



**Cavanaugh Macdonald**  
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**Public Employees Retirement Association (PERA)  
of New Mexico  
Annual Actuarial Valuation  
as of June 30, 2013**





# Cavanaugh Macdonald

CONSULTING, LLC

*The experience and dedication you deserve*

October 31, 2013

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, 2013; 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, 2013 and ending June 30, 2014 (FY 2014). 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,

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## 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, 2013 actuarial valuation as compared with the prior year.

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

Valuation Date	June 30, 2013	June 30, 2012
Total Annual Payroll	\$ 2,049,737,510	\$ 1,994,280,107
Total Valuation Payroll	\$ 2,131,727,010	\$ 2,074,051,311
Actuarial Accrued Liability (AAL)		
Active and Deferred Vested Members	\$ 6,243,367,726	\$ 6,731,898,673
Retired Members and Survivors	<u>10,814,012,296</u>	<u>11,056,145,174</u>
Total	\$ 17,057,380,022	\$ 17,788,043,847
Actuarial Value of Assets	\$ 12,438,151,665	\$ 11,612,047,019
Funded Ratio	72.9 %	65.3 %
Unfunded Actuarial Accrued Liability (UAAL) (AAL - Actuarial Value of Assets)	\$ 4,619,228,357	\$ 6,175,996,828
<b>Calculation of Required Contribution</b>		
Statutory Contribution Rate		
Employer Contribution Rate	14.59 %	13.88 %
Member Contribution Rate	<u>12.04 %</u>	<u>11.24 %</u>
Total	26.63 %	25.12 %
Less Normal Cost:		
Retirement	14.55 %	16.06 %
Termination	3.42 %	3.66 %
Pre-Retirement Survivors	0.42 %	0.51 %
Disability	<u>0.53 %</u>	<u>0.59 %</u>
Total Normal Cost	18.92 %	20.82 %
Amount Remaining to Amortize UAAL	7.71 %	4.30 %
Amortization Period	128 years	Infinite
Increase in Statutory Rate Necessary to Amortize UAAL over 30 Years	4.25 %	12.14 %



## Section I: Board Summary

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### 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 annual normal cost plus an amount to fully amortize the unfunded actuarial accrued liability (UAAL) over 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 gain of approximately \$1.47 billion investment return 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 10.45% compared to an expected return of 7.75%. The significant investment loss from 2009 has now been fully recognized in the actuarial value of assets. As of June 30, 2013, the actuarial value of assets is 98.1% of market value. Table III-4 provides the development of the actuarial value of assets.
- Senate Bill 27 decreased the cost-of-living adjustment from 3% to 2% per year effective July 1, 2013 and also established a new COLA eligibility period effective July 1, 2013. These changes resulted in a decrease of \$1.69 billion to Fund liabilities and an increase of 6.6% to the funded ratio.
- The total actuarial gain due to the investment experience of the total PERA Fund is \$309.9 million. The loss on non-investment related items totaled \$53.0 million. The net gain due to the plan's experience was \$256.9 million.
- The total decrease to the UAAL of PERA is \$1.56 billion and results in an increase to the funded ratio from 65.3% to 72.9%.
- Based on the current statutory rates and actuarial assumptions, the UAAL is projected to be fully amortized in 128 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, 2013	June 30, 2012
Total Annual Payroll	\$ 835,817,618	\$ 803,873,875
Total Valuation Payroll	\$ 869,250,323	\$ 836,028,830
Actuarial Accrued Liability (AAL)		
Active and Deferred Vested Members	\$ 2,658,321,112	\$ 2,897,844,067
Retired Members and Survivors	<u>4,865,439,224</u>	<u>4,921,071,371</u>
Total	\$ 7,523,760,336	\$ 7,818,915,438
Actuarial Value of Assets	\$ 4,996,425,681	\$ 4,724,562,943
Funded Ratio	66.4 %	60.4 %
Unfunded Actuarial Accrued Liability (UAAL) (AAL - Actuarial Value of Assets)	\$ 2,527,334,655	\$ 3,094,352,495
<b>Calculation of Required Contribution</b>		
Statutory Contribution Rate		
Employer Contribution Rate	16.59 %	15.09 %
Member Contribution Rate	<u>8.92 %</u>	<u>8.92 %</u>
Total	25.51 %	24.01 %
Less Normal Cost:		
Retirement	13.18 %	14.45 %
Termination	3.54 %	3.82 %
Pre-Retirement Survivors	0.33 %	0.40 %
Disability	<u>0.53 %</u>	<u>0.59 %</u>
Total Normal Cost	17.58 %	19.26 %
Amount Remaining to Amortize UAAL	7.93 %	4.75 %
Amortization Period	Infinite	Infinite
Increase in Statutory Rate Necessary to Amortize UAAL over 30 Years	8.12 %	15.68 %



## Section I: Board Summary

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### Summary of Key Findings – State General Division

The UAAL decreased from \$3.09 billion to \$2.53 billion and results in a 7.56% of payroll decrease to the annual amount necessary to amortize the UAAL over a 30-year period. The funded ratio increased from 60.4% to 66.4%. 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 \$4.0 million during the plan year ended June 30, 2013. The gain is primarily comprised of a \$122.0 million investment related gain which is offset by a \$118.0 million loss due to non-investment related experience which was primarily due to retirement experience and new entrants. Table IV-4 provides the detailed information on the sources and magnitude of actuarial gains and losses.
- The passage of Senate Bill 27 resulted in a \$726.0 million reduction in the UAAL.
- The financing period for the unfunded liability based upon the statutory contribution rates is an infinite period for the fifth consecutive year.



## Section I: Board Summary

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

Valuation Date	June 30, 2013	June 30, 2012
Total Annual Payroll	\$ 90,225,253	\$ 87,137,037
Total Valuation Payroll	\$ 93,834,263	\$ 90,622,518
Actuarial Accrued Liability (AAL)		
Active and Deferred Vested Members	\$ 311,301,260	\$ 338,669,992
Retired Members and Survivors	<u>518,419,678</u>	<u>555,342,642</u>
Total	\$ 829,720,938	\$ 894,012,634
Actuarial Value of Assets	\$ 926,108,695	\$ 851,976,386
Funded Ratio	111.6 %	95.3 %
Unfunded Actuarial Accrued Liability (UAAL) (AAL - Actuarial Value of Assets)	\$ (96,387,757)	\$ 42,036,248
<b>Calculation of Required Contribution</b>		
Statutory Contribution Rate		
Employer Contribution Rate	25.18 %	23.69 %
Member Contribution Rate	<u>8.72 %</u>	<u>8.70 %</u>
Total	33.90 %	32.39 %
Less Normal Cost:		
Retirement	23.65 %	26.55 %
Termination	2.94 %	3.20 %
Pre-Retirement Survivors	0.78 %	0.93 %
Disability	<u>1.14 %</u>	<u>1.28 %</u>
Total Normal Cost	28.51 %	31.96 %
Amount Remaining to Amortize UAAL	5.39 %	0.43 %
Amortization Period	0	Infinite
Increase in Statutory Rate Necessary to Amortize UAAL over 30 Years	N/A	2.13 %





## Section I: Board Summary

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### Summary of Key Findings – State Police/Corrections Division

As of June 30, 2013, the actuarial value of assets exceeded accrued liabilities by \$96.4 million. As of June 30, 2012, the accrued liabilities exceeded the actuarial value of assets by \$42.0 million. This represents a decrease in the UAAL of \$138.4 million from the previous year. The normal cost rate decreased from 31.96% to 28.51%. The funded ratio increased from 95.3% to 111.6%. 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 \$57.9 million and an increase of 16.3% in the funded ratio during the plan year ended June 30, 2013. The gain is comprised of a \$23.6 million investment related gain and a \$34.3 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 passage of Senate Bill 27 decreased the UAAL by \$90.4 million.



## Section I: Board Summary

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

Valuation Date	June 30, 2013	June 30, 2012
Total Annual Payroll	\$ 803,398,205	\$ 791,529,406
Total Valuation Payroll	\$ 835,534,133	\$ 823,190,582
Actuarial Accrued Liability (AAL)		
Active and Deferred Vested Members	\$ 2,109,062,602	\$ 2,243,993,581
Retired Members and Survivors	<u>3,206,775,122</u>	<u>3,233,715,609</u>
Total	\$ 5,315,837,724	\$ 5,477,709,190
Actuarial Value of Assets	\$ 4,108,957,408	\$ 3,808,143,673
Funded Ratio	77.3 %	69.5 %
Unfunded Actuarial Accrued Liability (UAAL) <i>(AAL - Actuarial Value of Assets)</i>	\$ 1,206,880,316	\$ 1,669,565,517
<b>Calculation of Required Contribution</b>		
Statutory Contribution Rate		
Employer Contribution Rate	9.46 %	9.45 %
Member Contribution Rate	<u>13.57 %</u>	<u>12.07 %</u>
Total	23.03 %	21.52 %
Less Normal Cost:		
Retirement	11.04 %	11.99 %
Termination	3.82 %	4.07 %
Pre-Retirement Survivors	0.49 %	0.60 %
Disability	<u>0.47 %</u>	<u>0.53 %</u>
Total Normal Cost	15.82 %	17.19 %
Amount Remaining to Amortize UAAL	7.21 %	4.33 %
Amortization Period	36 years	Infinite
Increase in Statutory Rate Necessary to Amortize UAAL over 30 Years	0.76 %	6.87 %



## Section I: Board Summary

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### Summary of Key Findings – Municipal General Division

The UAAL decreased from \$1.67 billion to \$1.21 billion and results in a 6.11% of payroll decrease to the annual amount necessary to amortize the UAAL over a 30-year period. As of the June 30, 2013 valuation, the current statutory contribution rates would require a 0.76% of payroll increase in order to amortize the UAAL over a 30-year period. The current statutory rate will amortize the UAAL over a 36-year period. The funded ratio increased from 69.5% to 77.3%. 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 General Division experienced a net actuarial gain of \$84.9 million and a 7.8% increase to the funded ratio during the plan year ended June 30, 2013. The gain is comprised of a \$103.3 million investment related gain which is partially offset by an \$18.4 million loss due to non-investment related experience which was primarily due to retirement experience and new entrants. Table IV-5 provides the detailed information on the sources and magnitude of actuarial gains and losses.
- The passage of Senate Bill 27 reduced the UAAL by \$489.9 million.
- The financing period for the unfunded liability based upon the statutory contribution rates exceeds the 30-year period for the fourth consecutive year.



