits less than \$20,000)

* Includes inflation at 3.00%

Appendix A: Additional Membership Data

Table A-1: Schedule of Active Participant Data as of June 30, 2014 by Division

State General

Nearest Age	Completed Years of Service								Total	Payroll
	Under 5	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30+			
Under 20	14								14	\$ 402,218
20 to 24	449	4							453	12,505,800
25 to 29	1,215	293	7						1,515	49,814,749
30 to 34	1,245	820	235	5					2,305	86,282,575
35 to 39	895	688	489	191	6				2,269	94,755,334
40 to 44	828	599	587	502	174	6			2,696	119,478,367
45 to 49	879	617	537	424	455	38			2,950	134,074,310
50 to 54	700	623	551	448	517	63	2		2,904	130,948,564
55 to 59	531	596	525	427	415	67	16		2,577	122,121,174
60	87	98	84	91	69	10	1		440	20,340,374
61	71	89	94	71	44	14	2		385	18,005,558
62	81	90	94	58	48	17	4		392	19,657,949
63	57	68	72	38	32	3	2		272	13,594,605
64	43	53	44	27	27	7	1		202	10,231,476
65	33	49	33	21	13	5	2		156	7,612,133
66	29	40	29	22	15	1			136	6,637,268
67	21	24	24	8	4	6	1		88	4,706,279
68	13	20	15	5	6	3	1		63	3,120,061
69	14	10	6	5	2	1	1		39	1,988,893
70	8	10	9	5		1			33	1,961,052
71	11	9	8	3	3	2			36	1,478,331
72	4	7	8	2	3	1	1		26	1,067,926
73	6	5	6	1	1		1		20	929,358
74	4	3	4	2					13	647,382
75	1	1	1	2	1				6	339,600
76	2	3		2		1	1		9	446,546
77	1	2	1	2					6	311,551
78									0	
79	2		1		1		1		5	193,034
80 & Over	1	2	1				1		5	144,701
Total	7,245	4,823	3,465	2,362	1,836	246	38		20,015	\$ 863,797,166

Average Age: 45.31

Average Service: 9.04

Appendix A: Additional Membership Data

State Police/Corrections

Nearest Age	Completed Years of Service							Total	Payroll
	Under 5	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30+		
Under 20	13							13	\$ 391,619
20 to 24	218	8	1					227	8,619,357
25 to 29	216	110	18					344	14,289,666
30 to 34	111	89	90	29				319	14,068,406
35 to 39	59	65	75	77	20			296	15,186,961
40 to 44	47	60	46	69	66	5		293	15,977,740
45 to 49	25	39	28	37	54	12		195	10,097,960
50 to 54	22	27	27	33	22	4	4	139	6,657,805
55 to 59	11	16	17	22	9	2	2	79	3,961,683
60	3	3	2	2	4		1	15	687,582
61	3	1	1	1	1		1	8	354,933
62	1			1	2			4	258,459
63	1	2	1	2	1	1		8	388,978
64			1				1	2	134,339
65	2						1	3	125,487
66			1	2				3	173,828
67				1	1			2	131,801
68									
69									
70									
71									
72									
73						1		1	45,330
74									
75									
76									
77									
78									
79									
80 & Over									
Total	732	420	308	276	180	25	10	1,951	\$ 91,551,934

Average Age: 36.81

Average Service: 9.22

Appendix A: Additional Membership Data

Municipal General

Nearest Age	Completed Years of Service								Total	Payroll
	Under 5	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30+			
Under 20	340	1						341	\$ 9,878,053	
20 to 24	1,096	25						1,121	30,754,819	
25 to 29	1,395	486	12					1,893	59,006,234	
30 to 34	1,211	753	259	13				2,236	77,355,342	
35 to 39	983	731	402	198	11			2,325	87,630,262	
40 to 44	1,225	734	451	433	199	7		3,049	119,643,697	
45 to 49	764	576	425	396	330	61	2	2,554	105,401,328	
50 to 54	817	711	467	423	343	112	9	2,882	119,515,082	
55 to 59	645	637	439	395	350	103	24	2,593	107,065,806	
60	124	97	75	65	59	13	5	438	17,836,337	
61	106	96	74	61	46	13	5	401	15,984,045	
62	90	92	76	50	29	6	5	348	13,921,026	
63	63	74	62	34	23	6	4	266	11,439,934	
64	49	65	48	27	20	4	2	215	9,173,239	
65	55	49	33	24	20	3	2	186	7,622,073	
66	48	38	28	15	12	8	2	151	6,167,325	
67	31	34	22	9	9	3	2	110	4,162,378	
68	27	18	7	4	8	1		65	2,516,978	
69	23	9	8	2	1		1	44	1,452,121	
70	21	13	9	7	2	1	2	55	2,046,923	
71	17	11	5	3		3		39	1,234,248	
72	9	10	4	4	1	1		29	892,791	
73	14	6	5	3	1			29	1,039,543	
74	7	5	2	3	1			18	585,335	
75	9	3	4	4				20	509,224	
76	7		2	1	1			11	249,047	
77	4	5	2	1				12	284,822	
78	5	5	1					11	302,221	
79	3	2		1		2		8	298,834	
80 & Over	12	10	4	1	3			30	858,062	
Total	9,200	5,296	2,926	2,177	1,469	347	65	21,480	\$ 814,827,128	

