



**Cavanaugh Macdonald**  
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**Public Employees Retirement Association (PERA)  
of New Mexico  
Annual Actuarial Valuation  
as of June 30, 2012**





# Cavanaugh Macdonald

CONSULTING, LLC

*The experience and dedication you deserve*

October 25, 2012

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, 2012; 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, 2012 and ending June 30, 2013 (FY 2013). 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.

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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,

A handwritten signature in blue ink, appearing to read 'John J. Garrett', with a long horizontal flourish extending to the right.

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

A handwritten signature in blue ink, appearing to read 'Jonathan T. Craven', with a long horizontal flourish extending to the right.

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



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## Section I: Board Summary

The table below summarizes the results of the June 30, 2012 actuarial valuation as compared with the prior year.

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

Valuation Date	June 30, 2012	June 30, 2011
Total Annual Payroll	\$ 1,994,280,107	\$ 1,935,013,761
Total Valuation Payroll	\$ 2,074,051,311	\$ 2,012,414,311
Actuarial Accrued Liability (AAL)		
Active and Deferred Vested Members	\$ 6,731,898,673	\$ 6,593,750,922
Retired Members and Survivors	<u>11,056,145,174</u>	<u>10,232,641,487</u>
Total	\$ 17,788,043,847	\$ 16,826,392,409
Actuarial Value of Assets	\$ 11,612,047,019	\$ 11,855,217,373
Funded Ratio	65.3 %	70.5 %
Unfunded Actuarial Accrued Liability (UAAL) (AAL - Actuarial Value of Assets)	\$ 6,175,996,828	\$ 4,971,175,036
<b>Calculation of Required Contribution</b>		
Statutory Contribution Rate		
Employer Contribution Rate	13.88 %	13.13 %
Member Contribution Rate	<u>11.24 %</u>	<u>11.98 %</u>
Total	25.12 %	25.11 %
Less Normal Cost:		
Retirement	16.06 %	16.11 %
Termination	3.66 %	3.64 %
Pre-Retirement Survivors	0.51 %	0.51 %
Disability	<u>0.59 %</u>	<u>0.59 %</u>
Total Normal Cost	20.82 %	20.85 %
Amount Remaining to Amortize UAAL	4.30 %	4.26 %
Amortization Period	Infinite	Infinite
Increase in Statutory Rate Necessary to Amortize UAAL over 30 Years	12.14 %	9.38 %



## 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 loss of approximately \$101.6 million, resulting in a (0.86)% 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 0.44% due primarily to the recognition of approximately \$1.27 billion in combined investment losses deferred from the 2009 and 2012 plan years. As of June 30, 2012, the actuarial value of assets is 100.32% of market value. Table III-4 provides the development of the actuarial value of assets.
- The total actuarial loss due to the investment experience of the total PERA Fund is \$853.8 million. The loss on non-investment related items totaled \$80.2 million. The net loss due to the plan's experience was \$934.0 million. As a result of the changes to the employee contribution shift for State employees, the actuarial liabilities decreased by \$1.8 million.
- The total increase to the UAAL of PERA is \$1,204.8 million and results in a decrease to the funded ratio from 70.5% to 65.3%.

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, 2012	June 30, 2011
Total Annual Payroll	\$ 803,873,875	\$ 818,428,532
Total Valuation Payroll	\$ 836,028,830	\$ 851,165,673
Actuarial Accrued Liability (AAL)		
Active and Deferred Vested Members	\$ 2,897,844,067	\$ 2,932,035,088
Retired Members and Survivors	<u>4,921,071,371</u>	<u>4,551,324,489</u>
Total	\$ 7,818,915,438	\$ 7,483,359,577
Actuarial Value of Assets	\$ 4,724,562,943	\$ 4,883,299,367
Funded Ratio	60.4 %	65.3 %
Unfunded Actuarial Accrued Liability (UAAL) (AAL - Actuarial Value of Assets)	\$ 3,094,352,495	\$ 2,600,060,210
<b>Calculation of Required Contribution</b>		
Statutory Contribution Rate		
Employer Contribution Rate	15.09 %	13.34 %
Member Contribution Rate	<u>8.92 %</u>	<u>10.67 %</u>
Total	24.01 %	24.01 %
Less Normal Cost:		
Retirement	14.45 %	14.52 %
Termination	3.82 %	3.75 %
Pre-Retirement Survivors	0.40 %	0.40 %
Disability	<u>0.59 %</u>	<u>0.59 %</u>
Total Normal Cost	19.26 %	19.26 %
Amount Remaining to Amortize UAAL	4.75 %	4.75 %
Amortization Period	Infinite	Infinite
Increase in Statutory Rate Necessary to Amortize UAAL over 30 Years	15.68 %	12.11 %



## Section I: Board Summary

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### Summary of Key Findings – State General Division

The UAAL increased from \$2,600 million to \$3,094 million and results in a 3.57% of payroll increase to the annual amount necessary to amortize the UAAL over a 30-year period. The funded ratio decreased from 65.3% to 60.4%. 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 loss of \$329.2 million and a 4.3% decrease to the expected funded ratio during the plan year ended June 30, 2012. The loss is primarily comprised of a \$349.2 million investment related loss which was partially offset by a \$20.0 million gain due to non-investment related experience and a \$1.7 million gain due to sunset of the employer/employee contribution rate shift effective June 30, 2012. Table IV-4 provides the detailed information on the sources and magnitude of actuarial gains and losses.
- The financing period for the unfunded liability based upon the statutory contribution rates is an infinite period for the fourth consecutive year and therefore does not satisfy the Board's funding objectives. In accordance with the Board's Funding and Contribution Policies, a recommendation to increase the State General Division statutory rates is necessary.



## Section I: Board Summary



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

Valuation Date	June 30, 2012	June 30, 2011
Total Annual Payroll	\$ 87,137,037	\$ 83,759,230
Total Valuation Payroll	\$ 90,622,518	\$ 87,109,599
Actuarial Accrued Liability (AAL)		
Active and Deferred Vested Members	\$ 338,669,992	\$ 329,911,283
Retired Members and Survivors	<u>555,342,642</u>	<u>517,197,432</u>
Total	\$ 894,012,634	\$ 847,108,715
Actuarial Value of Assets	\$ 851,976,386	\$ 862,058,143
Funded Ratio	95.3 %	101.8 %
Unfunded Actuarial Accrued Liability (UAAL) (AAL - Actuarial Value of Assets)	\$ 42,036,248	\$ (14,949,428)
<b>Calculation of Required Contribution</b>		
Statutory Contribution Rate		
Employer Contribution Rate	23.69 %	21.93 %
Member Contribution Rate	<u>8.70 %</u>	<u>10.48 %</u>
Total	32.39 %	32.41 %
Less Normal Cost:		
Retirement	26.55 %	26.75 %
Termination	3.20 %	3.16 %
Pre-Retirement Survivors	0.93 %	0.94 %
Disability	<u>1.28 %</u>	<u>1.28 %</u>
Total Normal Cost	31.96 %	32.13 %
Amount Remaining to Amortize UAAL	0.43 %	0.28 %
Amortization Period	Infinite	0
Increase in Statutory Rate Necessary to Amortize UAAL over 30 Years	2.13 %	N/A



## Section I: Board Summary

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

The current actuarial value of assets no longer exceeds the accrued liabilities. As of June 30, 2011, the actuarial value of assets exceeded accrued liabilities by \$14.9 million. As of June 30, 2012, the UAAL is \$42.0 million. This represents a decrease of \$56.9 million from the previous year. The normal cost rate decreased from 32.13% to 31.96%. The funded ratio declined from 101.8% to 95.3%. Table IV-3 provides the reconciliation of the UAAL. In the course of preparing the valuation report, we note the following key findings:

- The State Police/Corrections Division experienced a net actuarial loss of \$54.6 million and a decrease of 6.1% in the expected funded ratio during the plan year ended June 30, 2012. The loss is comprised of a \$62.4 million investment related loss which was partially offset by a \$7.8 million gain due to non-investment related experience and a \$0.1 million gain due to sunset of the employer/employee contribution rate shift effective June 30, 2012. Table IV-4 provides the detailed information on the sources and magnitude of actuarial gains and losses for the State Divisions.

## Section I: Board Summary



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

Valuation Date	June 30, 2012	June 30, 2011
Total Annual Payroll	\$ 791,529,406	\$ 736,339,828
Total Valuation Payroll	\$ 823,190,582	\$ 765,793,421
Actuarial Accrued Liability (AAL)		
Active and Deferred Vested Members	\$ 2,243,993,581	\$ 2,133,411,017
Retired Members and Survivors	<u>3,233,715,609</u>	<u>2,987,039,012</u>
Total	\$ 5,477,709,190	\$ 5,120,450,029
Actuarial Value of Assets	\$ 3,808,143,673	\$ 3,845,662,093
Funded Ratio	69.5 %	75.1 %
Unfunded Actuarial Accrued Liability (UAAL) (AAL - Actuarial Value of Assets)	\$ 1,669,565,517	\$ 1,274,787,936
<b>Calculation of Required Contribution</b>		
Statutory Contribution Rate		
Employer Contribution Rate	9.45 %	9.43 %
Member Contribution Rate	<u>12.07 %</u>	<u>12.07 %</u>
Total	21.52 %	21.50 %
Less Normal Cost:		
Retirement	11.99 %	12.05 %
Termination	4.07 %	4.08 %
Pre-Retirement Survivors	0.60 %	0.60 %
Disability	<u>0.53 %</u>	<u>0.53 %</u>
Total Normal Cost	17.19 %	17.26 %
Amount Remaining to Amortize UAAL	4.33 %	4.24 %
Amortization Period	Infinite	Infinite
Increase in Statutory Rate Necessary to Amortize UAAL over 30 Years	6.87 %	4.95 %



## Section I: Board Summary

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### Summary of Key Findings – Municipal General Division

The UAAL increased from \$1,275 million to \$1,670 million and results in a 1.92% of payroll increase to the annual amount necessary to amortize the UAAL over a 30-year period. As of the June 30, 2012 valuation, the current statutory contribution rates would require a 6.87% of payroll increase in order to amortize the UAAL over a 30-year period. The funded ratio decreased from 75.1% to 69.5%. Table IV-3 provides the reconciliation of the UAAL. In the course of preparing the valuation report, we note the following key findings:

- The Municipal General Division experienced a net actuarial loss of \$364.8 million and a 6.3% decrease to the expected funded ratio during the plan year ended June 30, 2012. The loss is comprised of a \$279.0 million investment related loss and an \$85.8 million loss due to non-investment related experience. Table IV-5 provides the detailed information on the sources and magnitude of actuarial gains and losses.
- The financing period for the unfunded liability based upon the statutory contribution rates exceeds the 30-year period of the Board's funding objectives for the third consecutive year and therefore does not satisfy the Board's funding objectives. In accordance with the Board's Funding and Contribution Policies, a recommendation to increase the Municipal General Division statutory rates is necessary.