## Section I: Board Summary

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

Valuation Date	June 30, 2013	June 30, 2012
Total Annual Payroll	\$ 201,525,064	\$ 196,453,568
Total Valuation Payroll	\$ 209,586,067	\$ 204,311,711
Actuarial Accrued Liability (AAL)		
Active and Deferred Vested Members	\$ 741,006,828	\$ 808,999,795
Retired Members and Survivors	<u>1,405,287,798</u>	<u>1,477,921,371</u>
Total	\$ 2,146,294,626	\$ 2,286,921,166
Actuarial Value of Assets	\$ 1,627,455,783	\$ 1,504,516,513
Funded Ratio	75.8 %	65.8 %
Unfunded Actuarial Accrued Liability (UAAL) (AAL - Actuarial Value of Assets)	\$ 518,838,843	\$ 782,404,653
<b>Calculation of Required Contribution</b>		
Statutory Contribution Rate		
Employer Contribution Rate	18.20 %	18.21 %
Member Contribution Rate	<u>17.15 %</u>	<u>15.67 %</u>
Total	35.35 %	33.88 %
Less Normal Cost:		
Retirement	23.95 %	27.27 %
Termination	2.46 %	2.60 %
Pre-Retirement Survivors	0.36 %	0.44 %
Disability	<u>0.60 %</u>	<u>0.66 %</u>
Total Normal Cost	27.37 %	30.97 %
Amount Remaining to Amortize UAAL	7.98 %	2.91 %
Amortization Period	Infinite	Infinite
Increase in Statutory Rate Necessary to Amortize UAAL over 30 Years	5.68 %	18.23 %



## Section I: Board Summary

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### Summary of Key Findings – Municipal Police Division

The UAAL decreased from \$782.4 million to \$518.8 million and results in a 12.55% of payroll decrease to the annual amount necessary to amortize the UAAL over a 30-year period. The funded ratio increased from 65.8% to 75.8%. 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 \$72.0 million and a 10.0% increase to the funded ratio during the plan year ended June 30, 2013. The gain is comprised of a \$41.5 million investment related gain and a \$30.5 million gain due to non-investment related experience which was primarily due to salary experience. Table IV-5 provides the detailed information on the sources and magnitude of actuarial gains and losses.
- The passage of Senate Bill 27 reduced the UAAL by \$252.6 million.
- The financing period for the unfunded liability based upon the statutory contribution rates is an infinite period for the fifth consecutive year.



## Section I: Board Summary

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

Valuation Date	June 30, 2013	June 30, 2012
Total Annual Payroll	\$ 118,771,370	\$ 115,286,221
Total Valuation Payroll	\$ 123,522,225	\$ 119,897,670
Actuarial Accrued Liability (AAL)		
Active and Deferred Vested Members	\$ 423,675,924	\$ 442,391,238
Retired Members and Survivors	<u>818,090,474</u>	<u>868,094,181</u>
Total	\$ 1,241,766,398	\$ 1,310,485,419
Actuarial Value of Assets	\$ 779,204,098	\$ 722,847,504
Funded Ratio	62.7 %	55.2 %
Unfunded Actuarial Accrued Liability (UAAL) (AAL - Actuarial Value of Assets)	\$ 462,562,300	\$ 587,637,915
<b>Calculation of Required Contribution</b>		
Statutory Contribution Rate		
Employer Contribution Rate	21.02 %	21.08 %
Member Contribution Rate	<u>17.45 %</u>	<u>16.02 %</u>
Total	38.47 %	37.10 %
Less Normal Cost:		
Retirement	25.03 %	28.12 %
Termination	1.85 %	1.96 %
Pre-Retirement Survivors	0.41 %	0.49 %
Disability	<u>0.35 %</u>	<u>0.38 %</u>
Total Normal Cost	27.64 %	30.95 %
Amount Remaining to Amortize UAAL	10.83 %	6.15 %
Amortization Period	Infinite	Infinite
Increase in Statutory Rate Necessary to Amortize UAAL over 30 Years	9.84 %	20.90 %



## Section I: Board Summary

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### Summary of Key Findings – Municipal Fire Division

The UAAL decreased from \$587.6 million to \$462.6 million and results in an 11.06% of payroll decrease to the annual amount necessary to amortize the UAAL over a 30-year period. The funded ratio increased from 55.2% to 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 \$38.1 million and a 7.5% increase to the funded ratio during the plan year ended June 30, 2013. The gain is comprised of a \$19.6 million investment related gain and an \$18.5 million gain due to non-investment related experience which was primarily due to salary experience. Table IV-5 provides the detailed information on the sources and magnitude of actuarial gains and losses.
- The passage of Senate Bill 27 resulted in a decrease in the UAAL of \$131.2 million.
- The financing period for the unfunded liability based upon the statutory contribution rates is an infinite period for the fifth 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, 2013.

**Table II-1: Summary of Membership Data as of June 30, 2013**

Group	Count					
	State General	State Police/ Corrections	Municipal General	Municipal Police	Municipal Fire	Totals
<b>Total Active Members</b>	19,980	1,956	22,123	3,744	2,209	<b>50,012</b>
<b>Inactive Members</b>						
Deferred Vested	2,559	122	1,644	148	73	<b>4,546</b>
Other	975	141	1,882	138	56	<b>3,192</b>
<b>Total Inactive Members</b>	3,534	263	3,526	286	129	<b>7,738</b>
<b>Retirees</b>						
Service*	12,971	1,140	8,811	2,549	1,478	<b>26,949</b>
Disabled	515	28	368	36	11	<b>958</b>
Beneficiaries	1,832	158	1,532	270	164	<b>3,956</b>
<b>Total Retirees</b>	15,318	1,326	10,711	2,855	1,653	<b>31,863</b>
<b>Totals</b>	<b>38,832</b>	<b>3,545</b>	<b>36,360</b>	<b>6,885</b>	<b>3,991</b>	<b>89,613</b>

\* Counts include Co-Payees as follows:

State General - 246

State Police - 68

Municipal General - 251

Municipal Police - 191

Municipal Fire - 112





## Section II: Membership Data

**Table II-2: Summary of Active Membership Valuation Data**

Division	Number		Total Payroll		Average Salary	
	2013	2012	2013	2012	2013	2012
<b>State Division</b>						
General	19,980	19,325	\$ 835,817,618	\$ 803,873,875	\$41,833	\$41,598
Police	520	493	30,881,589	29,212,380	59,388	59,254
Adult Corrections	1,107	1,098	47,273,615	45,717,743	42,704	41,637
Juvenile Corrections	329	325	12,070,049	12,206,914	36,687	37,560
<b>Total State Division</b>	21,936	21,241	\$ 926,042,871	\$ 891,010,912	\$42,216	\$41,948
<b>Municipal Division</b>						
General Coverage Plans						
Plan 1	910	1,224	\$ 25,297,944	\$ 30,318,030	\$27,800	\$24,770
Plan 2	6,479	6,112	221,597,787	211,060,414	34,202	34,532
Plan 3	13,266	12,653	499,681,822	494,086,116	37,666	39,049
Plan 4	732	706	23,847,678	23,509,364	32,579	33,299
Detention Officers Plan 1	736	739	32,972,974	32,555,482	44,800	44,053
Total General	22,123	21,434	\$ 803,398,205	\$ 791,529,406	\$36,315	\$36,929
Police Coverage Plans						
Plan 1	139	140	\$ 6,165,182	\$ 5,766,102	\$44,354	\$41,186
Plan 2	66	72	2,466,039	2,545,605	37,364	35,356
Plan 3	66	52	2,828,045	2,200,305	42,849	42,314
Plan 4	132	141	5,952,053	6,506,779	45,091	46,147
Plan 5	3,341	3,255	184,113,745	179,434,777	55,107	55,126
Total Police	3,744	3,660	\$ 201,525,064	\$ 196,453,568	\$53,826	\$53,676
Fire Coverage Plans						
Plan 1	51	51	\$ 2,229,231	\$ 1,801,519	\$43,710	\$35,324
Plan 2	23	10	1,146,867	354,161	49,864	35,416
Plan 3	4	5	119,128	187,216	29,782	37,443
Plan 4	10	13	465,654	593,338	46,565	45,641
Plan 5	2,121	2,069	114,810,490	112,349,987	54,130	54,302
Total Fire	2,209	2,148	\$ 118,771,370	\$ 115,286,221	\$53,767	\$53,671
<b>Total Municipal Division</b>	28,076	27,242	\$1,123,694,639	\$1,103,269,195	\$40,023	\$40,499
<b>Total PERA</b>	50,012	48,483	\$2,049,737,510	\$1,994,280,107	\$40,985	\$41,134



## Section II: Membership Data

Table II-3: Summary of Deferred Vested Members as of June 30, 2013

Division	Number	Average Age	Average Service	Average Annual Benefit
<b>State Division</b>				
General	2,559	51.98	9.26	\$ 12,052
Police/Hazardous Duty	<u>122</u>	47.66	9.98	10,121
<b>Total State Division</b>	2,681	51.78	9.29	\$ 11,964
<b>Municipal Division</b>				
General	1,644	52.70	9.23	\$ 9,170
Police	148	45.75	8.99	11,998
Fire	<u>73</u>	43.38	7.57	11,810
<b>Total Municipal Division</b>	1,865	51.78	9.15	\$ 9,498
<b>PERA Totals</b>	<b>4,546</b>	<b>51.78</b>	<b>9.23</b>	<b>\$ 10,952</b>



## Section II: Membership Data

**Table II-4: Summary of Retirees and Survivors as of June 30, 2013**

Type of Retirement	Division					Total
	State General	State Police/ Corrections	Municipal General	Municipal Police	Municipal Fire	
<b>Service</b>						
Number	12,971	1,140	8,811	2,549	1,478	26,949
Total Annual Benefits	\$370,940,476	\$ 35,752,297	\$232,266,395	\$ 94,924,928	\$56,698,129	\$790,582,225
Avg Annual Benefit	\$ 28,598	\$ 31,362	\$ 26,361	\$ 37,240	\$ 38,361	\$ 29,336
Avg Age	68.16	62.29	67.26	58.47	60.45	66.28
<b>Disability</b>						
Number	515	28	368	36	11	958
Total Annual Benefits	\$ 8,043,486	\$ 419,697	\$ 5,547,978	\$ 727,523	\$ 238,290	\$ 14,976,974
Avg Annual Benefit	\$ 15,618	\$ 14,989	\$ 15,076	\$ 20,209	\$ 21,663	\$ 15,634
Avg Age	55.46	54.79	54.46	47.13	53.57	54.72
<b>Survivors</b>						
Number	1,832	158	1,532	270	164	3,956
Total Annual Benefits	\$ 29,596,185	\$ 3,466,881	\$ 23,113,073	\$ 6,176,857	\$ 4,521,165	\$ 66,874,161
Avg Annual Benefit	\$ 16,155	\$ 21,942	\$ 15,087	\$ 22,877	\$ 27,568	\$ 16,904
Avg Age	69.42	62.80	69.21	64.47	69.66	68.75
<b>Total</b>						
Number	15,318	1,326	10,711	2,855	1,653	31,863
Total Annual Benefits	\$408,580,147	\$ 39,638,875	\$260,927,446	\$101,829,308	\$61,457,584	\$872,433,360
Avg Annual Benefit	\$ 26,673	\$ 29,894	\$ 24,361	\$ 35,667	\$ 37,179	\$ 27,381
Avg Age	67.89	62.19	67.10	58.89	61.31	66.24