Average Age: 44.01

Average Service: 8.07

Appendix A: Additional Membership Data

Municipal Police

Nearest Age	Completed Years of Service							Total	Payroll
	Under 5	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30+		
Under 20	3							3	\$ 144,187
20 to 24	202	6						208	8,543,935
25 to 29	407	180	6					593	29,297,938
30 to 34	234	337	120					691	38,259,521
35 to 39	160	197	239	96	1	0	0	693	41,407,655
40 to 44	80	103	184	273	34			674	42,535,877
45 to 49	57	64	111	148	43	4		427	26,109,917
50 to 54	34	34	52	61	28	6		215	12,749,547
55 to 59	17	17	30	22	6	7		99	5,527,101
60	1	7	4	8	4	2		26	1,530,725
61	1	2	1	3	4	1		12	605,752
62	2	6	1	1	3	1		14	799,210
63	1		1	3	1		1	7	339,013
64	1	2	3	3			2	11	620,936
65			1	1			2	4	223,348
66		1						1	56,534
67			3					3	165,053
68	1							1	56,300
69		1						1	33,720
70	1							1	43,450
71									
72									
73									
74									
75									
76									
77	1							1	42,767
78									
79									
80 & Over									
Total	1,203	957	756	619	124	21	5	3,685	\$ 209,092,483

Average Age: 37.65

Average Service: 8.99

Appendix A: Additional Membership Data

Municipal Fire

Nearest Age	Completed Years of Service								Total	Payroll
	Under 5	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30+			
Under 20	4								4	\$ 119,849
20 to 24	116	4							120	4,598,282
25 to 29	208	125							333	15,592,327
30 to 34	158	237	69	1					465	24,888,119
35 to 39	96	176	160	56					488	27,915,217
40 to 44	25	84	102	136	21				368	23,660,586
45 to 49	9	31	49	91	26	3			209	14,074,163
50 to 54	3	10	21	42	20	5	3		104	7,447,275
55 to 59	2	6	9	20	6	2	1		46	3,239,012
60				1		1			2	165,655
61			2	1	1		1		5	380,626
62				1	1		1		3	211,070
63			1				1		2	145,791
64				2		1			3	278,515
65	1	1	1	1					4	230,073
66										
67										
68										
69										
70										
71										
72										
73										
74			1						1	50,054
75										
76										
77										
78										
79										
80 & Over										
Total	622	674	415	352	75	12	7	2,157	\$ 122,996,614	

Average Age: 36.75

Average Service: 9.24

Appendix A: Additional Membership Data

All PERA Divisions

Nearest Age	Completed Years of Service								Total	Payroll
	Under 5	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30+			
Under 20	374	1						375	\$ 10,935,925	
20 to 24	2,081	47	1					2,129	65,022,193	
25 to 29	3,441	1,194	43					4,678	168,000,913	
30 to 34	2,959	2,236	773	48				6,016	240,853,964	
35 to 39	2,193	1,857	1,365	618	38			6,071	266,895,428	
40 to 44	2,205	1,580	1,370	1,413	494	18		7,080	321,296,268	
45 to 49	1,734	1,327	1,150	1,096	908	118	2	6,335	289,757,677	
50 to 54	1,576	1,405	1,118	1,007	930	190	18	6,244	277,318,272	
55 to 59	1,206	1,272	1,020	886	786	181	43	5,394	241,914,777	
60	215	205	165	167	136	26	7	921	40,560,672	
61	181	188	172	137	96	28	9	811	35,330,914	
62	174	188	171	111	83	24	10	761	34,847,714	
63	122	144	137	77	57	10	8	555	25,908,320	
64	93	120	96	59	47	12	6	433	20,438,504	
65	91	99	68	47	33	8	7	353	15,813,113	
66	77	79	58	39	27	9	2	291	13,034,955	
67	52	58	49	18	14	9	3	203	9,165,510	
68	41	38	22	9	14	4	1	129	5,693,339	
69	37	20	14	7	3	1	2	84	3,474,734	
70	30	23	18	12	2	2	2	89	4,051,424	
71	28	20	13	6	3	5		75	2,712,579	
72	13	17	12	6	4	2	1	55	1,960,717	
73	20	11	11	4	2	1	1	50	2,014,231	
74	11	8	7	5	1			32	1,282,771	
75	10	4	5	6	1			26	848,824	
76	9	3	2	3	1	1	1	20	695,593	
77	6	7	3	3				19	639,140	
78	5	5	1					11	302,221	
79	5	2	1	1	1	2	1	13	491,867	
80 & Over	13	12	5	1	3		1	35	1,002,763	
Total	19,002	12,170	7,870	5,786	3,684	651	125	49,288	\$ 2,102,265,325	