## Section I: Board Summary



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

Valuation Date	June 30, 2012	June 30, 2011
Total Annual Payroll	\$ 196,453,568	\$ 188,010,463
Total Valuation Payroll	\$ 204,311,711	\$ 195,530,882
Actuarial Accrued Liability (AAL)		
Active and Deferred Vested Members	\$ 808,999,795	\$ 783,106,941
Retired Members and Survivors	<u>1,477,921,371</u>	<u>1,364,283,320</u>
Total	\$ 2,286,921,166	\$ 2,147,390,261
Actuarial Value of Assets	\$ 1,504,516,513	\$ 1,527,062,745
Funded Ratio	65.8 %	71.1 %
Unfunded Actuarial Accrued Liability (UAAL) (AAL - Actuarial Value of Assets)	\$ 782,404,653	\$ 620,327,516
<b>Calculation of Required Contribution</b>		
Statutory Contribution Rate		
Employer Contribution Rate	18.21 %	18.20 %
Member Contribution Rate	<u>15.67 %</u>	<u>15.67 %</u>
Total	33.88 %	33.87 %
Less Normal Cost:		
Retirement	27.27 %	27.29 %
Termination	2.60 %	2.58 %
Pre-Retirement Survivors	0.44 %	0.43 %
Disability	<u>0.66 %</u>	<u>0.65 %</u>
Total Normal Cost	30.97 %	30.95 %
Amount Remaining to Amortize UAAL	2.91 %	2.92 %
Amortization Period	Infinite	Infinite
Increase in Statutory Rate Necessary to Amortize UAAL over 30 Years	18.23 %	14.59 %



## Section I: Board Summary

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### Summary of Key Findings – Municipal Police Division

The UAAL increased from \$620.3 million to \$728.4 million and results in a 3.64% of payroll increase to the annual amount necessary to amortize the UAAL over a 30-year period. The funded ratio decreased from 71.1% to 65.8%. 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 loss of \$121.1 million and a 5.1% decrease to the expected funded ratio during the plan year ended June 30, 2012. The loss is comprised of a \$110.0 million investment related loss and an \$11.1 million loss due to non-investment related experience. Table IV-5 provides the detailed information on the sources and magnitude of actuarial gains and losses.
- The financing period for the unfunded liability based upon the statutory contribution rates is an infinite period for the fourth consecutive year and therefore does not satisfy the Board's funding objectives. In accordance with the Board's Funding and Contribution Policies, a recommendation to increase the Municipal Police Division statutory rates is necessary.

## Section I: Board Summary



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

Valuation Date	June 30, 2012	June 30, 2011
Total Annual Payroll	\$ 115,286,221	\$ 108,475,708
Total Valuation Payroll	\$ 119,897,670	\$ 112,814,736
Actuarial Accrued Liability (AAL)		
Active and Deferred Vested Members	\$ 442,391,238	\$ 415,286,593
Retired Members and Survivors	<u>868,094,181</u>	<u>812,797,234</u>
Total	\$ 1,310,485,419	\$ 1,228,083,827
Actuarial Value of Assets	\$ 722,847,504	\$ 737,135,025
Funded Ratio	55.2 %	60.0 %
Unfunded Actuarial Accrued Liability (UAAL) (AAL - Actuarial Value of Assets)	\$ 587,637,915	\$ 490,948,802
<b>Calculation of Required Contribution</b>		
Statutory Contribution Rate		
Employer Contribution Rate	21.08 %	21.06 %
Member Contribution Rate	<u>16.02 %</u>	<u>16.00 %</u>
Total	37.10 %	37.06 %
Less Normal Cost:		
Retirement	28.12 %	28.17 %
Termination	1.96 %	1.97 %
Pre-Retirement Survivors	0.49 %	0.49 %
Disability	<u>0.38 %</u>	<u>0.38 %</u>
Total Normal Cost	30.95 %	31.01 %
Amount Remaining to Amortize UAAL	6.15 %	6.05 %
Amortization Period	Infinite	Infinite
Increase in Statutory Rate Necessary to Amortize UAAL over 30 Years	20.90 %	17.97 %



## Section I: Board Summary

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### Summary of Key Findings – Municipal Fire Division

The UAAL increased from \$490.9 million to \$587.6 million and results in a 2.93% of payroll increase to the annual amount necessary to amortize the UAAL over a 30-year period. The funded ratio decreased from 60.0% to 55.2%. 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 loss of \$64.2 million and a 4.5% decrease to the expected funded ratio during the plan year ended June 30, 2012. The loss is comprised of a \$53.1 million investment related loss and an \$11.1 million loss due to non-investment related experience. Table IV-5 provides the detailed information on the sources and magnitude of actuarial gains and losses.
- The financing period for the unfunded liability based upon the statutory contribution rates is an infinite period for the fourth consecutive year and therefore does not satisfy the Board's funding objectives. In accordance with the Board's Funding and Contribution Policies, a recommendation to increase the Municipal Fire Division statutory rates is necessary.

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, 2012.

**Table II-1: Summary of Membership Data as of June 30, 2012**

Group	Count					
	State General	State Police/ Corrections	Municipal General	Municipal Police	Municipal Fire	Totals
<b>Total Active Members</b>	19,325	1,916	21,434	3,660	2,148	<b>48,483</b>
<b>Inactive Members</b>						
Deferred Vested	2,500	113	1,520	143	73	<b>4,349</b>
Other	737	101	1,215	115	40	<b>2,208</b>
<b>Total Inactive Members</b>	3,237	214	2,735	258	113	<b>6,557</b>
<b>Retirees</b>						
Service*	12,189	1,109	8,261	2,438	1,436	<b>25,433</b>
Disabled	461	28	328	29	10	<b>856</b>
Beneficiaries	1,741	152	1,470	257	157	<b>3,777</b>
<b>Total Retirees</b>	14,391	1,289	10,059	2,724	1,603	<b>30,066</b>
<b>Totals</b>	<b>36,953</b>	<b>3,419</b>	<b>34,228</b>	<b>6,642</b>	<b>3,864</b>	<b>85,106</b>

\* Counts include Co-Payees as follows:

State General—223

State Police—63

Municipal General—245

Municipal Police—175

Municipal Fire—110

## Section II: Membership Data



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

Division	Number		Total Payroll		Average Salary	
	2012	2011	2012	2011	2012	2011
<b>State Division</b>						
General	19,325	19,614	\$ 803,873,875	\$ 818,428,532	\$41,598	\$41,727
Police	493	492	29,212,380	29,653,012	59,254	60,270
Adult Corrections	1,098	1,089	45,717,743	43,140,450	41,637	39,615
Juvenile Corrections	325	300	12,206,914	10,965,768	37,560	36,553
<b>Total State Division</b>	<b>21,241</b>	<b>21,495</b>	<b>\$ 891,010,912</b>	<b>\$ 902,187,762</b>	<b>\$41,948</b>	<b>\$41,972</b>
<b>Municipal Division</b>						
General Coverage Plans						
Plan 1	1,224	1,351	\$ 30,318,030	\$ 30,747,862	\$24,770	\$22,759
Plan 2	6,112	5,875	211,060,414	190,261,713	34,532	32,385
Plan 3	12,653	12,300	494,086,116	463,763,684	39,049	37,704
Plan 4	706	682	23,509,364	22,262,166	33,299	32,642
Detention Officers Plan 1	739	640	32,555,482	29,304,403	44,053	45,788
Total General	21,434	20,848	\$ 791,529,406	\$ 736,339,828	\$36,929	\$35,319
Police Coverage Plans						
Plan 1	140	148	\$ 5,766,102	\$ 5,587,977	\$41,186	\$37,757
Plan 2	72	78	2,545,605	2,549,522	35,356	32,686
Plan 3	52	51	2,200,305	2,155,296	42,314	42,261
Plan 4	141	131	6,506,779	5,829,428	46,147	44,499
Plan 5	3,255	3,195	179,434,777	171,888,240	55,126	53,799
Total Police	3,660	3,603	\$ 196,453,568	\$ 188,010,463	\$53,676	\$52,182
Fire Coverage Plans						
Plan 1	51	58	\$ 1,801,519	\$ 1,904,385	\$35,324	\$32,834
Plan 2	10	10	354,161	367,015	35,416	36,702
Plan 3	5	4	187,216	166,684	37,443	41,671
Plan 4	13	13	593,338	511,048	45,641	39,311
Plan 5	2,069	2,026	112,349,987	105,526,576	54,302	52,086
Total Fire	2,148	2,111	\$ 115,286,221	\$ 108,475,708	\$53,671	\$51,386
<b>Total Municipal Division</b>	<b>27,242</b>	<b>26,562</b>	<b>\$1,103,269,195</b>	<b>\$1,032,825,999</b>	<b>\$40,499</b>	<b>\$38,884</b>
<b>Total PERA</b>	<b>48,483</b>	<b>48,057</b>	<b>\$1,994,280,107</b>	<b>\$1,935,013,761</b>	<b>\$41,134</b>	<b>\$40,265</b>