## 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
<b>State General Division</b>				
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)%
6/30/2009	22,479	935,865,642	41,633	3.48 %
<b>State Police/Corrections Division</b>				
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)%
6/30/2009	2,087	95,202,963	45,617	(0.01)%
<b>Municipal General Division</b>				
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 %
6/30/2009	23,448	762,628,387	32,524	3.06 %
<b>Municipal Police Division</b>				
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 %
6/30/2009	3,701	185,497,931	50,121	4.00 %
<b>Municipal Fire Division</b>				
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 %
6/30/2009	2,047	102,064,575	49,861	5.40 %

**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
6/30/2013	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 %
6/30/2009	53,762	2,081,259,498	38,712	3.23 %



### 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, 2013.

**Table III-1: Market Value Summary as of June 30, 2013**

Division	June 30, 2013	June 30, 2012
State General	\$ 5,092,870,789	\$ 4,709,463,523
State Police/Corrections	943,985,205	849,253,521
Municipal General	4,188,271,875	3,795,973,074
Municipal Police	1,658,870,270	1,499,708,168
Municipal Fire	<u>794,244,935</u>	<u>720,537,327</u>
<b>Total Market Value of Assets</b>	<b>\$ 12,678,243,074</b>	<b>\$ 11,574,935,613</b>

**Table III-2: Actuarial Value Summary as of June 30, 2013**

Division	June 30, 2013	June 30, 2012
State General	\$ 4,996,425,681	\$ 4,724,562,943
State Police/Corrections	926,108,695	851,976,386
Municipal General	4,108,957,408	3,808,143,673
Municipal Police	1,627,455,783	1,504,516,513
Municipal Fire	<u>779,204,098</u>	<u>722,847,504</u>
<b>Total Actuarial Value of Assets</b>	<b>\$ 12,438,151,665</b>	<b>\$ 11,612,047,019</b>



### 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, 2013	June 30, 2012
<b>Beginning of Year Market Value</b>	<b>\$ 11,600,023,988</b>	<b>\$ 11,994,454,699</b>
Audit Adjustment	9,209,724	
<b>Revised Beginning of Year Market Value</b>	<b>\$ 11,609,233,712</b>	<b>\$ 11,994,454,699</b>
<b>Revenues:</b>		
a. Member Contributions	226,164,967	248,069,863
b. Employer Contributions	285,560,291	274,905,978
c. Purchases of Service	9,132,788	10,150,366
d. Investment Income		
1. Adjustments of investments to market value	807,617,924	(419,577,802)
2. Interest, dividends, etc.	293,385,358	248,668,445
3. Realized gains (losses)	414,433,852	103,170,490
4. Security lending	(14,121,020)	(22,207,561)
e. Other Income	429,831	22,766,276
f. Total Revenues	\$ 2,022,603,991	\$ 465,946,055
<b>Expenditures:</b>		
a. Benefit Payments	842,710,961	780,144,516
b. Refunds of Member Contributions	45,113,887	45,771,456
c. Administrative and Investment Expenses	36,271,929	34,460,794
d. Total Expenditures	\$ 924,096,777	\$ 860,376,766
<b>End of Year Market Value</b>	<b>\$ 12,707,740,926</b>	<b>\$ 11,600,023,988</b>

The market value rate of return for the plan year is 12.83% on an adjusted basis and 12.92% 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 (3.32)% 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 1.57 contributing active members for each member receiving a benefit as of June 30, 2013. 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, 2013  
(Total PERA with Legislative Division)**

A. Actuarial Value Beginning of Year		\$	11,637,215,832
B. Market Value End of Year			12,707,740,926
C. Revised Market Value Beginning of Year			11,609,233,712
D. Cash Flow			
D1. Contributions		\$	511,725,258
D2. Service Purchases			9,132,788
D3. Benefit Payments and Refunds			(887,824,848)
D4. Net		\$	(366,966,802)
E. Investment Income			
E1. Market Total (B - C - D4)		\$	1,465,474,016
E2. Assumed Rate			7.75%
E3. Amount for Immediate Recognition			887,664,263
E4. Amount for Phased-In Recognition			577,809,753
F. Phased-In Recognition of Investment Income			
F1. Current Year: 0.25 *E4		\$	144,452,438
F2. First Prior Year (2011/2012)	\$(1,010,896,575) x 25%		(252,724,144)
F3. Second Prior Year (2010/2011)	1,250,963,970 x 25%		312,740,993
F4. Third Prior Year (2009/2010)	381,994,416 x 25%		95,498,604
F5. Total Recognized Investment Gain		\$	299,967,891
G. Audit Adjustment		\$	9,209,724
<b>H. Actuarial Value End of Year</b>			<b>\$12,467,090,908</b>
(A + D4 + E3 + F5 + G)			
I. Difference Between Market & Actuarial Values		\$	240,650,018
<b>J. Rate of Return on Actuarial Value</b>			<b>10.45 %</b>
<b>K. Actuarial Value as a Percentage of Market Value</b>			<b>98.11 %</b>



### Section III: PERA Assets

**Table III-5: Allocation of Actuarial Value by Division as of June 30, 2013**

	State Division		PERA Totals w/o Legislative
	General	Police	
Member Contribution Fund	\$ 841,174,061	\$ 58,260,570	\$ 2,311,166,114
Employer Contribution Fund	1,580,911,608	406,762,291	3,801,767,328
Retirement Reserve Fund	2,670,785,120	478,962,344	6,565,309,632
<b>Total Fund Balances</b>	<b>\$ 5,092,870,789</b>	<b>\$ 943,985,205</b>	<b>\$ 12,678,243,074</b>
Approximate % of Total Fund Balance*	40.17%	7.45%	100%
Actuarial Value Adjustment*	(96,445,108)	(17,876,510)	(240,091,409)
<b>Total Actuarial Value of Assets</b>	<b>\$ 4,996,425,681</b>	<b>\$ 926,108,695</b>	<b>\$ 12,438,151,665</b>

	Municipal Division			PERA Totals w/o Legislative
	General	Police	Fire	
Member Contribution Fund	\$ 1,000,561,795	\$ 247,882,167	\$ 163,287,521	\$ 2,311,166,114
Employer Contribution Fund	1,163,656,138	486,149,977	164,287,314	3,801,767,328
Retirement Reserve Fund	2,024,053,942	924,838,126	466,670,100	6,565,309,632
<b>Total Fund Balances</b>	<b>\$ 4,188,271,875</b>	<b>\$ 1,658,870,270</b>	<b>\$ 794,244,935</b>	<b>\$ 12,678,243,074</b>
Approximate % of Total Fund Balance*	33.04%	13.08%	6.26%	100.00%
Actuarial Value Adjustment*	(79,314,467)	(31,414,487)	(15,040,837)	(240,091,409)
<b>Total Actuarial Value of Assets</b>	<b>\$ 4,108,957,408</b>	<b>\$ 1,627,455,783</b>	<b>\$ 779,204,098</b>	<b>\$ 12,438,151,665</b>

\* 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 0.23% 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, 2013.

**Table III-6: Actuarial Investment Gain (Loss) for the Year Ending June 30, 2013**  
(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)	\$ 4,724.6	\$ 852.0	\$ 3,808.1	\$ 1,504.5	\$ 722.8	\$ 11,612.0
2. Employee and Employer Contributions	235.0	22.6	158.1	62.9	38.3	516.9
3. Benefit Payments	(443.2)	(37.5)	(252.1)	(96.7)	(56.8)	(886.3)
4. Interest [1 x 7.75% + (2 + 3) x 7.75% x 0.5]	358.1	65.5	291.5	115.3	55.3	885.6
5. Expected End of Year AVA (1 + 2 + 3 + 4)	\$ 4,874.5	\$ 902.5	\$ 4,005.6	\$ 1,586.0	\$ 759.6	\$ 12,128.2
6. Actual End of Year AVA	4,996.4	926.1	4,109.0	1,627.5	779.2	12,438.2
7. Actuarial Investment Gain (Loss) (6 - 5)	\$ 122.0	\$ 23.6	\$ 103.3	\$ 41.5	\$ 19.6	\$ 309.9



## 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, 2013**

Division	Reported Fund Balances	Actuarial Present Value of Pensions Being Paid	Transfer
<b>State General</b>			
Members Contribution Fund	\$ 841,174,061		
Employers Accumulation Fund	1,580,911,608		\$ (2,194,654,104)
Retirement Reserve Fund	2,670,785,120	\$ 4,865,439,224	2,194,654,104
<b>State Police/Corrections</b>			
Members Contribution Fund	58,260,570		
Employers Accumulation Fund	406,762,291		(39,457,334)
Retirement Reserve Fund	478,962,344	518,419,678	39,457,334
<b>Municipal General</b>			
Members Contribution Fund	1,000,561,795		
Employers Accumulation Fund	1,163,656,138		(1,182,721,180)
Retirement Reserve Fund	2,024,053,942	3,206,775,122	1,182,721,180
<b>Municipal Police</b>			
Members Contribution Fund	247,882,167		
Employers Accumulation Fund	486,149,977		(480,449,672)
Retirement Reserve Fund	924,838,126	1,405,287,798	480,449,672
<b>Municipal Fire</b>			
Members Contribution Fund	163,287,521		
Employers Accumulation Fund	164,287,314		(351,420,374)
Retirement Reserve Fund	466,670,100	818,090,474	351,420,374
<b>Total End of Year Market Value</b>	<b>\$ 12,678,243,074</b>		



## 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, 2013**

	Actuarial Accrued Liability	Present Value of Future Normal Cost	Total Actuarial Present Value
<b>Active Members</b>			
Service Retirement	\$ 5,576,862,294	\$ 2,469,819,855	\$ 8,046,682,149
Termination Benefits	187,163,235	564,038,333	751,201,568
Survivor Benefits	74,738,639	70,579,681	145,318,320
Disability Retirement	83,435,407	91,938,695	175,374,102
Total for Active Members	\$ 5,922,199,575	\$ 3,196,376,564	\$ 9,118,576,139
<b>Inactive Members</b>	\$ 321,168,151		\$ 321,168,151
<b>Retirees and Beneficiaries</b>			
Service Retirements	\$ 9,903,469,421		\$ 9,903,469,421
Beneficiaries	700,053,535		700,053,535
Disability Retirements	210,489,340		210,489,340
Total for Retirees and Beneficiaries	\$ 10,814,012,296		\$ 10,814,012,296
<b>Total</b>	<b>\$ 17,057,380,022</b>	<b>\$ 3,196,376,564</b>	<b>\$ 20,253,756,586</b>