Average Age: 43.46

Average Service: 8.63

Appendix A: Additional Membership Data

Table A-2: Number of Annual Retirement Allowances of Benefit Recipients as of June 30, 2014

Type of Pension	Number	Total Annual Benefits	Average Annual Pension
Service Retirement Pensions			
Single Life Pension Terminating Upon Death*	12,328	\$ 362,887,904	\$ 29,436
Two Life 100% Survivor Pension			
Retired Member Recipient*	11,586	345,888,606	29,854
Survivor Recipient	2,019	42,231,551	20,917
Two Life 50% Survivor Pension			
Retired Member Recipient*	4,230	132,807,042	31,396
Survivor Recipient	787	9,784,012	12,432
Single Life with Temporary Child Survivor Pension			
Retired Member Recipient*	221	8,184,126	37,032
Child Recipient	4	121,869	30,467
Total Service Retirement Pensions	31,175	\$ 901,905,110	\$ 28,930
Disability Retirement Pensions			
Single Life Pension Terminating Upon Death*	324	\$ 5,124,160	\$ 15,815
Two Life 100% Survivor Pension			
Retired Member Recipient*	634	9,931,369	15,665
Survivor Recipient	184	2,686,734	14,602
Two Life 50% Survivor Pension			
Retired Member Recipient*	127	2,122,799	16,715
Survivor Recipient	21	170,481	8,118
Single Life with Temporary Child Survivor Pension			
Retired Member Recipient*	12	179,154	14,930
Child Recipient	4	77,917	19,479
Total Disability Retirement Pensions	1,306	\$ 20,292,614	\$ 15,538
Pre-Retirement Survivor Pensions			
Spouse Recipient	1,033	\$ 16,193,266	15,676
Child Recipient	48	431,770	8,995
Total Pre-Retirement Survivor Pensions	1,081	\$ 16,625,036	\$ 15,379
Total Pensions Being Paid	33,562	\$ 938,822,760	\$ 27,973

* Includes Co-Payees

Appendix A: Additional Membership Data

Table A-3: Distribution of Participants Receiving Benefits as of June 30, 2014

Attained Age	Retired Member		Disabled Member		Survivor Beneficiaries		Totals	
	Number	Annual Pensions	Number	Annual Pensions	Number	Annual Pensions	Number	Annual Pensions
Under 40	17	\$ 455,044	43	\$ 649,956	238	\$ 3,399,609	298	\$ 4,504,609
40 to 44	296	11,198,981	70	1,217,018	103	1,570,813	469	13,986,812
45 to 49	1,305	49,205,104	129	2,590,435	148	2,398,631	1,582	54,194,170
50 to 54	2,761	102,802,895	216	3,879,770	215	3,600,723	3,192	110,283,388
55 to 59	3,328	120,442,141	308	4,948,839	315	5,771,162	3,951	131,162,142
60 to 64	4,801	160,640,557	261	3,524,101	417	8,373,990	5,479	172,538,648
65 to 69	6,153	173,756,420	44	368,076	501	10,114,002	6,698	184,238,498
70 to 74	4,057	103,968,272	1	30,354	537	10,135,639	4,595	114,134,265
75 to 79	2,726	66,131,755			532	9,392,017	3,258	75,523,772
80 to 84	1,643	36,808,733			481	8,510,687	2,124	45,319,420
85 to 89	881	17,899,093			360	5,229,712	1,241	23,128,805
90 to 94	318	5,463,137			195	2,626,563	513	8,089,700
95 to 99	83	942,992			47	506,964	130	1,449,956
100 & Over	21	201,487			11	67,088	32	268,575
Total	28,390	\$849,916,611	1,072	\$ 17,208,549	4,100	\$ 71,697,600	33,562	\$ 938,822,760