## Section II: Membership Data



**Table II-3: Summary of Deferred Vested Members as of June 30, 2012**

Division	Number	Average Age	Average Service	Average Annual Benefit
<b>State Division</b>				
General	2,500	51.73	9.04	\$ 11,568
Police/Hazardous Duty	<u>113</u>	47.36	9.53	9,261
<b>Total State Division</b>	2,613	51.54	9.06	\$ 11,468
<b>Municipal Division</b>				
General	1,520	52.59	9.28	\$ 9,029
Police	143	46.01	8.94	11,895
Fire	<u>73</u>	43.39	8.01	13,565
<b>Total Municipal Division</b>	1,736	51.66	9.20	\$ 9,456
<b>PERA Totals</b>	<b>4,349</b>	<b>51.59</b>	<b>9.12</b>	<b>\$ 10,665</b>

## Section II: Membership Data



**Table II-4: Summary of Retirees and Survivors as of June 30, 2012**

Type of Retirement	Division					Total
	State General	State Police/ Corrections	Municipal General	Municipal Police	Municipal Fire	
<b>Service</b>						
Number	12,189	1,109	8,261	2,438	1,436	25,433
Total Annual Benefits	\$338,229,385	\$ 34,100,325	\$210,507,116	\$88,685,831	\$53,427,588	\$724,950,245
Avg Annual Benefit	\$ 27,749	\$ 30,749	\$ 25,482	\$ 36,376	\$ 37,206	\$ 28,504
Avg Age	68.10	61.89	67.11	58.26	60.09	66.11
<b>Disability</b>						
Number	461	28	328	29	10	856
Total Annual Benefits	\$ 6,885,591	\$ 412,945	\$ 4,672,103	\$ 542,336	\$ 228,244	\$ 12,741,219
Avg Annual Benefit	\$ 14,936	\$ 14,748	\$ 14,244	\$ 18,701	\$ 22,824	\$ 14,885
Avg Age	54.79	55.05	53.91	47.08	51.41	54.16
<b>Survivors</b>						
Number	1,741	152	1,470	257	157	3,777
Total Annual Benefits	\$ 26,814,899	\$ 3,144,615	\$ 21,138,170	\$ 5,601,394	\$ 4,152,480	\$ 60,851,558
Avg Annual Benefit	\$ 15,402	\$ 20,688	\$ 14,380	\$ 21,795	\$ 26,449	\$ 16,111
Avg Age	69.59	62.38	69.10	63.55	68.69	68.66
<b>Total</b>						
Number	14,391	1,289	10,059	2,724	1,603	30,066
Total Annual Benefits	\$371,929,875	\$ 37,657,885	\$236,317,389	\$94,829,561	\$57,808,312	\$798,543,022
Avg Annual Benefit	\$ 25,845	\$ 29,215	\$ 23,493	\$ 34,813	\$ 36,063	\$ 26,560
Avg Age	67.85	61.80	66.97	58.64	60.87	66.09

## Section II: Membership Data



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

Valuation Date	Number	Annual Payroll	Average Annual Pay	% Change In Average Pay
<b>State General Division</b>				
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 %
6/30/2008	22,237	894,630,779	40,232	2.61 %
<b>State Police/Corrections Division</b>				
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)%
6/30/2008	1,973	90,011,901	45,622	4.02 %
<b>Municipal General Division</b>				
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 %
6/30/2008	22,632	714,264,532	31,560	0.06 %
<b>Municipal Police Division</b>				
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 %
6/30/2008	3,581	172,583,579	48,194	(1.09)%
<b>Municipal Fire Division</b>				
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 %
6/30/2008	1,978	93,573,369	47,307	(0.73)%

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

Valuation Date	Number	Annual Payroll	Average Annual Pay	% Change In Average Pay
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 %
6/30/2008	52,401	1,965,064,160	37,501	1.28 %



### 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, 2012.

**Table III-1: Market Value Summary as of June 30, 2012**

Division	June 30, 2012	June 30, 2011
State General	\$ 4,709,463,523	\$ 4,930,875,175
State Police/Corrections	849,253,521	870,456,791
Municipal General	3,795,973,074	3,883,128,663
Municipal Police	1,499,708,168	1,541,940,236
Municipal Fire	<u>720,537,327</u>	<u>744,316,603</u>
<b>Total Market Value of Assets</b>	<b>\$ 11,574,935,613</b>	<b>\$ 11,970,717,468</b>

**Table III-2: Actuarial Value Summary as of June 30, 2012**

Division	June 30, 2012	June 30, 2011
State General	\$ 4,724,562,943	\$ 4,883,299,367
State Police/Corrections	851,976,386	862,058,143
Municipal General	3,808,143,673	3,845,662,093
Municipal Police	1,504,516,513	1,527,062,745
Municipal Fire	<u>722,847,504</u>	<u>737,135,025</u>
<b>Total Actuarial Value of Assets</b>	<b>\$ 11,612,047,019</b>	<b>\$ 11,855,217,373</b>

## Section III: PERA Assets



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

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

	June 30, 2012	June 30, 2011
<b>Beginning of Year Market Value</b>	<b>\$ 11,994,454,699</b>	<b>\$ 10,015,925,839</b>
<b>Revenues:</b>		
a. Member Contributions	248,069,863	216,940,922
b. Employer Contributions	274,905,978	283,376,830
c. Purchases of Service	10,150,366	15,525,391
d. Investment Income		
1. Adjustments of investments to market value	(419,577,802)	1,573,881,319
2. Interest, dividends, etc.	248,668,445	240,372,230
3. Realized gains (losses)	103,170,490	417,019,522
4. Security lending	(22,207,561)	(21,840,202)
e. Other Income	22,766,276	46,881,672
f. Total Revenues	<b>\$ 465,946,055</b>	<b>\$ 2,772,157,684</b>
<b>Expenditures:</b>		
a. Benefit Payments	780,144,516	716,679,792
b. Refunds of Member Contributions	45,771,456	43,107,776
c. Administrative and Investment Expenses	34,460,794	33,841,256
d. Total Expenditures	<b>\$ 860,376,766</b>	<b>\$ 793,628,824</b>
<b>End of Year Market Value</b>	<b>\$ 11,600,023,988</b>	<b>\$ 11,994,454,699</b>

The market value rate of return for the plan year is (0.86)%. PERA's cash flow is (2.77)% 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 1.61 contributing active members for each member receiving a benefit as of June 30, 2012. 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, 2012  
(Total PERA with Legislative Division)**

A. Actuarial Value Beginning of Year		\$	11,878,725,574
B. Market Value End of Year			11,600,023,988
C. Market Value Beginning of Year			11,994,454,699
D. Cash Flow			
D1. Contributions		\$	522,975,841
D2. Service Purchases			10,150,366
D3. Benefit Payments and Refunds			<u>(825,915,972)</u>
D4. Net		\$	<u>(292,789,765)</u>
E. Investment Income			
E1. Market Total (B - C - D4)		\$	(101,640,946)
E2. Assumed Rate			7.75%
E3. Amount for Immediate Recognition			909,255,629
E4. Amount for Phased-In Recognition			<u>(1,010,896,575)</u>
F. Phased-In Recognition of Investment Income			
F1. Current Year: 0.25 *E4		\$	(252,724,144)
F2. First Prior Year (2010/2011)	\$ 1,250,963,970 x 25%		312,740,993
F3. Second Prior Year (2009/2010)	381,994,416 x 25%		95,498,604
F4. Third Prior Year (2008/2009)	(4,053,964,235) x 25%		<u>(1,013,491,059)</u>
F5. Total Recognized Investment Gain		\$	<u>(857,975,606)</u>
<b>G. Actuarial Value End of Year</b>			<b>\$11,637,215,832</b>
(A + D4 + E3 + F5)			
H. Difference Between Market & Actuarial Values		\$	(37,191,844)
<b>I Rate of Return on Actuarial Value</b>			<b>0.44 %</b>
<b>J. Actuarial Value as a Percentage of Market Value</b>			<b>100.32 %</b>





**Table III-5: Allocation of Actuarial Value by Division as of June 30, 2012**

	State Division		PERA Totals w/o Legislative
	General	Police	
Member Contribution Fund	\$ 787,435,758	\$ 54,156,044	\$ 2,170,801,433
Employer Contribution Fund	1,555,445,041	406,823,987	3,737,728,160
Retirement Reserve Fund	2,366,582,724	388,273,490	5,666,406,020
<b>Total Fund Balances</b>	<b>\$ 4,709,463,523</b>	<b>\$ 849,253,521</b>	<b>\$ 11,574,935,613</b>
Approximate % of Total Fund Balance*	40.69%	7.34%	100%
Actuarial Value Adjustment*	15,099,420	2,722,865	37,111,406
<b>Total Actuarial Value of Assets</b>	<b>\$ 4,724,562,943</b>	<b>\$ 851,976,386</b>	<b>\$ 11,612,047,019</b>

	Municipal Division			PERA Totals w/o Legislative
	General	Police	Fire	
Member Contribution Fund	\$ 949,311,379	\$ 231,924,646	\$ 147,973,606	\$ 2,170,801,433
Employer Contribution Fund	1,142,095,039	478,766,876	154,597,217	3,737,728,160
Retirement Reserve Fund	1,704,566,656	789,016,646	417,966,504	5,666,406,020
<b>Total Fund Balances</b>	<b>\$ 3,795,973,074</b>	<b>\$ 1,499,708,168</b>	<b>\$ 720,537,327</b>	<b>\$ 11,574,935,613</b>
Approximate % of Total Fund Balance*	32.79%	12.96%	6.22%	100.00%
Actuarial Value Adjustment*	12,170,599	4,808,345	2,310,177	37,111,406
<b>Total Actuarial Value of Assets</b>	<b>\$ 3,808,143,673</b>	<b>\$ 1,504,516,513</b>	<b>\$ 722,847,504</b>	<b>\$ 11,612,047,019</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 0.22% 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, 2012.

