



**CONNECTICUT STATE EMPLOYEES  
RETIREMENT SYSTEM**

**REPORT OF THE ACTUARY ON THE VALUATION  
PREPARED AS OF JUNE 30, 2012**



# Cavanaugh Macdonald

CONSULTING, LLC

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November 5, 2012

State of Connecticut  
State Employees Retirement Commission  
55 Elm Street  
Hartford, CT 06106

#### Members of the Commission:

Connecticut General Statutes Section 5-155a governs the operation of the Connecticut State Employees Retirement System (SERS). The actuary makes periodic valuations of the contingent assets and liabilities of the Retirement System at the direction of the Commission. We have submitted the report giving the results of the actuarial valuation of the Retirement System prepared as of June 30, 2012. The report indicates that annual employer contributions at the rate of 37.82% of compensation for the fiscal year ending June 30, 2014 are sufficient to support the benefits of the System.

In preparing the valuation, the actuary relied on data provided by the Comptroller's Office. While not verifying data at the source, the actuary performed tests for consistency and reasonableness. This valuation includes changes to the actuarial assumptions as adopted by the Commission as a result of our Experience Investigation report for the Four-Year period ending June 30, 2011.

The System is funded on an actuarial reserve basis. The actuarial assumptions recommended by the actuary and adopted by the Commission are reasonably related to the experience under the System and to reasonable expectations of anticipated experience under the System. The assumptions and methods used for funding purposes meet the parameters set for the disclosures presented in the financial section by Governmental Accounting Standards Board (GASB) Statement Nos. 25 and 27. The funding objective of the plan is that contribution rates over time will remain level as a percent of payroll. The valuation method used is the projected unit credit method. Gains and losses are reflected in the unfunded accrued liability which is being amortized as a level percent of payroll within a 19-year period. This period is based on the funding policy of SERS that amortizes the unfunded accrued liability over a declining period of years, starting with 40 years as of July 1, 1991.

This is to certify 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 retirement system and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the System.

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Page 2

Future actuarial results may differ significantly from the current results presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); 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.

The undersigned meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Sincerely yours,

A handwritten signature in black ink, appearing to read 'Thomas J. Cavanaugh'.

Thomas J. Cavanaugh, FSA, FCA, MAAA, EA  
Chief Executive Officer

A handwritten signature in black ink, appearing to read 'John J. Garrett'.

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

A handwritten signature in black ink, appearing to read 'Edward J. Koebel'.

Edward J. Koebel, FCA, MAAA, EA  
Principal and Consulting Actuary

TJC/KC



## TABLE OF CONTENTS

<u>Section</u>	<u>Item</u>	<u>Page No.</u>
I	Summary of Principal Results	1
ii	Membership	4
III	Assets	6
IV	Comments on Valuation	6
V	Contributions Payable by Employers	7
VI	Accounting Information	9
VII	Experience	11
 <u>Schedule</u>		
A	Results of Valuation	12
B	Development of Actuarial Value of Assets	13
C	Summary of Receipts and Disbursements	14
D	Outline of Actuarial Assumptions and Methods	15
E	Actuarial Cost Method	20
F	Summary of Main Plan Provisions as Interpreted for Valuation Purposes	21
G	Tables of Membership Data	27
H	Analysis of Financial Experience	40
I	Actuarial Surplus Test	41



**CONNECTICUT STATE EMPLOYEES RETIREMENT SYSTEM  
REPORT OF THE ACTUARY  
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**SECTION I - SUMMARY OF PRINCIPAL RESULTS**