Appendix A: Additional Membership Data

**Table A-4: Distribution of Retirees & Beneficiaries
by Years of Service at Retirement**

Division	Years of Credited Service at Retirement							Total
	Under 5	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30+	
State General								
Average Monthly Benefit*	\$ 1,730	\$ 848	\$ 1,280	\$ 1,822	\$ 2,534	\$ 3,021	\$2,784	\$2,277
Average Final Average Salary	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Number of Retirees/Beneficiaries*	233	1,774	1,989	1,953	2,482	5,962	904	15,297
State Police/Corrections								
Average Monthly Benefit*	\$ 1,482	\$1,404	\$ 1,411	\$ 2,038	\$ 2,771	\$ 3,217	\$3,559	\$2,601
Average Final Average Salary	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Number of Retirees/Beneficiaries*	44	104	110	124	258	413	79	1,132
Municipal General								
Average Monthly Benefit*	\$ 1,466	\$ 687	\$ 1,104	\$ 1,720	\$ 2,429	\$ 2,924	\$2,815	\$2,078
Average Final Average Salary	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Number of Retirees/Beneficiaries*	226	1,429	1,531	1,508	1,736	3,823	430	10,683
Municipal Police								
Average Monthly Benefit*	\$ 1,918	\$1,481	\$ 1,789	\$ 2,878	\$ 3,370	\$ 3,511	\$3,456	\$3,119
Average Final Average Salary	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Number of Retirees/Beneficiaries*	58	82	139	547	1,771	155	44	2,796
Municipal Fire								
Average Monthly Benefit*	\$ 1,883	\$1,776	\$ 2,358	\$ 2,976	\$ 3,441	\$ 3,315	\$2,835	\$3,232
Average Final Average Salary	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Number of Retirees/Beneficiaries*	12	34	84	292	1,083	74	46	1,625
Totals for All Divisions								
Average Monthly Benefit*	\$ 1,629	\$ 822	\$ 1,256	\$ 2,000	\$ 2,853	\$ 3,002	\$2,855	\$2,345
Average Final Average Salary	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Number of Retirees/Beneficiaries*	573	3,423	3,853	4,424	7,330	10,427	1,503	31,533

* Does not include the following number of retirees/beneficiaries with missing years of service at retirement

State General – 792
State Police/Corrections – 270
Municipal General – 609
Municipal Police – 247
Municipal Fire – 111

Appendix A: Additional Membership Data

Table A-5: Distribution of Recent Retiree Ages at Retirement

Division	2009-10 Retirees	2010-11 Retirees	2011-12 Retirees	2012-13 Retirees	2013-14 Retirees	All Current Retirees & Beneficiaries
State General						
Number	722	894	906	992	1,229	16,089
Average Monthly Benefit at Retirement	\$ 2,322	\$ 2,284	\$ 2,230	\$ 2,334	\$ 2,213	\$ 1,840
Average Age at Retirement	57.98	58.60	59.10	58.78	59.71	56.91
State Police/Corrections						
Number	55	76	72	60	81	1,402
Average Monthly Benefit at Retirement	\$ 2,403	\$ 2,628	\$ 2,438	\$ 2,589	\$ 2,631	\$ 2,084
Average Age at Retirement	50.24	51.87	52.80	51.52	51.04	51.13
Municipal General						
Number	643	665	640	711	869	11,292
Average Monthly Benefit at Retirement	\$ 2,091	\$ 2,192	\$ 2,055	\$ 2,107	\$ 2,103	\$ 1,716
Average Age at Retirement	57.86	57.85	58.33	59.04	59.81	57.13
Municipal Police						
Number	146	151	163	167	184	3,043
Average Monthly Benefit at Retirement	\$ 2,869	\$ 3,097	\$ 3,096	\$ 3,097	\$ 3,352	\$ 2,478
Average Age at Retirement	46.80	49.37	47.72	48.27	49.10	47.59
Municipal Fire						
Number	65	83	66	62	98	1,736
Average Monthly Benefit at Retirement	\$ 3,293	\$ 3,590	\$ 3,792	\$ 3,539	\$ 3,521	\$ 2,525
Average Age at Retirement	47.99	49.41	48.19	48.45	49.22	47.86
Totals for All Current Retirees						
Number	1,631	1,869	1,847	1,992	2,461	33,562
Average Monthly Benefit at Retirement	\$ 2,321	\$ 2,389	\$ 2,309	\$ 2,362	\$ 2,325	\$ 1,902
Average Age at Retirement	56.28	56.90	57.19	57.45	58.25	55.43

Appendix B: Summary of Actuarial Assumptions & Methods

Actuarial Cost Methods Used for the Valuation

An actuarial cost method is a procedure for allocating the actuarial present value of benefits and expenses to time periods. The method used for this valuation is known as the individual entry-age actuarial cost method and has the following characteristics:

- (i) The annual normal costs for each individual active member are sufficient to accumulate the value of the member's pension at the time of retirement.
- (ii) Each annual normal cost is a constant percentage of the member's year-by-year projected compensation.