**Table III-6: Actuarial Investment Gain (Loss) for the Year Ending June 30, 2012**  
(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)	\$ 4,883.3	\$ 862.1	\$ 3,845.7	\$ 1,527.1	\$ 737.1	\$ 11,855.2
2. Employee and Employer Contributions	197.4	24.6	198.4	67.3	40.3	527.9
3. Benefit Payments	(378.3)	(38.5)	(252.8)	(97.0)	(57.9)	(824.6)
4. Interest [1 x 7.75% + (2 + 3) x 7.75% x 0.5]	371.4	66.3	295.9	117.2	56.4	907.3
5. Expected End of Year AVA (1 + 2 + 3 + 4)	\$ 5,073.8	\$ 914.4	\$ 4,087.1	\$ 1,614.6	\$ 776.0	\$ 12,465.9
6. Actual End of Year AVA	4,724.6	852.0	3,808.1	1,504.5	722.8	11,612.0
7. Actuarial Investment Gain (Loss) (6 - 5)	\$ (349.2)	\$ (62.4)	\$ (279.0)	\$ (110.0)	\$ (53.1)	\$ (853.8)



**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, 2012**

<b>Division</b>	<b>Reported Fund Balances</b>	<b>Actuarial Present Value of Pensions Being Paid</b>	<b>Transfer</b>
<b>State General</b>			
Members Contribution Fund	\$ 787,435,758		
Employers Accumulation Fund	1,555,445,041		\$ (2,554,488,647)
Retirement Reserve Fund	2,366,582,724	\$ 4,921,071,371	2,554,488,647
<b>State Police/Corrections</b>			
Members Contribution Fund	54,156,044		
Employers Accumulation Fund	406,823,987		(167,069,152)
Retirement Reserve Fund	388,273,490	555,342,642	167,069,152
<b>Municipal General</b>			
Members Contribution Fund	949,311,379		
Employers Accumulation Fund	1,142,095,039		(1,529,148,953)
Retirement Reserve Fund	1,704,566,656	3,233,715,609	1,529,148,953
<b>Municipal Police</b>			
Members Contribution Fund	231,924,646		
Employers Accumulation Fund	478,766,876		(688,904,725)
Retirement Reserve Fund	789,016,646	1,477,921,371	688,904,725
<b>Municipal Fire</b>			
Members Contribution Fund	147,973,606		
Employers Accumulation Fund	154,597,217		(450,127,677)
Retirement Reserve Fund	417,966,504	868,094,181	450,127,677
<b>Total End of Year Market Value</b>	<b>\$ 11,574,935,613</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, 2012**

	Actuarial Accrued Liability	Present Value of Future Normal Cost	Total Actuarial Present Value
<b>Active Members</b>			
Service Retirement	\$ 6,006,086,982	\$ 2,726,703,920	\$ 8,732,790,902
Termination Benefits	212,037,906	600,751,115	812,789,021
Survivor Benefits	101,402,478	83,303,534	184,706,012
Disability Retirement	89,734,677	101,213,358	190,948,035
Total for Active Members	\$ 6,409,262,043	\$ 3,511,971,927	\$ 9,921,233,970
<b>Inactive Members</b>	\$ 322,636,630		\$ 322,636,630
<b>Retirees and Beneficiaries</b>			
Service Retirements	\$ 10,150,811,812		\$ 10,150,811,812
Beneficiaries	706,370,587		706,370,587
Disability Retirements	198,962,775		198,962,775
Total for Retirees and Beneficiaries	\$ 11,056,145,174		\$ 11,056,145,174
<b>Total</b>	<b>\$ 17,788,043,847</b>	<b>\$ 3,511,971,927</b>	<b>\$ 21,300,015,774</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	\$ 7,818.9	\$ 894.0	\$ 5,477.7	\$ 2,286.9	\$ 1,310.5
2. Actuarial Value of Assets	4,724.6	852.0	3,808.1	1,504.5	722.8
3. Unfunded Actuarial Accrued Liability (1-2)	3,094.3	42.0	1,669.6	782.4	587.7
Funded Ratio (2 / 1)	60.4%	95.3%	69.5%	65.8%	55.2%

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, 2012, the funded ratio of PERA is 65.28% as compared to a ratio of 70.46% as of June 30, 2011. Due to the recognition of the investment losses from the 2008 and 2009 plan years, there has been a general decline in the funded ratio across all divisions. The ratio is a commonly used measure of the funding progress and can be useful in reviewing the historical trend of a Fund’s funding progress. Such a review should also consider the impact to this measure over the historical period due to changes to fund benefits, changes to the actuarial assumptions and methods, and the significant impact that investment experience can have on the ratio over short-term periods. We caution that no single “point in time” measure can provide a universal basis for comparing one plan’s funded status to another.



## Section IV: PERA Liabilities

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

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

	State General	State Police/ Corrections	Municipal General	Municipal Police	Municipal Fire
1) Beginning of Year UAAL	\$ 2,600.1	\$ (14.9)	\$ 1,274.8	\$ 620.3	\$ 490.9
2) Normal Cost	164.0	28.0	132.2	60.5	35.0
3) Contributions	(197.4)	(24.6)	(198.4)	(67.3)	(40.3)
4) Interest [ 1 x 7.75% + (2 + 3 ) x 7.75% x 0.5 ]	200.2	(1.0)	96.2	47.8	37.8
5) Expected UAAL before changes (1 + 2 + 3 + 4)	2,766.9	(12.5)	1,304.8	661.3	523.4
6) Assumption Changes	0	0	0	0	0
7) Plan Changes	(1.7)	(0.1)	0	0	0
8) Expected UAAL after changes (5 + 6 + 7)	2,765.2	(12.6)	1,304.8	661.3	523.4
9) Actual UAAL	3,094.4	42.0	1,669.6	782.4	587.6
10) Total Actuarial Gain (Loss)	(329.2)	(54.6)	(364.8)	(121.1)	(64.2)

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>\$2,766.9</b>	<b>64.7 %</b>	<b>17.94 %</b>	<b>(\$12.5)</b>	<b>101.4 %</b>	<b>(0.79)%</b>
Retirement	46.2	(0.6)%	0.35 %	(0.1)	0.0 %	(0.01)%
Disability	7.8	(0.1)%	0.06 %	0.6	(0.1)%	0.04 %
Pre-Retirement Death	(0.8)	0.0 %	(0.01)%	(0.1)	0.0 %	(0.01)%
Withdrawal	(16.2)	0.2 %	(0.12)%	(1.4)	0.2 %	(0.09)%
Pay Increases	(106.1)	1.4 %	(0.81)%	(14.5)	1.6 %	(0.89)%
New Entrants	33.8	(0.4)%	0.26 %	5.5	(0.6)%	0.34 %
Post-Retirement Death	11.7	(0.2)%	0.09 %	0.1	(0.0)%	0.01 %
Data Adjustments	3.5	(0.0)%	0.03 %	2.2	(0.2)%	0.14 %
Other	0.1	(0.0)%	0.00 %	(0.1)	0.0 %	(0.01)%
Investment Return	349.2	(4.6)%	2.65 %	62.4	(7.0)%	3.84 %
<b>Total (Gain) or Loss</b>	<b>\$329.2</b>	<b>(4.3)%</b>	<b>2.50 %</b>	<b>\$54.6</b>	<b>(6.1)%</b>	<b>3.36 %</b>
Assumption Changes	0.0	0.0 %	0.00 %	0.0	0.0 %	0.00 %
Plan Changes	(1.7)	0.0 %	(0.01)%	(0.1)	0.0 %	(0.01)%
<b>Actual Value</b>	<b>\$3,094.4</b>	<b>60.4 %</b>	<b>20.43 %</b>	<b>\$42.0</b>	<b>95.3 %</b>	<b>2.56 %</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>\$1,304.8</b>	<b>75.8 %</b>	<b>9.41 %</b>	<b>\$661.3</b>	<b>70.9 %</b>	<b>18.67 %</b>	<b>\$523.4</b>	<b>59.7 %</b>	<b>24.07 %</b>
Retirement	29.2	(0.5)%	0.14 %	5.7	(0.2)%	0.12 %	1.6	(0.1)%	0.07 %
Disability	6.6	(0.1)%	0.03 %	1.3	(0.1)%	0.03 %	0.0	0.0 %	0.00 %
Pre-Retirement Death	(1.5)	0.0 %	(0.01)%	0.3	(0.0)%	0.01 %	(0.1)	0.0 %	(0.00)%
Withdrawal	3.5	(0.1)%	0.02 %	3.3	(0.1)%	0.07 %	2.8	(0.2)%	0.13 %
Pay Increases	2.9	(0.0)%	0.01 %	(17.9)	0.8 %	(0.36)%	(0.3)	0.0 %	(0.01)%
New Entrants	36.9	(0.6)%	0.18 %	13.4	(0.6)%	0.27 %	3.5	(0.2)%	0.16 %
Post-Retirement Death	2.9	(0.0)%	0.01 %	4.1	(0.2)%	0.08 %	4.2	(0.3)%	0.20 %
Data Adjustments	5.3	(0.1)%	0.03 %	0.7	(0.0)%	0.01 %	(0.5)	0.0 %	(0.02)%
Other	0.0	0.0 %	0.00 %	0.2	(0.0)%	0.00 %	(0.1)	0.0 %	(0.00)%
Investment Return	279.0	(4.8)%	1.37 %	110.0	(4.6)%	2.24 %	53.1	(3.8)%	2.47 %
<b>Total (Gain) or Loss</b>	<b>\$364.8</b>	<b>(6.3)%</b>	<b>1.79 %</b>	<b>\$121.1</b>	<b>(5.1)%</b>	<b>2.47 %</b>	<b>\$64.2</b>	<b>(4.5)%</b>	<b>2.98 %</b>
Assumption Changes	0.0	0.0 %	0.00 %	0.0	0.0 %	0.00 %	0.0	0.0 %	0.00 %
Plan Changes	0.0	0.0 %	0.00 %	0.0	0.0 %	0.00 %	0.0	0.0 %	0.00 %
<b>Actual Value</b>	<b>\$1,669.6</b>	<b>69.5 %</b>	<b>11.20 %</b>	<b>\$782.4</b>	<b>65.8 %</b>	<b>21.14 %</b>	<b>\$587.6</b>	<b>55.2 %</b>	<b>27.05 %</b>