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	\$ 7,523.8	\$ 829.7	\$ 5,315.8	\$ 2,146.3	\$ 1,241.8
2. Actuarial Value of Assets	4,996.4	926.1	4,109.0	1,627.5	779.2
3. Unfunded Actuarial Accrued Liability (1-2)	2,527.4	(96.4)	1,206.9	518.8	462.6
Funded Ratio (2 / 1)	66.4%	111.6%	77.3%	75.8%	62.7%

Although the terminology used to describe the excess of PERA’s actuarial accrued liability over the actuarial value of assets is call 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, 2013, the funded ratio of PERA is 72.92% as compared to a ratio of 65.28% as of June 30, 2012. Due to the recognition of the investment gain from the 2013 plan year and the passage of Senate Bill 27, 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	\$ 3,094.4	\$ 42.0	\$ 1,669.6	\$ 782.4	\$ 587.6
2. Normal Cost	161.0	29.0	141.5	63.3	37.1
3. Contributions	(235.0)	(22.6)	(158.1)	(62.9)	(38.3)
4. Interest [ 1 x 7.75% + (2 + 3) x 7.75% x 0.5 ]	236.9	3.5	128.7	60.6	45.5
5. Expected UAAL before changes (1 + 2 + 3 + 4)	3,257.3	51.9	1,781.7	843.4	631.9
6. Assumption Changes	0	0	0	0	0
7. Plan Changes	(726.0)	(90.4)	(489.9)	(252.6)	(131.2)
8. Expected UAAL after changes (5 + 6 + 7)	2,531.3	(38.5)	1,291.8	590.8	500.7
9. Actual UAAL	2,527.3	(96.4)	1,206.9	518.8	462.6
10. Total Actuarial Gain (Loss)	4.0	57.9	84.9	72.0	38.1

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*
<b>Expected Value</b>	<b>\$3,257.3</b>	<b>59.9 %</b>	<b>21.51 %</b>	<b>\$51.9</b>	<b>94.6 %</b>	<b>3.16 %</b>
Retirement	139.1	(1.0)%	0.04 %	(4.0)	0.4 %	(0.24)%
Disability	7.9	(0.1)%	0.00 %	0.3	(0.0)%	0.02 %
Pre-Retirement Death	(0.8)	0.0 %	(0.00)%	(0.1)	0.0 %	(0.01)%
Withdrawal	(8.0)	0.1 %	(0.00)%	(3.2)	0.3 %	(0.19)%
Pay Increases	(81.1)	0.6 %	(0.08)%	(23.7)	2.5 %	(1.44)%
New Entrants	50.8	(0.4)%	0.01 %	6.8	(0.7)%	0.41 %
Post-Retirement Death	0.3	(0.0)%	0.00 %	(8.8)	0.9 %	(0.53)%
Data Adjustments	9.3	(0.1)%	0.00 %	(1.4)	0.1 %	(0.08)%
Other	0.5	(0.0)%	(0.01)%	(0.2)	0.0 %	(0.01)%
Investment Return	(122.0)	1.5 %	(0.81)%	(23.6)	2.4 %	(1.43)%
<b>Total (Gain) or Loss</b>	<b>(\$4.0)</b>	<b>0.7 %</b>	<b>(0.85)%</b>	<b>(\$57.9)</b>	<b>6.1 %</b>	<b>(3.51)%</b>
Assumption Changes	0.0	0.0 %	0.00 %	0.0	0.0 %	0.00 %
Plan Changes	(726.0)	5.8 %	(4.61)%	(90.4)	11.0 %	(5.32)%
<b>Actual Value</b>	<b>\$2,527.3</b>	<b>66.4 %</b>	<b>16.05 %</b>	<b>(\$96.4)</b>	<b>111.6 %</b>	<b>(5.67)%</b>

\* 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*
<b>Expected Value</b>	<b>\$1,781.7</b>	<b>69.2 %</b>	<b>11.95 %</b>	<b>\$843.4</b>	<b>65.3 %</b>	<b>22.79 %</b>	<b>\$631.9</b>	<b>54.6 %</b>	<b>28.21 %</b>
Retirement	56.1	(0.7)%	0.49 %	6.2	(0.2)%	0.21 %	(3.5)	0.1 %	(0.15)%
Disability	6.2	(0.1)%	0.05 %	1.9	(0.1)%	0.07 %	0.0	0.0 %	0.00 %
Pre-Retirement Death	(1.6)	0.0 %	(0.01)%	(0.2)	0.0 %	(0.01)%	(0.1)	0.0 %	(0.00)%
Withdrawal	(3.0)	0.0 %	(0.03)%	(2.5)	0.1 %	(0.09)%	3.3	(0.1)%	0.15 %
Pay Increases	(84.9)	1.0 %	(0.74)%	(36.2)	1.0 %	(1.24)%	(25.7)	1.0 %	(1.13)%
New Entrants	32.6	(0.4)%	0.28 %	16.8	(0.5)%	0.58 %	6.7	(0.3)%	0.30 %
Post-Retirement Death	2.0	(0.0)%	0.02 %	(18.1)	0.5 %	(0.62)%	0.0	0.0 %	0.00 %
Data Adjustments	10.6	(0.1)%	0.09 %	1.8	(0.0)%	0.06 %	1.0	(0.0)%	0.04 %
Other	0.4	(0.0)%	0.00 %	(0.2)	0.0 %	(0.01)%	(0.2)	0.0 %	(0.01)%
Investment Return	(103.3)	1.8 %	(0.90)%	(41.5)	1.7 %	(1.42)%	(19.6)	1.4 %	(0.86)%
<b>Total (Gain) or Loss</b>	<b>(\$84.9)</b>	<b>1.6 %</b>	<b>(0.74)%</b>	<b>(\$72.0)</b>	<b>2.5 %</b>	<b>(2.47)%</b>	<b>(\$38.1)</b>	<b>2.2 %</b>	<b>(1.68)%</b>
Assumption Changes	0.0	0.0 %	0.00 %	0.0	0.0 %	0.00 %	0.0	0.0 %	0.00 %
Plan Changes	(489.9)	6.5 %	(3.24)%	(252.6)	8.0 %	(6.66)%	(131.2)	6.0 %	(5.86)%
<b>Actual Value</b>	<b>\$1,206.9</b>	<b>77.3 %</b>	<b>7.97 %</b>	<b>\$518.8</b>	<b>75.8 %</b>	<b>13.66 %</b>	<b>\$462.6</b>	<b>62.7 %</b>	<b>20.67 %</b>

\* 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, 2013	June 30, 2012
1. Total Valuation Payroll	\$ 869,250,323	\$ 836,028,830
2. Present Value of Future Benefits	8,628,761,867	9,007,917,405
3. Present Value of Future Normal Costs	1,105,001,531	1,189,001,967
4. Actuarial Accrued Liability (2 - 3)	\$7,523,760,336	\$7,818,915,438
5. Actuarial Value of Assets	4,996,425,681	4,724,562,943
6. Unfunded Actuarial Accrued Liability (UAAL) (4 - 5)	\$2,527,334,655	\$3,094,352,495
7. UAAL Amortization Payment (30 year funding)	\$ 139,506,214	\$ 170,805,003
a. Amortization Payment as a Percent of Payroll (7 / 1)	16.05 %	20.43 %
8. Total Normal Cost	\$ 152,815,151	\$ 161,015,291
a. Normal Cost as a Percent of Payroll (8 / 1)	17.58 %	19.26 %
9. Total Required Contribution	\$ 292,321,365	\$ 331,820,294
a. Required Contribution Rate (7a + 8a)	33.63 %	39.69 %
10. Expected Statutory Contribution Rates		
a. Employer Contribution Rate	16.59 %	15.09 %
b. Member Contribution Rate	8.92 %	8.92 %
c. Total Statutory Contribution Rate (a + b)	25.51 %	24.01 %
11. (Excess) Shortfall of Rates Under Funding Policy Objectives (9a - 10c)	8.12 %	15.68 %





## Section V: Actuarial Funding Calculation

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

	June 30, 2013	June 30, 2012
1. Total Valuation Payroll	\$ 93,834,263	\$ 90,622,518
2. Present Value of Future Benefits	1,097,841,737	1,179,678,965
3. Present Value of Future Normal Costs	268,120,799	285,666,331
4. Actuarial Accrued Liability (2 - 3)	\$ 829,720,938	\$ 894,012,634
5. Actuarial Value of Assets	926,108,695	851,976,386
6. Unfunded Actuarial Accrued Liability (UAAL) (4 - 5)	\$ (96,387,757)	\$ 42,036,248
7. UAAL Amortization Payment (30 year funding)	\$ (5,320,503)	\$ 2,320,357
a. Amortization Payment as a Percent of Payroll (7 / 1)	(5.67)%	2.56 %
8. Total Normal Cost	\$ 26,753,328	\$ 28,962,160
a. Normal Cost as a Percent of Payroll (8 / 1)	28.51 %	31.96 %
9. Total Required Contribution	\$ 21,432,825	\$ 31,282,517
a. Required Contribution Rate (7a + 8a)	22.84 %	34.52 %
10. Expected Statutory Contribution Rates		
a. Employer Contribution Rate	25.18 %	23.69 %
b. Member Contribution Rate	8.72 %	8.70 %
c. Total Statutory Contribution Rate (a + b)	33.90 %	32.39 %
11. (Excess) Shortfall of Rates Under Funding Policy Objectives (9a - 10c)	(11.06)%	2.13 %



## Section V: Actuarial Funding Calculation

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

	June 30, 2013	June 30, 2012
1. Total Valuation Payroll	\$ 835,534,133	\$ 823,190,582
2. Present Value of Future Benefits	6,287,706,445	6,557,361,542
3. Present Value of Future Normal Costs	971,868,721	1,079,652,352
4. Actuarial Accrued Liability (2 - 3)	\$5,315,837,724	\$5,477,709,190
5. Actuarial Value of Assets	4,108,957,408	3,808,143,673
6. Unfunded Actuarial Accrued Liability (UAAL) (4 - 5)	\$1,206,880,316	\$1,669,565,517
7. UAAL Amortization Payment (30 year funding)	\$ 66,618,524	\$ 92,158,260
a. Amortization Payment as a Percent of Payroll (7 / 1)	7.97 %	11.20 %
8. Total Normal Cost	\$ 132,154,147	\$ 141,495,003
a. Normal Cost as a Percent of Payroll (8 / 1)	15.82 %	17.19 %
9. Total Required Contribution	\$ 198,772,671	\$ 233,653,263
a. Required Contribution Rate (7a + 8a)	23.79 %	28.39 %
10. Expected Statutory Contribution Rates		
a. Employer Contribution Rate	9.46 %	9.45 %
b. Member Contribution Rate	13.57 %	12.07 %
c. Total Statutory Contribution Rate (a + b)	23.03 %	21.52 %
11. (Excess) Shortfall of Rates Under Funding Policy Objectives (9a - 10c)	0.76 %	6.87 %