The individual entry-age actuarial cost method allocates the actuarial present value of each member's projected benefits on a level basis over the member's compensation between the entry-age of the member and the expected exit ages. The expected annual administrative expenses are included in the determination of the actuarially determined contributions.

The portion of the actuarial present value allocated to the valuation year is called the normal cost. The portion of the actuarial present value not provided for by the actuarial present value of future costs is called the actuarial accrued liability. Deducting actuarial value of assets from the actuarial accrued liability determines the unfunded actuarial accrued liability. Unfunded actuarial accrued liability was amortized as a level percent of payroll over 30 years to determine the actuarial determined contribution. This period is consistent with the policy established by the Retirement Board in October 1996.

Active member payroll was projected to increase 3.5% per year (4.0% prior to the June 30, 2014 valuation) for the purpose of determining the contribution needed to amortize the unfunded actuarial accrued liability. This estimate is consistent with the base rate of increase in salaries used to calculate actuarial present values.

The actuarial value of assets used for funding purposes is derived as follows: prior year actuarial value of assets is increased by contributions and expected investment income and reduced by refunds, benefit payments and expenses. To this amount 25% of the difference between expected and actual investment income for each of the previous four years is added.

Appendix B: Summary of Actuarial Assumptions & Methods

Actuarial Assumptions Used for the Valuation (effective with June 30, 2014 Valuation)

Assumed Rate of Investment Return. 7.75% per annum net of investment expenses.

Administrative Expenses. 0.45% of payroll.

Price Inflation. 3.0% per annum, compounded annually.

Real Investment Return. 4.75% over price inflation (4.25% over wage growth). This is the expected rate of return (net of investment expenses) above the rate of price inflation.

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	3.00%	3.00%	3.00%	3.00%	3.00%
Other Factors	0.50	0.50	0.50	0.50	0.50
Increase Due to Merit/Longevity:					
State General	7.75	1.75	0.50	0.50	0.50
State Police	10.75	6.25	1.75	1.75	1.75
State Corrections	9.75	2.75	1.75	1.75	1.75
Municipal General	2.25	1.75	0.50	0.50	0.50
Municipal Police	8.25	3.25	2.00	1.25	1.25
Municipal Fire	8.25	3.25	2.00	2.00	2.00

Appendix B: Summary of Actuarial Assumptions & Methods

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

Mortality Assumption. The mortality assumptions are based on the RP-2000 Mortality Tables (Combined table for healthy post-retirement, Employee table for active members, and Disabled table for disabled retirees before retirement age) with projection to 2018 using Scale AA.

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								
Pre-Retirement			Post-Retirement			Disabled		
Age	Male	Female	Age	Male	Female	Age	Male	Female
25	0.03%	0.02%	45	0.12%	0.08%	45	1.78%	0.56%
30	0.04	0.02	50	0.15	0.12	50	2.09	0.85
35	0.07	0.04	55	0.26	0.24	55	2.51	1.43
40	0.09	0.05	60	0.50	0.46	60	3.14	2.00
45	0.12	0.08	65	0.99	0.89	65	Uses healthy post-retirement rates upon surviving to normal retirement age.	
50	0.15	0.12	70	1.69	1.53	70		
55	0.21	0.22	75	2.94	2.43	75		
60	0.36	0.36	80	5.37	4.04	80		
65	0.59	0.53	85	9.76	6.95	85		

Appendix B: Summary of Actuarial Assumptions & Methods

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	State	Municipal General		Municipal	Municipal
	Male	Female	Police	Corrections	Male	Female	Police	Fire
40	55%	60%	60%	60%	55%	55%	60%	45%
45	55	60	60	60	55	55	50	35
50	55	60	50	50	55	55	50	30
55	55	60	50	50	55	55	50	50
60	35	40	50	50	30	30	50	50
65	25	30	100	50	30	35	50	50
70	25	30		100	25	25	100	100
75	25	30			25	25		
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	State	Municipal General		Municipal	Municipal
	Male	Female	Police	Corrections	Male	Female	Police	Fire
40	40%	35%	40%	50%	35%	35%	30%	40%
45	40	35	40	50	35	35	30	35
50	40	35	50	50	40	40	30	30
55	40	35	35	50	30	25	30	30
60	35	40	50	50	30	30	30	50
65	25	30	100	50	30	35	50	50
70	25	30		100	25	25	100	100
75	25	25			25	25		
80	100	100			100	100		

Appendix B: Summary of Actuarial Assumptions & Methods

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 Ages	Sample Service (Yr):				
	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 Ages	Sample Service (Yr):				
	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 B: Summary of Actuarial Assumptions & Methods

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 B: Summary of Actuarial Assumptions & Methods

Rates of Withdrawal from Active Membership (cont.)