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





## Section V: Actuarial Valuation Results

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, 2012	June 30, 2011
1. Total Valuation Payroll	\$ 836,028,830	\$ 851,165,673
2. Present Value of Future Benefits	9,007,917,405	8,706,436,469
3. Present Value of Future Normal Costs	1,189,001,967	1,223,076,892
4. Actuarial Accrued Liability (2 - 3)	\$7,818,915,438	\$7,483,359,577
5. Actuarial Value of Assets	4,724,562,943	4,883,299,367
6. Unfunded Actuarial Accrued Liability (UAAL) (4 - 5)	\$3,094,352,495	\$2,600,060,210
7. UAAL Amortization Payment (30 year funding)	\$ 170,805,003	\$ 143,520,588
a. Amortization Payment as a Percent of Payroll (7 / 1)	20.43 %	16.86 %
8. Total Normal Cost	\$ 161,015,291	\$ 163,952,443
a. Normal Cost as a Percent of Payroll (8 / 1)	19.26 %	19.26 %
9. Total Required Contribution	\$ 331,820,294	\$ 307,473,031
a. Required Contribution Rate (7a + 8a)	39.69 %	36.12 %
10. Expected Statutory Contribution Rates		
a. Employer Contribution Rate	15.09 %	13.34 %
b. Member Contribution Rate	<u>8.92 %</u>	<u>10.67 %</u>
c. Total Statutory Contribution Rate (a + b)	24.01 %	24.01 %
11. (Excess) Shortfall of Rates Under Funding Policy Objectives (9a - 10c)	15.68 %	12.11 %

## Section V: Actuarial Valuation Results



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

	June 30, 2012	June 30, 2011
1. Total Valuation Payroll	\$ 90,622,518	\$ 87,109,599
2. Present Value of Future Benefits	1,179,678,965	1,122,955,917
3. Present Value of Future Normal Costs	285,666,331	275,847,202
4. Actuarial Accrued Liability (2 - 3)	\$ 894,012,634	\$ 847,108,715
5. Actuarial Value of Assets	851,976,386	862,058,143
6. Unfunded Actuarial Accrued Liability (UAAL) (4 - 5)	\$ 42,036,248	\$ (14,949,428)
7. UAAL Amortization Payment (30 year funding)	\$ 2,320,357	\$ (825,193)
a. Amortization Payment as a Percent of Payroll (7 / 1)	2.56 %	(0.95)%
8. Total Normal Cost	\$ 28,962,160	\$ 27,988,873
a. Normal Cost as a Percent of Payroll (8 / 1)	31.96 %	32.13 %
9. Total Required Contribution	\$ 31,282,517	\$ 27,163,680
a. Required Contribution Rate (7a + 8a)	34.52 %	31.18 %
10. Expected Statutory Contribution Rates		
a. Employer Contribution Rate	23.69 %	21.93 %
b. Member Contribution Rate	8.70 %	10.48 %
c. Total Statutory Contribution Rate (a + b)	32.39 %	32.41 %
11. (Excess) Shortfall of Rates Under Funding Policy Objectives (9a - 10c)	2.13 %	(1.23)%

## Section V: Actuarial Valuation Results



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

	June 30, 2012	June 30, 2011
1. Total Valuation Payroll	\$ 823,190,582	\$ 765,793,421
2. Present Value of Future Benefits	6,557,361,542	6,133,543,579
3. Present Value of Future Normal Costs	<u>1,079,652,352</u>	<u>1,013,093,550</u>
4. Actuarial Accrued Liability (2 - 3)	\$5,477,709,190	\$5,120,450,029
5. Actuarial Value of Assets	<u>3,808,143,673</u>	<u>3,845,662,093</u>
6. Unfunded Actuarial Accrued Liability (UAAL) (4 - 5)	\$1,669,565,517	\$1,274,787,936
7. UAAL Amortization Payment (30 year funding)	\$ 92,158,260	\$ 70,366,953
a. Amortization Payment as a Percent of Payroll (7 / 1)	11.20 %	9.19 %
8. Total Normal Cost	\$ 141,495,003	\$ 132,160,392
a. Normal Cost as a Percent of Payroll (8 / 1)	17.19 %	17.26 %
9. Total Required Contribution	\$ 233,653,263	\$ 202,527,345
a. Required Contribution Rate (7a + 8a)	28.39 %	26.45 %
10. Expected Statutory Contribution Rates		
a. Employer Contribution Rate	9.45 %	9.43 %
b. Member Contribution Rate	<u>12.07 %</u>	<u>12.07 %</u>
c. Total Statutory Contribution Rate (a + b)	21.52 %	21.50 %
11. (Excess) Shortfall of Rates Under Funding Policy Objectives (9a - 10c)	6.87 %	4.95 %

## Section V: Actuarial Valuation Results



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

	June 30, 2012	June 30, 2011
1. Total Valuation Payroll	\$ 204,311,711	\$ 195,530,882
2. Present Value of Future Benefits	2,861,189,049	2,696,816,749
3. Present Value of Future Normal Costs	<u>574,267,883</u>	<u>549,426,488</u>
4. Actuarial Accrued Liability (2 - 3)	\$2,286,921,166	\$2,147,390,261
5. Actuarial Value of Assets	<u>1,504,516,513</u>	<u>1,527,062,745</u>
6. Unfunded Actuarial Accrued Liability (UAAL) (4 - 5)	\$ 782,404,653	\$ 620,327,516
7. UAAL Amortization Payment (30 year funding)	\$ 43,187,914	\$ 34,241,426
a. Amortization Payment as a Percent of Payroll (7 / 1)	21.14 %	17.51 %
8. Total Normal Cost	\$ 63,277,532	\$ 60,520,898
a. Normal Cost as a Percent of Payroll (8 / 1)	30.97 %	30.95 %
9. Total Required Contribution	\$ 106,465,446	\$ 94,762,324
a. Required Contribution Rate (7a + 8a)	52.11 %	48.46 %
10. Expected Statutory Contribution Rates		
a. Employer Contribution Rate	18.21 %	18.20 %
b. Member Contribution Rate	<u>15.67 %</u>	<u>15.67 %</u>
c. Total Statutory Contribution Rate (a + b)	33.88 %	33.87 %
11. (Excess) Shortfall of Rates Under Funding Policy Objectives (9a - 10c)	18.23 %	14.59 %

## Section V: Actuarial Valuation Results



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

	June 30, 2012	June 30, 2011
1. Total Valuation Payroll	\$ 119,897,670	\$ 112,814,736
2. Present Value of Future Benefits	1,693,868,813	1,589,537,124
3. Present Value of Future Normal Costs	383,383,394	361,453,297
4. Actuarial Accrued Liability (2 - 3)	\$1,310,485,419	\$1,228,083,827
5. Actuarial Value of Assets	722,847,504	737,135,025
6. Unfunded Actuarial Accrued Liability (UAAL) (4 - 5)	\$ 587,637,915	\$ 490,948,802
7. UAAL Amortization Payment (30 year funding)	\$ 32,436,995	\$ 27,099,857
a. Amortization Payment as a Percent of Payroll (7 / 1)	27.05 %	24.02 %
8. Total Normal Cost	\$ 37,108,909	\$ 34,984,465
a. Normal Cost as a Percent of Payroll (8 / 1)	30.95 %	31.01 %
9. Total Required Contribution	\$ 69,545,904	\$ 62,084,322
a. Required Contribution Rate (7a + 8a)	58.00 %	55.03 %
10. Expected Statutory Contribution Rates		
a. Employer Contribution Rate	21.08 %	21.06 %
b. Member Contribution Rate	<u>16.02 %</u>	<u>16.00 %</u>
c. Total Statutory Contribution Rate (a + b)	37.10 %	37.06 %
11. (Excess) Shortfall of Rates Under Funding Policy Objectives (9a - 10c)	20.90 %	17.97 %