## Section V: Actuarial Funding Calculation

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

	June 30, 2013	June 30, 2012
1. Total Valuation Payroll	\$ 209,586,067	\$ 204,311,711
2. Present Value of Future Benefits	2,656,852,961	2,861,189,049
3. Present Value of Future Normal Costs	<u>510,558,335</u>	<u>574,267,883</u>
4. Actuarial Accrued Liability (2 - 3)	\$2,146,294,626	\$2,286,921,166
5. Actuarial Value of Assets	<u>1,627,455,783</u>	<u>1,504,516,513</u>
6. Unfunded Actuarial Accrued Liability (UAAL) (4 - 5)	\$ 518,838,843	\$ 782,404,653
7. UAAL Amortization Payment (30 year funding)	\$ 28,639,358	\$ 43,187,914
a. Amortization Payment as a Percent of Payroll (7 / 1)	13.66 %	21.14 %
8. Total Normal Cost	\$ 57,356,190	\$ 63,277,532
a. Normal Cost as a Percent of Payroll (8 / 1)	27.37 %	30.97 %
9. Total Required Contribution	\$ 85,995,548	\$ 106,465,446
a. Required Contribution Rate (7a + 8a)	41.03 %	52.11 %
10. Expected Statutory Contribution Rates		
a. Employer Contribution Rate	18.20 %	18.21 %
b. Member Contribution Rate	<u>17.15 %</u>	<u>15.67 %</u>
c. Total Statutory Contribution Rate (a + b)	35.35 %	33.88 %
11. (Excess) Shortfall of Rates Under Funding Policy Objectives (9a - 10c)	5.68 %	18.23 %



## Section V: Actuarial Funding Calculation

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

	June 30, 2013	June 30, 2012
1. Total Valuation Payroll	\$ 123,522,225	\$ 119,897,670
2. Present Value of Future Benefits	1,582,593,576	1,693,868,813
3. Present Value of Future Normal Costs	340,827,178	383,383,394
4. Actuarial Accrued Liability (2 - 3)	\$1,241,766,398	\$1,310,485,419
5. Actuarial Value of Assets	779,204,098	722,847,504
6. Unfunded Actuarial Accrued Liability (UAAL) (4 - 5)	\$ 462,562,300	\$ 587,637,915
7. UAAL Amortization Payment (30 year funding)	\$ 25,532,952	\$ 32,436,995
a. Amortization Payment as a Percent of Payroll (7 / 1)	20.67 %	27.05 %
8. Total Normal Cost	\$ 34,146,659	\$ 37,108,909
a. Normal Cost as a Percent of Payroll (8 / 1)	27.64 %	30.95 %
9. Total Required Contribution	\$ 59,679,611	\$ 69,545,904
a. Required Contribution Rate (7a + 8a)	48.31 %	58.00 %
10. Expected Statutory Contribution Rates		
a. Employer Contribution Rate	21.02 %	21.08 %
b. Member Contribution Rate	17.45 %	16.02 %
c. Total Statutory Contribution Rate (a + b)	38.47 %	37.10 %
11. (Excess) Shortfall of Rates Under Funding Policy Objectives (9a - 10c)	9.84 %	20.90 %



## Section V: Actuarial Funding Calculation

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

	June 30, 2013	June 30, 2012
1. Total Valuation Payroll	\$ 2,131,727,010	\$ 2,074,051,311
2. Present Value of Future Benefits	20,253,756,586	21,300,015,774
3. Present Value of Future Normal Costs	3,196,376,564	3,511,971,927
4. Actuarial Accrued Liability (2 - 3)	\$17,057,380,022	\$17,788,043,847
5. Actuarial Value of Assets	12,438,151,665	11,612,047,019
6. Unfunded Actuarial Accrued Liability (UAAL) (4 - 5)	\$ 4,619,228,357	\$ 6,175,996,828
7. UAAL Amortization Payment (30 year funding)	\$ 254,976,546	\$ 340,908,528
a. Amortization Payment as a Percent of Payroll (7 / 1)	11.96 %	16.44 %
8. Total Normal Cost	\$ 403,225,475	\$ 431,858,893
a. Normal Cost as a Percent of Payroll (8 / 1)	18.92 %	20.82 %
9. Total Required Contribution	\$ 658,202,021	\$ 772,767,421
a. Required Contribution Rate (7a + 8a)	30.88 %	37.26 %
10. Expected Statutory Contribution Rates		
a. Employer Contribution Rate	14.59 %	13.88 %
b. Member Contribution Rate	12.04 %	11.24 %
c. Total Statutory Contribution Rate (a + b)	26.63 %	25.12 %
11. Expected (Excess) Shortfall in Employer Contribution Rate (9a - 10c)	4.25 %	12.14 %

**Table V-2: Contribution Rate Summary**

Division	Employer Only		
	Current Statutory Rate	30-year Rate	Difference
State General	16.59 %	24.71 %	8.12 %
State Police/Corrections	25.18 %	14.12 %	(11.06)%
Municipal General	9.46 %	10.22 %	0.76 %
Municipal Police	18.20 %	23.88 %	5.68 %
Municipal Fire	21.02 %	30.86 %	9.84 %
<b>PERA Total</b>	<b>14.59 %</b>	<b>18.84 %</b>	<b>4.25 %</b>



## Section V: Actuarial Funding Calculation

**Table V-3: Statutory Contribution Rate Summary**

Division and Coverage Plan	Contribution Rates	
	Member	Employer
<b>State Division</b>		
General Coverage Plan 3	8.92 %	16.59 %
Police and Adult Corrections Plan 1	9.10 %	25.10 %
Hazardous Duty (Juvenile Correctional Officers) Plan 2	6.28 %	25.72 %
Weighted Average for Police/Corrections*	8.72 %	25.18 %
<b>Municipal Division</b>		
General Coverage Plans		
Plan 1	8.50 %	7.00 %
Plan 2	10.65 %	9.15 %
Plan 3	14.65 %	9.15 %
Plan 4	17.15 %	11.65 %
Detention Officers Plan 1	18.15 %	16.65 %
Weighted Average*	13.57 %	9.46 %
Police Coverage Plans		
Plan 1	8.50 %	10.00 %
Plan 2	8.50 %	15.00 %
Plan 3	8.50 %	18.50 %
Plan 4	13.85 %	18.50 %
Plan 5	17.80 %	18.50 %
Weighted Average*	17.15 %	18.20 %
Fire Coverage Plans		
Plan 1	9.50 %	11.00 %
Plan 2	9.50 %	17.50 %
Plan 3	9.50 %	21.25 %
Plan 4	14.30 %	21.25 %
Plan 5	17.70 %	21.25 %
Weighted Average*	17.45 %	21.02 %

\* 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 disclosure information necessary to comply with GASB requirements and are relevant for the annual financial reporting of PERA.

**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)
6/30/2013	\$ 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 %
6/30/2003	8,971,080,804	9,215,945,484	244,864,680	97.3 %	1,437,357,206	17.0 %

**Table VI-2: Schedule of Employer Contributions**

Fiscal Year Ended June 30	Actuarial Valuation Date	Annual Required Contribution (ARC)*
2014	6/30/2013	\$401,601,924*
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
2004	6/30/2003	206,835,702

\* 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)
6/30/2013	\$ 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	
6/30/2009	778,454,953	3,758,596,895	2,197,858,388	5,187,238,906	100.00	100.00	29.58	

### 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)
6/30/2013	\$ 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	
6/30/2009	51,976,907	428,702,219	279,377,481	909,538,277	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)
6/30/2013	\$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
6/30/2009	919,259,180	2,389,664,666	1,183,487,976	4,052,373,108	100.00	100.00	62.82

### 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)
6/30/2013	\$ 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
6/30/2009	226,520,464	1,119,080,749	518,225,913	1,615,789,548	100.00	100.00	52.14

### 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)
6/30/2013	\$ 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
6/30/2009	143,289,802	672,838,620	240,944,987	789,046,075	100.00	95.98	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)
6/30/2013	\$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	
6/30/2009	2,119,501,306	8,368,883,149	4,419,894,745	12,553,985,914	100.00	100.00	46.73	



## 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		
6/30/2013	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
6/30/2009	599	22,350,689	200	2,724,236	12,442	288,850,551	7.29	23,216

### 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		
6/30/2013	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
6/30/2009	71	2,869,837	1	78,768	1,108	29,738,649	10.36	26,840



## 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		
6/30/2013	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
6/30/2009	510	17,121,178	112	1,840,853	8,533	178,247,502	9.38	20,889

### 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		
6/30/2013	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
6/30/2009	113	5,321,543	0	0	2,298	73,399,767	7.82	31,941

### 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		
6/30/2013	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
6/30/2009	60	3,341,836	10	444,498	1,412	45,682,041	6.77	32,353



## 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		
6/30/2013	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
6/30/2009	1,353	51,005,083	323	5,088,355	25,793	615,918,510	8.06	23,879

**Table VI-5: Summary of Actuarial Methods and Assumptions**

<b>Valuation date</b>	June 30, 2013
<b>Actuarial cost method</b>	Entry Age Normal
<b>Amortization method</b>	Level Percent of Payroll, Open
<b>Payroll growth rate</b>	4.00%
<b>Remaining amortization period</b>	30 years
<b>Asset valuation method</b>	4-year Smoothed Market
<b>Actuarial assumptions:</b>	
<b>Investment rate of return*</b>	7.75%
<b>Projected salary increases*</b>	4.00% – 19.00%
<b>Post-retirement benefit increases</b>	2.00% compounded annually (2.50% for certain retirees and disabled participants with annual benefits less than \$20,000)

\* Includes inflation at 3.50%



## Appendix A: Additional Membership Data

**Table A-1: Schedule of Active Participant Data as of June 30, 2013 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	17							17	\$ 520,553
20 to 24	432	14						446	11,313,086
25 to 29	1,142	364	7	1				1,514	47,824,259
30 to 34	1,055	874	225	10				2,164	77,598,440
35 to 39	851	720	558	153	8			2,290	91,268,011
40 to 44	760	666	612	486	197	2		2,723	116,716,391
45 to 49	781	642	562	447	470	48		2,950	130,791,157
50 to 54	678	707	563	480	502	75	6	3,011	133,507,561
55 to 59	483	638	541	430	422	62	24	2,600	119,665,571
60	91	98	94	81	66	11	2	443	19,841,448
61	81	105	94	68	63	16	3	430	20,503,465
62	59	93	77	50	33	6	2	320	15,271,286
63	49	70	62	29	29	6	1	246	11,756,788
64	32	72	46	22	19	7	2	200	9,350,953
65	28	53	46	24	17	4		172	7,965,539
66	25	38	30	9	16	7		125	6,385,752
67	19	28	18	8	9		1	83	3,942,227
68	19	11	11	7	3	1	1	53	2,510,743
69	9	13	14	2		2		40	2,285,286
70	10	13	8	2	6	2		41	1,773,728
71	5	7	7	3	3	2		27	1,076,334
72	4	12	3	1	1	1	1	23	1,008,466
73	4	4	7	1				16	750,724
74	1	3	1	5				10	536,143
75	4	3	2	1		1	1	12	612,994
76	3	2	2	1				8	478,096
77									
78	2		1	1			1	5	194,472
79			1					1	28,660
80 & Over	4	3	2				1	10	339,487
Total	6,648	5,253	3,594	2,322	1,864	253	46	19,980	\$ 835,817,618