Service Based Rates of Active Members Terminating During Year					
All Ages	Sample Service (Yr):				
	1	3	5	7	10+
State Police	8.00%	7.00%	4.00%	4.00%	4.00%
State Corrections	20.00	16.00	9.00	8.00	6.00
Municipal Detention	22.00	16.00	10.00	10.00	6.00
Municipal Police	14.00	9.50	6.80	5.15	3.80
Municipal Fire	10.00	7.50	5.00	3.30	3.00

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 (by Coverage Plan)								
Sample Ages	State General		State	State	Municipal General		Municipal	Municipal
	Male	Female	Police	Corrections	Male	Female	Police	Fire
25	0.02%	0.00%	0.00%	0.04%	0.01%	0.00%	0.00%	0.00%
30	0.05	0.01	0.06	0.10	0.03	0.01	0.01	0.01
35	0.10	0.03	0.13	0.14	0.06	0.02	0.03	0.03
40	0.19	0.08	0.30	0.20	0.11	0.04	0.06	0.06
45	0.30	0.15	0.39	0.35	0.17	0.09	0.12	0.12
50	0.43	0.28	0.59	0.67	0.27	0.17	0.21	0.20
55	0.44	0.44	1.22	1.06	0.44	0.26	0.33	0.34
60	0.12	0.45	1.23	0.69	0.45	0.29	0.44	0.44
65	0.02	0.11			0.12	0.08		

Appendix B: Summary of Actuarial Assumptions & Methods

Miscellaneous and Technical Assumptions

Marriage Assumption:	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.
Pay Increase Timing:	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.
Decrement Timing:	All decrements are assumed to occur at the beginning of the plan year.
Eligibility Testing:	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.
Decrement Relativity:	Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.
Decrement Operation:	Neither disability nor withdrawal decrements operate during retirement eligibility.
Loads:	Retiree liabilities were increased by 1% to account for the pop-up provision.
Incidence of Contributions:	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.
Normal Form of Benefit:	A straight life payment is the assumed normal form of benefit.
Benefit Service:	Exact fractional service is used to determine the amount of benefit payable.
Data Changes:	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.

Appendix B: Summary of Actuarial Assumptions & Methods

Definitions of Technical Terms

Actuarial Accrued Liability. The difference between the actuarial present value of future benefits payments and the actuarial present value of future normal costs.

Actuarial Cost Method. A mathematical procedure for allocating the dollar amount of the “actuarial present value of future benefit payments” between future normal cost and actuarial accrued liability.

Actuarial Present Value. The amount of funds currently required to provide a payment or series of payments in the future. It is determined by discounting future payments at predetermined rates of interest and by probabilities of payment.

Amortization. Paying off an interest-discounted amount with periodic payments of interest and principal – as opposed to paying off with a lump sum payment.

Experience Gain (Loss). The difference between actual actuarial costs and anticipated actuarial costs – during the period between two valuation dates.

Normal Cost. The actuarial cost allocated to the current year by the actuarial cost method.

Unfunded Actuarial Accrued Liability. The difference between the actuarial accrued liability and the actuarial value of assets. Sometimes referred to as “unfunded accrued liability.”

Appendix C: Summary of Plan Provisions

Benefit Tier

Effective July 1, 2013, Senate Bill 27 establishes two tiers of benefits under each PERA coverage plan:

Tier 1

- Current active members employed by a PERA affiliate on June 30, 2013
- Inactive members who did not receive a refund and have employee contributions on account on June 30, 2013
- Currently retired or will retire on or before June 30, 2013

Note: State and Municipal General members hired between July 1, 2010 and June 30, 2013 are grandfathered into Tier 1 coverage plans.

Tier 2

- Active members first hired on or after July 1, 2013
- Members who received a refund of employee contributions on or before June 30, 2013 and return to work for a PERA affiliate on or after July 1, 2013

Normal Retirement Eligibility Conditions

Tier 1

Applicable to all members:

- Any age with 25 or more years of credited service; or
- Age 60 or older with 20 or more years of credited service; or
- Age 61 or older with 17 or more years of credited service; or
- Age 62 or older with 14 or more years of credited service; or
- Age 63 or older with 11 or more years of credited services or
- Age 64 or older with 8 or more years of credited service; or
- Age 65 or older with 5 or more years of credited service.