## Section V: Actuarial Valuation Results



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

	June 30, 2012	June 30, 2011
1. Total Valuation Payroll	\$ 2,074,051,311	\$ 2,012,414,311
2. Present Value of Future Benefits	21,300,015,774	20,249,289,838
3. Present Value of Future Normal Costs	3,511,971,927	3,422,897,429
4. Actuarial Accrued Liability (2 - 3)	\$17,788,043,847	\$16,826,392,409
5. Actuarial Value of Assets	11,612,047,019	11,855,217,373
6. Unfunded Actuarial Accrued Liability (UAAL) (4 - 5)	\$ 6,175,996,828	\$ 4,971,175,036
7. UAAL Amortization Payment (30 year funding)	\$ 340,908,528	\$ 274,403,632
a. Amortization Payment as a Percent of Payroll (7 / 1)	16.44 %	13.64 %
8. Total Normal Cost	\$ 431,858,893	\$ 419,607,070
a. Normal Cost as a Percent of Payroll (8 / 1)	20.82 %	20.85 %
9. Total Required Contribution	\$ 772,767,421	\$ 694,010,702
a. Required Contribution Rate (7a + 8a)	37.26 %	34.49 %
10. Expected Statutory Contribution Rates		
a. Employer Contribution Rate	13.88 %	13.13 %
b. Member Contribution Rate	11.24 %	11.98 %
c. Total Statutory Contribution Rate (a + b)	25.12 %	25.11 %
11. Expected (Excess) Shortfall in Employer Contribution Rate (9a - 10c)	12.14 %	9.38 %

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

Division	Employer Only		
	Current Statutory Rate	30-year Rate	Difference
State General	15.09 %	30.77 %	15.68 %
State Police/Corrections	23.69 %	25.82 %	2.13 %
Municipal General	9.45 %	16.32 %	6.87 %
Municipal Police	18.21 %	36.44 %	18.23 %
Municipal Fire	21.08 %	41.98 %	20.90 %
<b>PERA Total</b>	<b>13.88 %</b>	<b>26.02 %</b>	<b>12.14 %</b>

## Section V: Actuarial Valuation Results



**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 %	15.09 %
Police and Adult Corrections Plan 1	9.10 %	23.60 %
Hazardous Duty (Juvenile Correctional Officers) Plan 2	6.28 %	24.22 %
Weighted Average for Police/Corrections*	8.70 %	23.69 %
<b>Municipal Division</b>		
General Coverage Plans		
Plan 1	7.00 %	7.00 %
Plan 2	9.15 %	9.15 %
Plan 3	13.15 %	9.15 %
Plan 4	15.65 %	11.65 %
Detention Officers Plan 1	16.65 %	16.65 %
Weighted Average*	12.07 %	9.45 %
Police Coverage Plans		
Plan 1	7.00 %	10.00 %
Plan 2	7.00 %	15.00 %
Plan 3	7.00 %	18.50 %
Plan 4	12.35 %	18.50 %
Plan 5	16.30 %	18.50 %
Weighted Average*	15.67 %	18.21 %
Fire Coverage Plans		
Plan 1	8.00 %	11.00 %
Plan 2	8.00 %	17.50 %
Plan 3	8.00 %	21.25 %
Plan 4	12.80 %	21.25 %
Plan 5	16.20 %	21.25 %
Weighted Average*	16.02 %	21.08 %

\* 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)
6/30/2012	\$ 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 %
6/30/2002	8,763,443,681	8,498,751,682	(264,691,999)	103.1 %	1,396,209,000	N/A

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

Fiscal Year Ended June 30	Actuarial Valuation Date	Annual Required Contribution (ARC)*
2013	6/30/2012	\$539,727,135*
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
2003	6/30/2002	213,712,566

\* 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)
6/30/2012	\$ 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	
6/30/2008	717,442,113	3,493,601,370	2,006,564,260	5,314,106,647	100.00	100.00	54.97	

### 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)
6/30/2012	\$ 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	
6/30/2008	49,498,036	383,471,230	311,380,692	923,945,664	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)
6/30/2012	\$ 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
6/30/2008	855,002,112	2,174,339,402	1,071,385,628	4,124,299,828	100.00	100.00	100.00

### 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)
6/30/2012	\$ 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
6/30/2008	206,085,031	1,033,269,134	468,756,635	1,646,824,413	100.00	100.00	86.93

### 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)
6/30/2012	\$ 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
6/30/2008	130,971,951	627,054,313	211,513,414	807,041,460	100.00	100.00	23.17



Table VI-3: Solvency Test by 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)
6/30/2012	\$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	
6/30/2008	1,958,999,243	7,711,735,449	4,069,600,629	12,816,218,012	100.00	100.00	77.29	



## 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		
6/30/2012	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
6/30/2008	592	**	241	**	12,043	269,224,098	7.27	22,355

### 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		
6/30/2012	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
6/30/2008	82	**	6	**	1,038	26,947,580	9.53	25,961



## 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		
6/30/2012	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
6/30/2008	534	**	92	**	8,135	162,967,177	9.78	20,033

### 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		
6/30/2012	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
6/30/2008	137	**	18	**	2,185	68,078,224	8.95	31,157

### 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		
6/30/2012	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
6/30/2008	82	**	7	**	1,362	42,784,703	9.61	31,413



**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		
6/30/2012	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	**	323	**	25,793	615,918,510	8.06	23,879
6/30/2008	1,427	**	364	**	24,763	570,001,782	8.46	23,018

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

<b>Valuation date</b>	June 30, 2012
<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>	3.00% compounded annually
* Includes inflation at 3.50%	



## Appendix A: Additional Membership Data

**Table A-1: Schedule of Active Participant Data as of June 30, 2012 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	\$ 428,204
20 to 24	362	17						379	9,106,875
25 to 29	993	376	4	1				1,374	41,101,474
30 to 34	928	780	268	4				1,980	69,285,776
35 to 39	741	702	562	138	5			2,148	84,941,579
40 to 44	654	699	613	459	195	2		2,622	111,509,355
45 to 49	757	656	545	491	511	38	2	3,000	129,915,741
50 to 54	591	675	576	467	524	82	8	2,923	130,417,573
55 to 59	492	617	514	462	433	65	22	2,605	119,932,266
60	80	103	117	74	82	16	3	475	22,981,639
61	74	105	74	68	50	5	3	379	17,873,896
62	63	79	87	59	43	12	1	344	16,059,564
63	53	73	58	37	23	6	4	254	11,571,854
64	39	68	56	30	20	7		220	9,921,146
65	39	48	30	24	25	5		171	8,684,986
66	28	39	25	17	8	2	1	120	5,606,713
67	21	15	10	9	8	2	1	66	3,061,338
68	9	16	16	4	2	2	1	50	2,792,287
69	15	14	11	6	7	2		55	2,268,239
70	4	14	6	8	6	2		40	1,644,913
71	7	11	3	2	1	1	1	26	1,086,278
72	4	4	10	4	1			23	1,036,176
73	3	2	3	3				11	583,553
74	4	3	4		2		1	14	707,315
75	4	1	3					8	455,292
76					1			1	42,790
77	2	2	1	1			1	7	314,532
78	1		1					2	106,868
79									
80 & Over	4	3	3				1	11	435,656
Total	5,989	5,122	3,600	2,368	1,947	249	50	19,325	\$ 803,873,875

Average Age: 45.78

Average Service: 9.78



## 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	11								11	\$ 272,493
20 to 24	161	19							180	6,102,458
25 to 29	147	115	20						282	11,239,873
30 to 34	102	88	95	17					302	13,294,792
35 to 39	89	61	94	77	28				349	16,923,835
40 to 44	56	45	67	61	74	4			307	15,863,976
45 to 49	41	36	30	34	58	8			207	10,079,832
50 to 54	28	28	33	25	23	8	4		149	7,185,991
55 to 59	14	13	21	14	10	5	5		82	3,858,214
60	1	2	2		2	1			8	415,140
61	3	1	5	3	3				15	711,030
62			1	2		1			4	220,592
63		1	1			1			3	143,637
64		1	2	1	1				5	249,793
65		2		1	1				4	215,432
66										
67				1					1	39,605
68										
69										
70										
71	1		2		1		1		5	268,973
72	1								1	27,408
73										
74		1							1	23,963
75										
76										
77										
78										
79										
80 & Over										
<b>Total</b>	<b>655</b>	<b>413</b>	<b>373</b>	<b>236</b>	<b>201</b>	<b>28</b>	<b>10</b>	<b>1,916</b>	<b>1,916</b>	<b>\$ 87,137,037</b>

Average Age: 37.78

Average Service: 9.68





## 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	148	1						149	\$ 2,701,468
20 to 24	1,121	33						1,154	28,135,077
25 to 29	1,424	437	7					1,868	56,098,837
30 to 34	1,269	763	248	11				2,291	76,698,538
35 to 39	1,011	691	412	201	7			2,322	85,209,491
40 to 44	1,318	675	476	449	184	6		3,108	117,955,254
45 to 49	883	616	447	409	368	76	2	2,801	113,412,502
50 to 54	846	670	503	407	408	113	10	2,957	120,877,337
55 to 59	715	531	419	382	364	91	22	2,524	102,809,769
60	102	98	84	55	57	16	4	416	16,892,916
61	97	88	64	58	38	18	2	365	15,286,872
62	73	85	58	45	29	7	8	305	12,655,636
63	66	76	58	28	23	6	2	259	10,092,665
64	45	71	47	24	21	6	3	217	8,800,569
65	41	47	30	28	18	9	1	174	6,792,003
66	30	25	12	20	11	5		103	3,755,042
67	28	23	10	1	1	2	2	67	2,227,226
68	16	26	14	7	3	2	2	70	2,627,728
69	22	15	8	9	4	1	1	60	1,960,949
70	14	11	5	4	4	2		40	1,318,300
71	16	8	4	7	1			36	1,242,513
72	4	6	4	4	1	2	2	23	770,676
73	8	3	7	2			1	21	550,817
74	4	2	3	1	1			11	248,222
75	11	3	3	1				18	458,474
76	6	5	2	2	1			16	434,235
77	4	4	1	1	2			12	330,621
78	5	1	3	3				12	363,281
79	1	3	1	1				6	89,426
80 & Over	14	5	3	3	3		1	29	732,964
Total	9,342	5,022	2,933	2,163	1,549	362	63	21,434	\$ 791,529,406