Average Age: 45.39

Average Service: 9.26



## 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	5							5	\$ 169,889
20 to 24	188	15						203	7,717,440
25 to 29	189	108	23					320	13,010,413
30 to 34	102	95	108	20				325	14,296,449
35 to 39	76	72	79	73	20			320	15,573,873
40 to 44	63	44	62	66	74	10		319	16,702,387
45 to 49	27	36	24	38	48	15		188	9,318,016
50 to 54	19	33	32	31	23	5	4	147	7,196,075
55 to 59	16	13	18	19	12	6	4	88	4,221,965
60	2	1	2	1	1		1	8	331,146
61	1	1	1		2			5	243,250
62	1	2	4	3	2			12	604,299
63			1			1		2	143,955
64	1		1			1		3	137,410
65		1	1	2				4	206,609
66		1		1	1			3	155,143
67									
68									
69									
70									
71									
72	1		1				1	3	148,560
73									
74									
75									
76									
77									
78									
79									
80 & Over	1							1	48,372
<b>Total</b>	<b>692</b>	<b>422</b>	<b>357</b>	<b>254</b>	<b>183</b>	<b>39</b>	<b>9</b>	<b>1,956</b>	<b>\$ 90,225,253</b>

Average Age: 37.32

Average Service: 9.45



## 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	511	1						512	\$ 8,216,892	
20 to 24	1,279	26						1,305	31,484,913	
25 to 29	1,432	521	6					1,959	58,404,524	
30 to 34	1,232	793	248	12				2,285	76,934,367	
35 to 39	956	756	384	196	10			2,302	83,863,884	
40 to 44	1,298	708	450	440	200	2		3,098	115,870,397	
45 to 49	841	647	420	401	329	81	3	2,722	109,926,387	
50 to 54	816	734	507	421	440	99	4	3,021	123,672,873	
55 to 59	716	635	400	367	367	82	29	2,596	104,853,702	
60	122	92	75	71	50	14	3	427	16,667,373	
61	98	93	84	55	41	14	5	390	15,286,896	
62	73	90	68	43	33	10	3	320	13,287,125	
63	60	83	47	31	17	6	3	247	10,146,943	
64	59	62	46	22	21	3	4	217	8,606,885	
65	44	55	33	20	20	7	2	181	7,373,333	
66	31	39	27	16	13	6	2	134	5,318,674	
67	24	20	8	9	12	2		75	2,843,311	
68	24	12	8	3	1		2	50	1,593,185	
69	22	19	12	6	2	1	2	64	2,320,616	
70	16	14	4	5	3	3		45	1,417,128	
71	9	10	4	2	2	1		28	837,091	
72	13	5	5	7				30	1,135,237	
73	2	8	2	4	1	1	1	19	672,345	
74	5	3	6	2				16	412,147	
75	8		2	1	1			12	278,835	
76	7	5	2	2				16	403,437	
77	5	4	2	1	2			14	440,872	
78	2	3		1		2		8	291,702	
79	1	3	3	1	1			9	335,867	
80 & Over	9	7	2	1	2			21	501,266	
<b>Total</b>	<b>9,715</b>	<b>5,448</b>	<b>2,855</b>	<b>2,140</b>	<b>1,568</b>	<b>334</b>	<b>63</b>	<b>22,123</b>	<b>\$ 803,398,205</b>	

Average Age: 43.47

Average Service: 7.92





## 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	6							6	\$ 162,046
20 to 24	191	8						199	7,867,685
25 to 29	374	195	7					576	26,757,666
30 to 34	242	347	100	1				690	35,829,139
35 to 39	173	183	237	90	4	0	0	687	38,484,489
40 to 44	99	113	215	284	38			749	44,433,462
45 to 49	64	75	107	145	59	3		453	26,446,086
50 to 54	34	31	50	54	30	6		205	11,690,842
55 to 59	24	20	25	21	12	4	1	107	5,895,700
60	2	2	1	5	2	1		13	653,437
61	6	4	1	3	2	1		17	944,492
62	1	1	1	4	2		1	10	693,070
63	1	2	4	2			2	11	584,260
64			2	2			2	6	348,660
65		3		1				4	251,026
66			2		1			3	183,898
67	1	1						2	80,825
68		1						1	33,720
69	2							2	59,134
70	1							1	56,454
71									
72									
73									
74									
75									
76	1							1	42,892
77									
78									
79									
80 & Over	1							1	26,082
<b>Total</b>	<b>1,223</b>	<b>986</b>	<b>752</b>	<b>612</b>	<b>150</b>	<b>15</b>	<b>6</b>	<b>3,744</b>	<b>\$ 201,525,064</b>

Average Age: 37.85

Average Service: 9.00



## 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	6								6	\$ 169,707
20 to 24	116	3							119	4,912,366
25 to 29	237	111	2						350	15,526,293
30 to 34	175	242	72	2					491	25,059,404
35 to 39	100	180	143	58					481	25,524,449
40 to 44	34	66	104	146	19	1			370	22,421,884
45 to 49	8	40	39	82	34	2			205	12,799,798
50 to 54	3	13	24	47	29	7	3		126	8,251,799
55 to 59	1	3	6	15	6	5	2		38	2,649,194
60	1		2	1	1		1		6	393,976
61				1	1		1		3	188,324
62			1	1			1		3	224,053
63		1		2			1		4	289,051
64	1	1	1		1				4	238,249
65										
66										
67										
68				1					1	53,343
69										
70										
71	1								1	24,520
72										
73			1						1	44,959
74										
75										
76										
77										
78										
79										
80 & Over										
<b>Total</b>	<b>683</b>	<b>660</b>	<b>395</b>	<b>356</b>	<b>91</b>	<b>16</b>	<b>8</b>	<b>2,209</b>		<b>\$ 118,771,370</b>

Average Age: 36.65

Average Service: 9.10



## 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	545	1						546	\$ 9,239,087	
20 to 24	2,206	66						2,272	63,295,489	
25 to 29	3,374	1,299	45	1				4,719	161,523,154	
30 to 34	2,806	2,351	753	45				5,955	229,717,798	
35 to 39	2,156	1,911	1,401	570	42			6,080	254,714,706	
40 to 44	2,254	1,597	1,443	1,422	528	15		7,259	316,144,522	
45 to 49	1,721	1,440	1,152	1,113	940	149	3	6,518	289,281,444	
50 to 54	1,550	1,518	1,176	1,033	1,024	192	17	6,510	284,319,151	
55 to 59	1,240	1,309	990	852	819	159	60	5,429	237,286,133	
60	218	193	174	159	120	26	7	897	37,887,380	
61	186	203	180	127	109	31	9	845	37,166,426	
62	134	186	151	101	70	16	7	665	30,079,832	
63	110	156	114	64	46	14	6	510	22,920,997	
64	93	135	96	46	41	11	8	430	18,682,158	
65	72	112	80	47	37	11	2	361	15,796,507	
66	56	78	59	26	31	13	2	265	12,043,467	
67	44	49	26	17	21	2	1	160	6,866,363	
68	43	24	19	11	4	1	3	105	4,190,991	
69	33	32	26	8	2	3	2	106	4,665,036	
70	27	27	12	7	9	5		87	3,247,310	
71	15	17	11	5	5	3		56	1,937,945	
72	18	17	9	8	1	2	1	56	2,292,262	
73	6	12	10	5	1	1	1	36	1,468,027	
74	6	6	7	7				26	948,290	
75	12	3	4	2	1	1	1	24	891,829	
76	11	7	4	3				25	924,425	
77	5	4	2	1	2			14	440,872	
78	4	3	1	2		2	1	13	486,173	
79	1	3	4	1	1			10	364,527	
80 & Over	15	10	4	1	2		1	33	915,207	
<b>Total</b>	<b>18,961</b>	<b>12,769</b>	<b>7,953</b>	<b>5,684</b>	<b>3,856</b>	<b>657</b>	<b>132</b>	<b>50,012</b>	<b>\$ 2,049,737,510</b>	

Average Age: 43.27

Average Service: 8.65



## Appendix A: Additional Membership Data

**Table A-2: Number of Annual Retirement Allowances of Benefit Recipients  
as of June 30, 2013**

Type of Pension	Number	Total Annual Benefits	Average Annual Pension
<b>Service Retirement Pensions</b>			
Single Life Pension Terminating Upon Death*	11,662	\$ 336,586,783	\$ 28,862
Two Life 100% Survivor Pension			
Retired Member Recipient*	11,049	323,124,753	29,245
Survivor Recipient	1,934	39,155,688	20,246
Two Life 50% Survivor Pension			
Retired Member Recipient*	4,016	123,416,490	30,731
Survivor Recipient	763	9,073,810	11,892
Single Life with Temporary Child Survivor Pension			
Retired Member Recipient*	202	7,333,387	36,304
Child Recipient	3	102,306	34,102
<b>Total Service Retirement Pensions</b>	<b>29,629</b>	<b>\$ 838,793,217</b>	<b>\$ 28,310</b>
<b>Disability Retirement Pensions</b>			
Single Life Pension Terminating Upon Death*	287	\$ 4,457,572	\$ 15,532
Two Life 100% Survivor Pension			
Retired Member Recipient*	566	8,680,378	15,336
Survivor Recipient	172	2,446,320	14,223
Two Life 50% Survivor Pension			
Retired Member Recipient*	113	1,783,886	15,787
Survivor Recipient	20	162,982	8,149
Single Life with Temporary Child Survivor Pension			
Retired Member Recipient*	12	175,952	14,663
Child Recipient	4	65,329	16,332
<b>Total Disability Retirement Pensions</b>	<b>1,174</b>	<b>\$ 17,772,419</b>	<b>\$ 15,138</b>
<b>Pre-Retirement Survivor Pensions</b>			
Spouse Recipient	1,011	\$ 15,441,558	15,274
Child Recipient	49	426,166	8,697
<b>Total Pre-Retirement Survivor Pensions</b>	<b>1,060</b>	<b>\$ 15,867,724</b>	<b>\$ 14,970</b>
<b>Total Pensions Being Paid</b>	<b>31,863</b>	<b>\$ 872,433,360</b>	<b>\$ 27,381</b>