Applicable to Municipal Police (Plans 3, 4, & 5) and Municipal Fire (Plans 3, 4, & 5) members:

- Any age with 20 or more years of credited service

Appendix C: Summary of Plan Provisions

Normal Retirement Eligibility Conditions (cont.)

Tier 2

Applicable to State General and Municipal General (Plan 1-4) members:

- Age 65 or older with 8 or more years of credited service; or
- Any age if the sum of the member's age and years of credited service equals at least 85, provided member has at least 8 years of credited service.

Applicable to State Police Officers, Adult Correctional Officers, Peace Officers, Juvenile Correctional Officers, Municipal Police, Municipal Fire, and Municipal Detention Officers:

- Age 60 or older with 6 or more years of credited service; or
- Any age with 25 or more years of credited service

Normal Retirement Pension Amount

The amount of normal retirement pension is based on:

- Final average salary:
 - For Tier 1 members, the average of salary for the 36 consecutive months of credited service producing the largest average;
 - For Tier 2 members, the average of salary for the 60 consecutive months of credited service producing the largest average;
- Credited service (years and months); and the
- Coverage plan.

Appendix C: Summary of Plan Provisions

The pension accrual factor and maximum pension, as a percent of final average salary, under each coverage plan are shown below:

Coverage Plan	Pension Factor Per Year of Credited Service		Maximum Pension as Percent of Final Average Salary
	Tier 1	Tier 2	Tier 1 & Tier 2
State General Member Coverage Plan 3	3.0%	2.5%	90%
Peace Officers Coverage Plan 3	3.0	3.0	90
State Police and Adult Corrections Officers Member Coverage Plan 1	3.0	3.0	90
Hazardous Duty (Juvenile Corrections Officer) Coverage Plan 2	3.0	3.0	90
Municipal General Member Coverage Plan 1	2.0	2.0	90
Coverage Plan 2	2.5	2.0	90
Coverage Plan 3	3.0	2.5	90
Coverage Plan 4	3.0	2.5	90
Municipal Detention Officer Coverage Plan 1	3.0	3.0	90
Municipal Police Member Coverage Plan 1	2.0	2.0	90
Coverage Plan 2	2.5	2.0	90
Coverage Plan 3	2.5	2.0	90
Coverage Plan 4	3.0	2.5	90
Coverage Plan 5	3.5	3.0	90
Municipal Fire Member Coverage Plan 1	2.0	2.0	90
Coverage Plan 2	2.5	2.0	90
Coverage Plan 3	2.5	2.0	90
Coverage Plan 4	3.0	2.5	90
Coverage Plan 5	3.5	3.0	90

Appendix C: Summary of Plan Provisions

Vested Termination of Membership (Employment)

Termination of employment and membership with at least 5 years of credited service for Tier 1 members. For Tier 2 State General and Municipal General (Non-Public Safety) members, vesting is 8 years. Tier 2 Public Safety members (State Police Officers, Adult Correctional Officers, Peace Officers, Juvenile Correctional Officers, Municipal Police, Fire, Detention Officers) are vested with at least 6 years of credited service. Accumulated member contributions must be left on deposit. Payment of the pension is available upon eligibility for normal retirement. In addition, certain disability and survivor pension provisions apply.

Normal and Optional Forms of Payment

The normal form of payment is for life. Optional contingent survivor beneficiary forms of payment are available on an actuarial equivalent basis. Total pension payments can never be less than the member's accumulated contributions.

Survivor Pensions – Death in the Line of Duty

Pensions are paid to the eligible spouse and eligible children if survivor coverage has not been elected under the Elective Survivor Pension Beneficiary provision. The amount of pension payable for life to an eligible spouse is the greater of 1) 50% of final average salary or 2) the accrued normal retirement pension reduced for option B election. The amount of pension payable to each eligible child is an equal share of 25% of final average salary. If there is not an eligible spouse or the eligible spouse dies, and if there are 2 or more eligible children, the amount of pension payable to each eligible child is an equal share of 50% of final average salary. An eligible child is an unmarried natural or adopted child who is under age 18. A child's pension terminates upon death, marriage or reaching age 18. The pension of any remaining eligible children is recalculated whenever a child's pension is terminated.