Average Age: 44.00

Average Service: 8.18



## 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	2							2	\$ 52,465
20 to 24	167	5						172	6,577,782
25 to 29	384	161						545	25,865,967
30 to 34	234	324	98					656	33,895,223
35 to 39	173	188	282	101	4	0	0	748	41,330,026
40 to 44	92	119	216	274	34	1		736	42,924,545
45 to 49	66	69	107	131	57	2		432	25,224,063
50 to 54	29	31	50	47	35	5		197	11,374,404
55 to 59	18	19	25	23	17	3	2	107	5,696,308
60	4	3	2	3	3			15	835,611
61	1	2	1	4	2	1		11	622,975
62	2	3	4	2			2	13	676,035
63	1		3	2			2	8	460,251
64	1	2		2		1		6	331,283
65			2		2			4	242,851
66	1							1	34,729
67	1			1				2	65,866
68	2							2	74,258
69									
70				1				1	56,834
71									
72									
73									
74									
75				1				1	59,116
76									
77									
78									
79									
80 & Over		1						1	52,974
<b>Total</b>	<b>1,178</b>	<b>927</b>	<b>790</b>	<b>592</b>	<b>154</b>	<b>13</b>	<b>6</b>	<b>3,660</b>	<b>\$ 196,453,568</b>

Average Age: 37.98

Average Service: 9.19



## 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	1							1	\$ 36,136
20 to 24	105	3						108	4,295,299
25 to 29	250	118	2					370	16,421,896
30 to 34	163	254	65	2				484	24,306,553
35 to 39	107	155	146	46	2			456	24,701,803
40 to 44	34	62	113	121	21			351	21,113,754
45 to 49	10	34	50	62	44	1		201	12,837,555
50 to 54	5	11	25	37	29	9		116	7,564,183
55 to 59	4	5	7	11	10	4	1	42	2,680,509
60		1		2	1		1	5	329,415
61			1	1			1	3	226,547
62	1			2		1		4	311,910
63		3			1			4	225,697
64									
65					1			1	135,437
66									
67				1				1	51,840
68									
69									
70									
71									
72		1						1	47,687
73									
74									
75									
76									
77									
78									
79									
80 & Over									
<b>Total</b>	<b>680</b>	<b>647</b>	<b>409</b>	<b>285</b>	<b>109</b>	<b>15</b>	<b>3</b>	<b>2,148</b>	<b>\$ 115,286,221</b>

Average Age: 36.55

Average Service: 8.96



## 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	179	1						180	\$ 3,490,766	
20 to 24	1,916	77						1,993	54,217,491	
25 to 29	3,198	1,207	33	1				4,439	150,728,047	
30 to 34	2,696	2,209	774	34				5,713	217,480,882	
35 to 39	2,121	1,797	1,496	563	46			6,023	253,106,735	
40 to 44	2,154	1,600	1,485	1,364	508	13		7,124	309,366,884	
45 to 49	1,757	1,411	1,179	1,127	1,038	125	4	6,641	291,469,693	
50 to 54	1,499	1,415	1,187	983	1,019	217	22	6,342	277,419,487	
55 to 59	1,243	1,185	986	892	834	168	52	5,360	234,977,065	
60	187	207	205	134	145	33	8	919	41,454,721	
61	175	196	145	134	93	24	6	773	34,721,321	
62	139	167	150	110	72	21	11	670	29,923,736	
63	120	153	120	67	47	13	8	528	22,494,105	
64	85	142	105	57	42	14	3	448	19,302,791	
65	80	97	62	53	47	14	1	354	16,070,710	
66	59	64	37	37	19	7	1	224	9,396,483	
67	50	38	20	13	9	4	3	137	5,445,874	
68	27	42	30	11	5	4	3	122	5,494,272	
69	37	29	19	15	11	3	1	115	4,229,189	
70	18	25	11	13	10	4		81	3,020,047	
71	24	19	9	9	3	1	2	67	2,597,764	
72	9	11	14	8	2	2	2	48	1,881,947	
73	11	5	10	5			1	32	1,134,370	
74	8	6	7	1	3		1	26	979,500	
75	15	4	6	2				27	972,882	
76	6	5	2	2	2			17	477,025	
77	6	6	2	2	2		1	19	645,153	
78	6	1	4	3				14	470,148	
79	1	3	1	1				6	89,426	
80 & Over	18	9	6	3	3		2	41	1,221,594	
Total	17,844	12,131	8,105	5,644	3,960	667	132	48,483	\$ 1,994,280,107	

Average Age: 43.68

Average Service: 8.99



## Appendix A: Additional Membership Data

**Table A-2: Number of Annual Retirement Allowances of Benefit Recipients  
as of June 30, 2012**

Type of Pension	Number	Total Annual Benefits	Average Annual Pension
<b>Service Retirement Pensions</b>			
Single Life Pension Terminating Upon Death*	10,892	\$ 304,762,139	\$ 27,980
Two Life 100% Survivor Pension			
Retired Member Recipient*	10,510	299,668,067	28,513
Survivor Recipient	1,833	35,286,291	19,251
Two Life 50% Survivor Pension			
Retired Member Recipient*	3,824	113,832,248	29,768
Survivor Recipient	727	8,179,913	11,252
Single Life with Temporary Child Survivor Pension			
Retired Member Recipient*	186	6,562,932	35,285
Child Recipient	5	148,183	29,637
<b>Total Service Retirement Pensions</b>	<b>27,977</b>	<b>\$ 768,439,773</b>	<b>\$ 27,467</b>
<b>Disability Retirement Pensions</b>			
Single Life Pension Terminating Upon Death*	253	\$ 3,713,517	\$ 14,678
Two Life 100% Survivor Pension			
Retired Member Recipient*	512	7,420,246	14,493
Survivor Recipient	171	2,366,385	13,839
Two Life 50% Survivor Pension			
Retired Member Recipient*	101	1,579,531	15,639
Survivor Recipient	19	140,156	7,377
Single Life with Temporary Child Survivor Pension			
Retired Member Recipient*	11	152,784	13,889
Child Recipient	5	63,426	12,685
<b>Total Disability Retirement Pensions</b>	<b>1,072</b>	<b>\$ 15,436,046</b>	<b>\$ 14,399</b>
<b>Pre-Retirement Survivor Pensions</b>			
Spouse Recipient	975	\$ 14,347,728	14,716
Child Recipient	42	319,474	7,607
<b>Total Pre-Retirement Survivor Pensions</b>	<b>1,017</b>	<b>\$ 14,667,203</b>	<b>\$ 14,422</b>
<b>Total Pensions Being Paid</b>	<b>30,066</b>	<b>\$ 798,543,022</b>	<b>\$ 26,560</b>

\* Includes Co-Payees



## Appendix A: Additional Membership Data

**Table A-3: Distribution of Participants Receiving Benefits as of June 30, 2012**

Attained Age	Retired Member		Disabled Member		Survivor Beneficiaries		Totals	
	Number	Annual Pensions	Number	Annual Pensions	Number	Annual Pensions	Number	Annual Pensions
Under 40	15	\$ 393,812	29	\$ 456,245	240	\$ 3,259,886	284	\$ 4,109,943
40 to 44	302	10,890,515	71	1,165,945	91	1,387,573	464	13,444,033
45 to 49	1,283	45,740,627	118	2,023,490	135	1,972,538	1,536	49,736,655
50 to 54	2,503	88,538,054	182	3,160,829	219	3,498,687	2,904	95,197,570
55 to 59	3,053	106,985,010	282	4,224,096	286	5,134,856	3,621	116,343,962
60 to 64	4,697	150,506,180	172	1,665,248	396	7,408,043	5,265	159,579,471
65 to 69	5,065	135,298,244	1	16,474	425	8,024,159	5,491	143,338,877
70 to 74	3,512	83,363,428	1	28,892	493	8,368,575	4,006	91,760,895
75 to 79	2,347	53,253,294	0	0	457	7,689,359	2,804	60,942,653
80 to 84	1,520	30,914,125	0	0	464	7,432,174	1,984	38,346,299
85 to 89	786	14,491,921	0	0	368	4,502,695	1,154	18,994,616
90 to 94	272	3,837,783	0	0	156	1,805,245	428	5,643,028
95 to 99	69	643,802	0	0	38	325,217	107	969,019
100 & Over	9	93,450	0	0	9	42,551	18	136,001
<b>Total</b>	<b>25,433</b>	<b>\$724,950,245</b>	<b>856</b>	<b>\$ 12,741,219</b>	<b>3,777</b>	<b>\$ 60,851,558</b>	<b>30,066</b>	<b>\$ 798,543,022</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*	\$ 1,475	\$ 802	\$ 1,189	\$ 1,706	\$ 2,361	\$ 2,862	\$2,608	<b>\$2,161</b>
Average Final Average Salary	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Number of Retirees/Beneficiaries*	176	1,453	1,700	1,759	2,179	5,283	918	<b>13,468</b>
<b>State Police/Corrections</b>								
Average Monthly Benefit*	\$ 1,422	\$1,435	\$ 1,439	\$ 1,990	\$ 2,701	\$ 3,148	\$3,443	<b>\$2,495</b>
Average Final Average Salary	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Number of Retirees/Beneficiaries*	48	96	108	115	212	327	72	<b>978</b>
<b>Municipal General</b>								
Average Monthly Benefit*	\$ 1,398	\$ 664	\$ 1,053	\$ 1,624	\$ 2,302	\$ 2,771	\$2,582	<b>\$1,970</b>
Average Final Average Salary	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Number of Retirees/Beneficiaries*	198	1,217	1,332	1,330	1,496	3,305	393	<b>9,271</b>
<b>Municipal Police</b>								
Average Monthly Benefit*	\$ 1,716	\$1,425	\$ 1,719	\$ 2,774	\$ 3,227	\$ 3,199	\$3,391	<b>\$2,964</b>
Average Final Average Salary	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Number of Retirees/Beneficiaries*	51	80	126	514	1,483	142	41	<b>2,437</b>
<b>Municipal Fire</b>								
Average Monthly Benefit*	\$ 1,950	\$1,683	\$ 2,187	\$ 2,843	\$ 3,269	\$ 2,886	\$2,594	<b>\$3,045</b>
Average Final Average Salary	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Number of Retirees/Beneficiaries*	10	32	85	279	963	73	45	<b>1,487</b>
<b>Totals for All Divisions</b>								
Average Monthly Benefit*	\$ 1,474	\$ 792	\$ 1,188	\$ 1,904	\$ 2,699	\$ 2,845	\$2,664	<b>\$2,227</b>
Average Final Average Salary	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Number of Retirees/Beneficiaries*	483	2,878	3,351	3,997	6,333	9,130	1,469	<b>27,641</b>