\* Includes Co-Payees



## Appendix A: Additional Membership Data

**Table A-3: Distribution of Participants Receiving Benefits as of June 30, 2013**

Attained Age	Retired Member		Disabled Member		Survivor Beneficiaries		Totals	
	Number	Annual Pensions	Number	Annual Pensions	Number	Annual Pensions	Number	Annual Pensions
Under 40	20	\$ 567,072	33	\$ 542,569	242	\$ 3,409,165	295	\$ 4,518,806
40 to 44	283	10,248,034	72	1,238,501	104	1,601,041	459	13,087,576
45 to 49	1,269	46,492,886	120	2,324,250	137	2,144,472	1,526	50,961,608
50 to 54	2,636	96,445,569	197	3,398,828	215	3,505,980	3,048	103,350,377
55 to 59	3,170	113,311,409	296	4,688,734	309	5,574,361	3,775	123,574,504
60 to 64	4,806	158,371,494	220	2,618,530	398	7,918,214	5,424	168,908,238
65 to 69	5,608	154,929,117	19	135,803	480	9,367,429	6,107	164,432,349
70 to 74	3,824	94,838,398	1	29,759	508	9,007,113	4,333	103,875,270
75 to 79	2,538	60,102,471	0	0	495	8,720,842	3,033	68,823,313
80 to 84	1,561	33,054,687	0	0	483	8,307,690	2,044	41,362,377
85 to 89	850	16,632,690	0	0	367	4,738,655	1,217	21,371,345
90 to 94	287	4,615,364	0	0	163	2,053,159	450	6,668,523
95 to 99	79	795,416	0	0	46	482,213	125	1,277,629
100 & Over	18	177,618	0	0	9	43,827	27	221,445
<b>Total</b>	<b>26,949</b>	<b>\$790,582,225</b>	<b>958</b>	<b>\$ 14,976,974</b>	<b>3,956</b>	<b>\$ 66,874,161</b>	<b>31,863</b>	<b>\$ 872,433,360</b>



## 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+	
<b>State General</b>								
Average Monthly Benefit*	\$ 1,622	\$ 822	\$ 1,242	\$ 1,784	\$ 2,471	\$ 2,954	\$2,692	<b>\$2,231</b>
Average Final Average Salary	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<b>N/A</b>
Number of Retirees/Beneficiaries*	187	1,617	1,826	1,863	2,321	5,611	903	<b>14,328</b>
<b>State Police/Corrections</b>								
Average Monthly Benefit*	\$ 1,454	\$1,430	\$ 1,475	\$ 2,034	\$ 2,704	\$ 3,171	\$3,502	<b>\$2,542</b>
Average Final Average Salary	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<b>N/A</b>
Number of Retirees/Beneficiaries*	45	98	108	121	242	357	74	<b>1,045</b>
<b>Municipal General</b>								
Average Monthly Benefit*	\$ 1,538	\$ 680	\$ 1,086	\$ 1,698	\$ 2,382	\$ 2,864	\$2,677	<b>\$2,040</b>
Average Final Average Salary	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<b>N/A</b>
Number of Retirees/Beneficiaries*	207	1,323	1,415	1,431	1,607	3,557	415	<b>9,955</b>
<b>Municipal Police</b>								
Average Monthly Benefit*	\$ 1,869	\$1,470	\$ 1,747	\$ 2,822	\$ 3,310	\$ 3,293	\$3,375	<b>\$3,043</b>
Average Final Average Salary	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<b>N/A</b>
Number of Retirees/Beneficiaries*	60	78	130	525	1,596	147	43	<b>2,579</b>
<b>Municipal Fire</b>								
Average Monthly Benefit*	\$ 1,760	\$1,746	\$ 2,278	\$ 2,915	\$ 3,366	\$ 3,031	\$2,705	<b>\$3,143</b>
Average Final Average Salary	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<b>N/A</b>
Number of Retirees/Beneficiaries*	11	34	84	281	1,014	71	44	<b>1,539</b>
<b>Totals for All Divisions</b>								
Average Monthly Benefit*	\$ 1,605	\$ 807	\$ 1,230	\$ 1,966	\$ 2,790	\$ 2,935	\$2,749	<b>\$2,296</b>
Average Final Average Salary	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<b>N/A</b>
Number of Retirees/Beneficiaries*	510	3,150	3,563	4,221	6,780	9,743	1,479	<b>29,446</b>

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

- State General – 990
- State Police/Corrections – 281
- Municipal General – 756
- Municipal Police – 276
- Municipal Fire – 114



## Appendix A: Additional Membership Data

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

Division	2008-09 Retirees	2009-10 Retirees	2010-11 Retirees	2011-12 Retirees	2012-13 Retirees	All Current Retirees & Beneficiaries
<b>State General</b>						
Number	621	729	897	913	1,193	15,318
Average Monthly Benefit at Retirement	\$ 2,196	\$ 2,317	\$ 2,280	\$ 2,226	\$ 2,267	\$ 1,795
Average Age at Retirement	57.88	58.09	58.62	59.06	59.79	56.86
<b>State Police/Corrections</b>						
Number	74	55	76	71	59	1,326
Average Monthly Benefit at Retirement	\$ 2,484	\$ 2,403	\$ 2,628	\$ 2,456	\$ 2,530	\$ 2,035
Average Age at Retirement	49.58	50.24	51.87	52.65	52.05	51.27
<b>Municipal General</b>						
Number	515	648	670	640	789	10,711
Average Monthly Benefit at Retirement	\$ 2,051	\$ 2,097	\$ 2,194	\$ 2,064	\$ 2,084	\$ 1,677
Average Age at Retirement	57.57	57.83	57.80	58.39	59.73	56.99
<b>Municipal Police</b>						
Number	118	145	150	162	174	2,855
Average Monthly Benefit at Retirement	\$ 2,623	\$ 2,885	\$ 3,095	\$ 3,105	\$ 3,052	\$ 2,410
Average Age at Retirement	47.93	46.66	49.50	47.78	48.79	47.56
<b>Municipal Fire</b>						
Number	61	65	84	66	65	1,653
Average Monthly Benefit at Retirement	\$ 2,970	\$ 3,293	\$ 3,554	\$ 3,792	\$ 3,512	\$ 2,446
Average Age at Retirement	48.18	47.99	49.27	48.19	48.63	47.85
<b>Totals for All Current Retirees</b>						
Number	1,389	1,642	1,877	1,852	2,280	31,863
Average Monthly Benefit at Retirement	\$ 2,228	\$ 2,322	\$ 2,385	\$ 2,311	\$ 2,306	\$ 1,854
Average Age at Retirement	56.05	56.31	56.91	57.21	58.41	55.37



## Appendix B: Summary of Actuarial Assumptions & Methods

### Actuarial Assumptions Used for the Valuation

**Assumed Rate of Investment Return.** 7.75% per annum net of administrative and investment expenses. The investment assumption was changed from 8.00% to 7.75% effective June 30, 2011 based on a recent study of the economic assumptions used in the valuation.

The estimates of future inflation, real investment return in excess of inflation and salary increases are used in combination with the demographic estimates to determine the present value of amounts expected to be paid in the future.

**Price Inflation.** 3.5% per annum, compounded annually, effective June 30, 2011.

**Real Investment Return.** 4.25% over price inflation (3.75% over wage growth), effective June 30, 2011. This is the rate of return (net of administrative and investment expenses) to be produced by investing a pool of assets in an inflation-free environment.

**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. These rates were first used for the June 30, 2005 actuarial valuation. 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	3.5%	3.5%	3.5%	3.5%	3.5%
Other Factors	0.5	0.5	0.5	0.5	0.5
Increase Due to Merit/Longevity:					
State General	8.0	2.0	0.5	0.5	0.5
State Police	13.5	9.0	6.8	4.5	2.3
State Corrections	15.0	3.5	3.5	3.5	3.5
Municipal General	2.5	1.5	0.5	0.5	0.5
Municipal Police	9.5	4.0	2.8	2.0	1.8
Municipal Fire	10.0	5.5	2.7	1.3	1.5





## Appendix B: Summary of Actuarial Assumptions & Methods

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

**Mortality Assumption.** For active members, mortality rates are shown for sample ages in the following schedule. No provision was made for future mortality improvement.

Pre-Retirement Mortality Rates by Division						
Age	State General		State Police		State Corrections	
	Male	Female	Male	Female	Male	Female
20	0.0176%	0.0135%	0.0390%	0.0342%	0.0210%	0.0210%
25	0.0226	0.0133	0.0468	0.0390	0.0280	0.0280
30	0.0301	0.0171	0.0598	0.0468	0.0385	0.0385
35	0.0398	0.0293	0.0809	0.0598	0.0665	0.0665
40	0.0692	0.0415	0.1156	0.0809	0.1225	0.1225
45	0.0904	0.0611	0.1871	0.1156	0.1820	0.1820
50	0.1131	0.0889	0.3499	0.1871	0.2555	0.2555
55	0.1434	0.1480	0.5899	0.3499	0.3570	0.3570
60	0.2376	0.3115	0.9013	0.5899	0.5110	0.5110
65	0.4732	0.5962	1.4413	0.9013	0.8680	0.8680

Pre-Retirement Mortality Rates by Division						
Age	Municipal General		Municipal Police		Municipal Fire	
	Male	Female	Male	Female	Male	Female
20	0.0342%	0.0317%	0.0189%	0.0171%	0.0189%	0.0171%
25	0.0390	0.0318	0.0225	0.0195	0.0225	0.0195
30	0.0468	0.0359	0.0283	0.0234	0.0283	0.0234
35	0.0598	0.0427	0.0379	0.0299	0.0379	0.0299
40	0.0809	0.0538	0.0536	0.0404	0.0536	0.0404
45	0.1156	0.0720	0.0828	0.0578	0.0828	0.0578
50	0.1871	0.1018	0.1553	0.0936	0.1553	0.0936
55	0.3499	0.1572	0.2682	0.1750	0.2682	0.1750
60	0.5899	0.2952	0.4155	0.2949	0.4155	0.2949
65	0.9013	0.5095	0.6565	0.4506	0.6565	0.4506



## Appendix B: Summary of Actuarial Assumptions & Methods

For inactive members, mortality rates are based on the 2000 Group Annuity Mortality Table (1971 GAM projected), set back 3 years for men and 7 years for women for healthy lives. Special disabled mortality is used for disabled lives. All deaths-in-service are assumed to be non-duty.

Post-retirement and post-disablement mortality rates are shown for sample ages in the following schedule.