Appendix C: Summary of Plan Provisions

Survivor Pensions – Death Not in the Line of Duty

Requires 5 years of credited service for Tier 1 members, 6 years for Tier 2 Public Safety, and 8 years for Tier 2 Non-Public Safety. Benefit applies to members and vested former members who have not elected coverage under the Elective Survivor Pension Beneficiary provision. Pensions are paid to an eligible spouse OR eligible children. The amount of pension payable for the life of an eligible spouse is the greater of 1) 30% of final average salary or 2) accrued normal retirement pension reduced for option B election. An eligible child pension is paid if there is not an eligible spouse or following the death of an eligible spouse. The pension is payable to each child in equal shares. An eligible child is an unmarried natural or adopted child who is under age 18. A child's pension terminates upon death, marriage or reaching age 18. The pension of any remaining eligible children is recalculated whenever a child's pension is terminated.

Elective Survivor Beneficiary Pension

Applicable to Tier 1 members with 5 years of credited service, Tier 2 Public Safety with 6 years, and Tier 2 Non-Public Safety with 8 years. Also applicable to vested former members who have elected option B and designated a survivor pension beneficiary who has an insurable interest. The amount of pension is the amount of accrued normal retirement pension under optional form of payment B (100% continuation to beneficiary).

Disability Retirement

Applicable to Tier 1 members with 5 years of credited service, Tier 2 Public Safety with 6 years, and Tier 2 Non-Public Safety with 8 years. Also applicable to vested former members. The credited service requirement is waived if the disability is incurred in line of duty. The amount of disability pension is the accrued normal retirement pension at time of disability retirement. If the disability is in line of duty, the credited service used is the amount that would have been acquired when first eligible for normal retirement.

Appendix C: Summary of Plan Provisions

Cost-of-Living Increases

For Tier 1 Members, pensions are increased each July 1 by 2% subject to the following eligibility periods:

- If member retires prior to July 1, 2014, Cost-of-Living Adjustment (COLA) is payable after retirement has been in effect for at least 2 full calendar years.
- If member retires on or after July 1, 2014 but prior to July 1, 2015, COLA is payable after retirement has been in effect for at least 3 full calendar years.
- If member retires on or after July 1, 2015 but prior to July 1, 2016, COLA is payable after retirement has been in effect for at least 4 full calendar years.
- If member retires on or after July 1, 2017, COLA is payable after retirement has been in effect for at least 7 full calendar years.
- If retired on account of disability or if at least age 65, the waiting period is reduced to 1 full calendar year.

For Tier 2 Members, pensions are increased each July 1 by 2% subject to the following eligibility periods:

- COLA is payable after retirement has been in effect for at least 7 full calendar years.
- If retired on account of disability or if at least age 65, the waiting period is reduced to 1 full calendar year.

For certain Tier 1 and Tier 2 retirees, pensions are increased each July 1 by 2.5% subject the eligibility periods listed above, provided the conditions below are met:

- Retirees who retired with at least 25 years of service and whose annual pension is \$20,000 or less.
- Disabled retirees whose annual pension is \$20,000 or less.

Service Credit

Tier 1 Members in the State Police and Adult Corrections Officers Coverage Plan and members in the Municipal Detention Officers Coverage Plan receive 1.2 years of credited service for each year of service rendered. All other members receive 1.0 year of credited service for each year of service rendered.

Appendix C: Summary of Plan Provisions

Contributions by Members and Employers

Contributions by members and affiliated public employers are at the following rates shown below.

Coverage Plan	Percent of Salary Member*	Contribution Rate Employer
State General Member Coverage Plan 3	8.92%	16.99%
State Police Member and Adult Correctional Officer Member Coverage Plan 1	9.10	25.50
Hazardous Duty (Juvenile Corrections) Member Coverage Plan 2	6.28	26.12
Municipal General Member Coverage Plan 1	8.50	7.40
Municipal General Member Coverage Plan 2	10.65	9.55
Municipal General Member Coverage Plan 3	14.65	9.55
Municipal General Member Coverage Plan 4	17.15	12.05
Municipal Detention Officer Member Coverage Plan 1	18.15	17.05
Municipal Police Member Coverage Plan 1	8.50	10.40
Municipal Police Member Coverage Plan 2	8.50	15.40
Municipal Police Member Coverage Plan 3	8.50	18.90
Municipal Police Member Coverage Plan 4	13.85	18.90
Municipal Police Member Coverage Plan 5	17.80	18.90
Municipal Fire Member Coverage Plan 1	9.50	11.40
Municipal Fire Member Coverage Plan 2	9.50	17.90
Municipal Fire Member Coverage Plan 3	9.50	21.65
Municipal Fire Member Coverage Plan 4	14.30	21.65
Municipal Fire Member Coverage Plan 5	17.70	21.65

Interest is credited to member contributions on each June 30 at the rates set annually by the Retirement Board. Effective July 1, 2012, the interest crediting rate for member contributions is 2%.

* For employees whose annual salary is \$20,000 or less, the employee contribution rates shown above are reduced by 1.5%