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

- State General – 923
- State Police/Corrections – 311
- Municipal General – 788
- Municipal Police – 287
- Municipal Fire – 116



## Appendix A: Additional Membership Data

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

Division	2007-08 Retirees	2008-09 Retirees	2009-10 Retirees	2010-11 Retirees	2011-12 Retirees	All Current Retirees & Beneficiaries
<b>State General</b>						
Number	606	625	730	895	952	14,391
Average Monthly Benefit at Retirement	\$ 2,080	\$ 2,192	\$ 2,324	\$ 2,285	\$ 2,195	\$ 1,741
Average Age at Retirement	57.33	57.96	58.08	58.62	59.29	56.70
<b>State Police/Corrections</b>						
Number	86	75	55	76	71	1,289
Average Monthly Benefit at Retirement	\$ 1,992	\$ 2,492	\$ 2,402	\$ 2,628	\$ 2,441	\$ 2,007
Average Age at Retirement	50.96	49.68	50.24	51.87	52.94	51.28
<b>Municipal General</b>						
Number	551	515	647	671	654	10,059
Average Monthly Benefit at Retirement	\$ 1,851	\$ 2,038	\$ 2,092	\$ 2,186	\$ 2,041	\$ 1,624
Average Age at Retirement	57.12	57.58	57.88	57.80	58.59	56.90
<b>Municipal Police</b>						
Number	140	121	146	150	161	2,724
Average Monthly Benefit at Retirement	\$ 2,752	\$ 2,646	\$ 2,880	\$ 3,129	\$ 3,104	\$ 2,364
Average Age at Retirement	47.53	47.88	46.83	49.39	47.78	47.51
<b>Municipal Fire</b>						
Number	83	62	65	83	68	1,603
Average Monthly Benefit at Retirement	\$ 2,853	\$ 2,989	\$ 3,293	\$ 3,569	\$ 3,686	\$ 2,395
Average Age at Retirement	47.69	48.12	47.99	49.20	48.48	47.84
<b>Totals for All Current Retirees</b>						
Number	1,466	1,398	1,643	1,875	1,906	30,066
Average Monthly Benefit at Retirement	\$ 2,097	\$ 2,226	\$ 2,323	\$ 2,388	\$ 2,281	\$ 1,805
Average Age at Retirement	55.40	56.07	56.34	56.89	57.46	55.23





**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.

<b>Post-Retirement and Post-Disablement Mortality Rates</b>				
<b>Age</b>	<b>Post-retirement</b>		<b>Post-disablement</b>	
	<b>Male</b>	<b>Female</b>	<b>Male</b>	<b>Female</b>
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.** The following rates apply to State General and Municipal General (Plan 1-4) members who were first hired before July 1, 2010 and all State Police, State Corrections, Municipal Detention, Municipal Police, and Municipal Fire members. 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		

## 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							

\*Includes Adult Corrections Officers and Municipal Detention Officers.



## Appendix B: Summary of Actuarial Assumptions & Methods

**Rates of Retirement.** The following rates apply to State General and Municipal General (Plan 1-4) members who were first hired on or after July 1, 2010. 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		Municipal General	
	Male	Female	Male	Female
67	75%	70%	75%	75%
68	50	50	50	50
69	45	50	40	35
70	45	40	35	35
71	35	40	45	35
72	40	35	35	30
73	22	30	20	15
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

\* Applies for all participants with less than 14 years of service. Different rates apply for 14 to 30 years of service.



## Appendix B: Summary of Actuarial Assumptions & Methods

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Percents Retiring at Indicated Service (by Coverage Plan)		
Service	State General	Municipal General
30	30%	25%
31	30	25
32	30	25
33	30	25
34	30	25
35	30	25
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	



## Appendix B: Summary of Actuarial Assumptions & Methods

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**Rates of Retirement.** These rates are used to measure the probability of an eligible member retiring under the **Rule of 80**.

Percents Retiring at Indicated Service (by Coverage Plan)		
Age	State General	Municipal General
50	75%	65%
51	50	45
52	50	45
53	50	45
54	50	45
55	50	45
56	40	40
57	40	40
58	40	40
59	40	40
60	40	40
61	40	40
62	40	40
63	40	40
64	40	40
65	40	40
66	40	40





## 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.

Percents of Active Members Terminating During Year											
Sample Ages	Years of Service	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 State General and Municipal General (Plan 1-4) members who were first hired before July 1, 2010 and all State Police, State Corrections, Municipal Detention, Municipal Police, and Municipal Fire 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 State General and Municipal General (Plan 1-4) members who were first hired on or after July 1, 2010:

- Any age with 30 or more years of credited service; or
- Age 67 or older with 5 or more years of credited service;
- Any age if the sum of the member's age and years of service credit equals at least 80

Applicable to police and fire members under one of the following coverage plans:

Municipal Police Coverage Plan 3  
Municipal Police Coverage Plan 4  
Municipal Police Coverage Plan 5  
Municipal Fire Coverage Plan 3  
Municipal Fire Coverage Plan 4  
Municipal Fire Coverage Plan 5

- Any age with 20 or more years of credited service.

### **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:

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%	80%
State Police and Adult Corrections Officers Member Coverage Plan 1	3.0	80
Hazardous Duty (Juvenile Corrections Officer) Coverage Plan 2	3.0	100
Municipal General Member Coverage Plan 1	2.0	60
Municipal General Member Coverage Plan 2	2.5	75
Municipal General Member Coverage Plan 3	3.0	80
Municipal General Member Coverage Plan 4	3.0	80
Municipal Detention Officer Coverage Plan 1	3.0	80
Municipal Police Member Coverage Plan 1	2.0	60
Municipal Police Member Coverage Plan 2	2.5	100
Municipal Police Member Coverage Plan 3	2.5	100
Municipal Police Member Coverage Plan 4	3.0	80
Municipal Police Member Coverage Plan 5	3.5	80
Municipal Fire Member Coverage Plan 1	2.0	60
Municipal Fire Member Coverage Plan 2	2.5	100
Municipal Fire Member Coverage Plan 3	2.5	100
Municipal Fire Member Coverage Plan 4	3.0	80
Municipal Fire Member Coverage Plan 5	3.5	80



## **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**

Pensions are increased each July 1 by 3% if retirement has been in effect for at least 2 full calendar years. If retired on account of disability or if at least age 65, the 2 calendar year waiting period is reduced to 1 full calendar year.

### **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.

Coverage Plan	Percent of Salary Member	Contribution Rate Employer
State General Member Coverage Plan 3*	8.92%	15.09%
State Police Member and Adult Correctional Officer Member Coverage Plan 1*	9.10	23.60
Hazardous Duty (Juvenile Corrections) Member Coverage Plan 2*	6.28	24.22
Municipal General Member Coverage Plan 1	7.00	7.00
Municipal General Member Coverage Plan 2	9.15	9.15
Municipal General Member Coverage Plan 3	13.15	9.15
Municipal General Member Coverage Plan 4	15.65	11.65
Municipal Detention Officer Member Coverage Plan 1	16.65	16.65
Municipal Police Member Coverage Plan 1	7.00	10.00
Municipal Police Member Coverage Plan 2	7.00	15.00
Municipal Police Member Coverage Plan 3	7.00	18.50
Municipal Police Member Coverage Plan 4	12.35	18.50
Municipal Police Member Coverage Plan 5	16.30	18.50
Municipal Fire Member Coverage Plan 1	8.00	11.00
Municipal Fire Member Coverage Plan 2	8.00	17.50
Municipal Fire Member Coverage Plan 3	8.00	21.25
Municipal Fire Member Coverage Plan 4	12.80	21.25
Municipal Fire Member Coverage Plan 5	16.20	21.25

Interest is credited to member contributions on each June 30 at the rates set annually by the Retirement Board. The current rate is 5.25%.

\* Includes a temporary 1.5% of pay shift from the employer statutory rate effective July 1, 2009. This contribution shift is currently effective for 4 years.