Post-Retirement and Post-Disablement Mortality Rates				
Age	Post-retirement		Post-disablement	
	Male	Female	Male	Female
20	0.0378%	0.0342%	5.1360%	2.6300%
25	0.0450	0.0390	5.2360	2.6300
30	0.0566	0.0468	4.4270	2.6300
35	0.0758	0.0598	2.9780	2.4200
40	0.1072	0.0809	2.0450	2.1800
45	0.1655	0.1156	1.9280	2.0800
50	0.3107	0.1871	2.1270	2.1900
55	0.5363	0.3499	2.4660	2.4900
60	0.8309	0.5899	3.0070	2.8800
65	1.3130	0.9013	3.8570	3.2300
70	2.2037	1.4413	5.1870	3.6200
75	3.7677	2.4514	7.2610	4.0200
80	5.8349	4.1064	10.4530	4.6500
85	9.4487	6.4629	15.2880	6.8600



## Appendix B: Summary of Actuarial Assumptions & Methods

**Rates of Retirement.** These rates are used to measure the probability of members retiring at the indicated ages or indicated service.

Percents Retiring at Indicated Ages (by Coverage Plan)								
Retirement Ages	State General		State	State	Municipal General		Municipal	Municipal
	Male	Female	Police	Corrections	Male	Female	Police	Fire
60	40%	40%	50%	25%	40%	35%	50%	30%
61	50	50	50	20	50	50	40	30
62	45	50	50	20	40	35	30	65
63	45	40	75	30	35	35	25	20
64	35	40	75	45	45	35	25	20
65	40	35	100	40	35	30	40	20
66	22	30		40	20	15	40	20
67	25	30		40	20	18	40	100
68	25	15		40	18	18	40	
69	20	25		40	15	20	40	
70	25	35		100	15	18	100	
71	15	35			15	15		
72	20	30			15	25		
73	20	20			20	18		
74	20	20			30	50		
75	40	40			30	50		
76	40	40			30	50		
77	50	40			30	50		
78	50	40			40	50		
79	50	40			40	50		
80	100	100			100	100		

Note: The above rates are increased by 75% for those eligible to retire prior to July 1, 2016 to reflect the increased probability of retirements due to the change in the eligibility period for cost-of-living increases resulting from the passage of Senate Bill 27.



## Appendix B: Summary of Actuarial Assumptions & Methods

Percents Retiring at Indicated Service (by Coverage Plan)								
Service	State General	State Police	State Corrections	Municipal General	Municipal Police		Municipal Fire	
					Plans 1, 2	Plans 3, 4, 5	Plans 1, 2	Plans 3, 4, 5
20		20%	25%	30%		35%		22%
21		25	25	30		35		20
22		8	25	30		35		30
23		8	30	30		30		30
24		8	30	30		20		20
25	50%	8	30	45	25%	25	15%	15
26	40	20	30	35	20	20	20	20
27	35	20	30	25	25	25	15	15
28	20	20	30	15	25	25	18	18
29	20	50	40	20	15	15	18	18
30	20	100	45	20	50	50	20	20
31	15		45	15	50	50	15	15
32	10		100	10	100	100	20	20
33	10			10			50	50
34	15			15			100	100
35	20			20				
36	20			20				
37	20			20				
38	40			50				
39	40			50				
40	75			100				
41	75							
42	75							
43	75							
44	75							
45	100							

Note: The above rates are increased by 75% for those eligible to retire prior to July 1, 2016 to reflect the increased probability of retirements due to the change in the eligibility period for cost-of-living increases resulting from the passage of Senate Bill 27.



## Appendix B: Summary of Actuarial Assumptions & Methods

**Rates of Separation From Active Membership.** The rates are used to measure probabilities of active members terminating that status for a reason other than disability or death. The rates do not apply to members who are within the retirement rate range. Separation rates are presumed to be service related during the first 5 to 8 years of employment and age related thereafter.

Sample Ages	Years of Service	Percents of Active Members Terminating During Year									
		State General	State Police	State Corrections		Municipal General		Municipal Police		Municipal Fire	
				Men	Women	Men	Women	Men	Women	Men	Women
All	0	39.0%	8.0%	35.0%	28.0%	38.0%	40.0%	28.0%	30.0%	18.0%	30.0%
	1	20.0	8.0	21.0	35.0	20.0	21.0	13.0	15.0	10.0	22.5
	2	13.0	5.0	17.0	13.0	13.0	15.0	9.0	10.0	6.0	15.0
	3	10.0	6.8	12.0	10.0	11.0	13.0	8.0	7.5	4.3	7.5
	4	8.5	4.5	7.0	13.0	8.5	11.0	7.5	4.5	3.5	7.0
	5			n/a	13.0	7.0	8.5				
	6			n/a	13.0						
	7			n/a	8.0						
	Over Select Period										
20		12.0	4.1	7.0	0.0	6.0	13.2	4.9	3.0	3.8	3.8
25		9.1	4.9	7.0	5.0	6.0	10.2	4.9	3.0	3.8	3.8
30		5.9	4.2	7.0	6.0	6.0	6.9	4.2	3.0	3.4	3.4
35		3.9	3.3	5.7	7.5	4.7	5.1	3.1	3.0	2.5	2.5
40		3.3	2.8	4.9	9.0	3.4	4.0	2.4	3.0	2.1	2.1
45		2.9	2.7	4.4	7.0	3.0	3.4	2.1	3.0	2.1	2.1
50		2.8	2.7	3.9	5.0	3.0	3.2	2.1	3.0	2.1	2.1
55		3.0	1.6	4.2	0.0	3.0	3.1	2.1	3.0	2.1	2.1
60		3.4	1.5	3.6	0.0	3.0	3.0	2.1	3.0	2.1	2.1
65		4.2	1.5	0.0	0.0	3.0	3.0	2.1	3.0	2.1	2.1



## Appendix B: Summary of Actuarial Assumptions & Methods

**Rates of Disability.** The rates are used to measure the probabilities of active members becoming disabled. Rates for sample ages follow. All disabilities are assumed to be non-duty.

Percents Becoming Disabled at Indicated Ages (by Coverage Plan)								
Sample Ages	State General		State Police	State Corrections	Municipal General		Municipal Police	Municipal Fire
	Male	Female			Male	Female		
20	0.00%	0.01%	0.05%	0.13%	0.03%	0.04%	0.06%	0.02%
25	0.02	0.02	0.05	0.14	0.04	0.04	0.07	0.02
30	0.02	0.02	0.09	0.16	0.08	0.04	0.08	0.02
35	0.06	0.06	0.14	0.21	0.12	0.04	0.12	0.02
40	0.09	0.09	0.35	0.27	0.17	0.06	0.17	0.08
45	0.14	0.15	0.42	0.46	0.25	0.14	0.26	0.08
50	0.36	0.37	0.69	0.90	0.39	0.25	0.42	0.33
55	0.59	0.53	1.59	1.39	0.65	0.39	0.73	0.33
60	0.72	0.58	0.00	0.00	0.80	0.51	1.22	1.17
65	0.75	0.58	0.00	0.00	0.82	0.59	1.32	0.00

**Administrative and Investment Expenses.** All expenses are deducted from gross investment income.

**Active Member Group Size.** The valuation is based on a stationary group size.



### Miscellaneous and Technical Assumptions

<b>Marriage Assumption:</b>	100% of males and 100% of females are assumed to be married for purposes of death-in-service benefits. Male spouses are assumed to be three years older than female spouses.
<b>Pay Increase Timing:</b>	Beginning of (Fiscal) year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date.
<b>Decrement Timing:</b>	All decrements are assumed to occur in the middle of the fiscal year.
<b>Eligibility Testing:</b>	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
<b>Decrement Relativity:</b>	Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.
<b>Decrement Operation:</b>	Disability and mortality decrements do not operate during the first 5 years of service. Neither disability nor withdrawal decrements operate during retirement eligibility.
<b>Loads:</b>	Retiree liabilities were increased by 1% to account for the pop-up provision.
<b>Incidence of Contributions:</b>	Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report and the actual payroll payable at the time contributions are made.
<b>Normal Form of Benefit:</b>	A straight life payment is the assumed normal form of benefit.
<b>Benefit Service:</b>	Exact fractional service is used to determine the amount of benefit payable.
<b>Optional Forms of Payment:</b>	Based on valuation interest and a unisex blend of valuation mortality.
<b>Data Changes:</b>	For missing dates of birth for active members, the member was 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.



### 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**

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### **Normal Retirement Eligibility Conditions**

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

*Note: Due to the passage of Senate Bill 27, State General and Municipal General Members hired between July 1, 2010 and June 30, 2013 are grandfathered into Tier 1 coverage plans, with the same eligibility criteria as members hired prior to July 1, 2010 .*

### **Normal Retirement Pension Amount**

The amount of normal retirement pension is based on:

- Final average salary, which is the average of salary for the 36 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. The table reflects the change to the maximum pension percentage resulting from the passage of Senate Bill 27.

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



## **Appendix C: Summary of Plan Provisions**

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### **Vested Termination of Membership (Employment)**

Termination of employment and membership with at least 5 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.

### **Survivor Pensions – Death Not in the Line of Duty**

Requires 5 years of credited service. 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 amount of pension payable to each eligible child is an equal share of 25% of final average salary or, if greater, 50% of accrued normal retirement pension. 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**

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### **Elective Survivor Beneficiary Pension**

Applicable to members with 5 or more years of credited service and 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 members and vested former members with 5 or more years of credited service. The 5 year 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.

### **Cost-of-Living Increases**

Effective July 1, 2013, 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, 2016, 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 retirees, pensions are increased each July 1 by 2.5% subject to 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.



## **Appendix C: Summary of Plan Provisions**

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### **Service Credit**

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.



## 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. The table reflects the changes resulting from the passage of Senate Bill 27.

Coverage Plan	Percent of Salary Member*	Contribution Rate Employer^
State General Member Coverage Plan 3	8.92%	16.59%
State Police Member and Adult Correctional Officer Member Coverage Plan 1	9.10	25.10
Hazardous Duty (Juvenile Corrections) Member Coverage Plan 2	6.28	25.72
Municipal General Member Coverage Plan 1	8.50	7.00
Municipal General Member Coverage Plan 2	10.65	9.15
Municipal General Member Coverage Plan 3	14.65	9.15
Municipal General Member Coverage Plan 4	17.15	11.65
Municipal Detention Officer Member Coverage Plan 1	18.15	16.65
Municipal Police Member Coverage Plan 1	8.50	10.00
Municipal Police Member Coverage Plan 2	8.50	15.00
Municipal Police Member Coverage Plan 3	8.50	18.50
Municipal Police Member Coverage Plan 4	13.85	18.50
Municipal Police Member Coverage Plan 5	17.80	18.50
Municipal Fire Member Coverage Plan 1	9.50	11.00
Municipal Fire Member Coverage Plan 2	9.50	17.50
Municipal Fire Member Coverage Plan 3	9.50	21.25
Municipal Fire Member Coverage Plan 4	14.30	21.25
Municipal Fire Member Coverage Plan 5	17.70	21.25

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%

^ The employer statutory rate will increase by 0.4% of payroll effective Fiscal Year 2015