1. For convenience of reference, the principal results of the current and preceding valuations are summarized below:

<b>Valuation Date</b>	<b>June 30, 2012</b>	<b>June 30, 2011</b>
Number of active members	47,868	47,778
Annual compensation	\$ 3,354,682,145	\$ 3,210,665,659
Retired members and beneficiaries:		
Number	43,887	44,051
Annual allowances	\$ 1,424,477,046	\$ 1,391,091,420
Deferred Vested Members:		
Number	1,561	1,589
Annual allowances	\$ 22,680,512	\$ 23,237,927
Assets:		
Market Value	\$ 8,468,479,084	\$ 8,984,875,027
Actuarial Value	\$ 9,744,985,549	\$ 10,122,765,430
Unfunded actuarial accrued liability	\$ 13,273,766,185	\$ 11,003,960,062
Amortization period (years)	19	20
Funded Ratio	42.3%	47.9%
<b>For Fiscal Year Ending</b>	<b>June 30, 2014</b>	<b>June 30, 2012</b>
Annual Required Employer Contribution (ARC):		
Normal	\$ 249,996,483	\$ 229,111,675
Accrued liability	<u>1,018,938,087</u>	<u>697,260,027</u>
Total	\$ 1,268,934,570	\$ 926,371,702
Annual Required Employer Contribution Rates (ARC):		
Normal	7.45%	7.14%
Accrued liability	<u>30.37%</u>	<u>21.72%</u>
Total	37.82%	28.86%

2. All amounts shown that were developed as a result of valuations prior to June 30, 2010 were developed and/or reported by the prior actuarial firm. The results of the valuation are given in Schedule A.



3. Comments on the valuation results are given in Section IV, comments on the experience and actuarial gains and losses during the valuation year are given in Section VII and the rates of contribution payable by employers are given in Section V.

4. The following changes to the actuarial assumptions were made to this valuation as a result of the Experience Investigation for the Four-Year period ending June 30, 2011 which was adopted by the Commission on September 13, 2012. The following summarizes the changes:

- a. The Investment Return assumption was changed from 8.25% to 8.00%.
- b. The price inflation assumption was changed from 3.00% to 2.75%, which changes the Cost-of-Living Adjustment assumptions for the following retirement tiers:

<b>Group</b>	<b>Before Assumption Change</b>	<b>After Assumption Change</b>
Pre July 1, 1980 Retirees	3.60%	3.60%
July 1, 1980 – June 30, 1997 Retirees	3.00%	3.00%
July 1, 1997 – October 1, 2011 Retirees	2.70%	2.60%
Post October 1, 2011 Retirees	2.50%	2.30%

- c. Demographic changes in the rates of withdrawal, disability and mortality were made to better match the experience of the System.
- d. These assumption changes increased the Annual Required Contribution Rate by 2.97% from last year to this year and resulted in a 2.6% decrease in the funded ratio.

5. In addition to the plan changes from the 2011 SEBAC Agreement that were discussed in last year's valuation report, we have removed the SEBAC IV and V adjustments to the amortization of the Unfunded Accrued Liability each year. This plan change increased the Annual Required Contribution Rate by 3.67% from last year to this year.

6. Schedule B of this report presents the development of the actuarial value of assets. Schedule D details the actuarial assumptions and methods employed. Schedule F gives a summary of the benefit and contribution provisions of the plan.

7. The table on the following page provides a history of some pertinent figures.



**Connecticut State Employees Retirement System**

**Comparative Schedule\***

Valuation Date June 30	Active Members				Retired Lives				Valuation Results (\$ thousands)		
	Number	Payroll (\$ thousands)	Average Salary	% increase from previous year	Number	Active/Retired Ratio	Annual Benefits (\$ thousands)	Benefits as % of Payroll	Accrued Liability	Valuation Assets	UAAL
2006	50,605	\$3,107,928	\$61,415	0.8	36,964	1.4	\$942,054	30.3%	\$16,830,349	\$8,951,393	\$7,878,956
2007	52,438	3,310,351	63,129	2.8	37,420	1.4	988,914	29.9	17,888,065	9,584,970	8,303,095
2008	53,196	3,497,445	65,746	4.1	38,093	1.4	1,047,479	29.9	19,243,373	9,990,247	9,253,126
2010	50,064	3,295,666	65,829	0.1	41,782	1.2	1,264,025	38.4	21,054,197	9,349,605	11,704,592
2011	47,778	3,210,666	67,200	2.1	44,051	1.1	1,391,091	43.3	21,126,725	10,122,765	11,003,960
2012	47,868	3,354,682	70,082	4.3	43,887	1.1	1,424,477	42.5	23,018,752	9,744,986	13,273,766

\*All amounts prior to 2010 reported by prior actuarial firm.



## SECTION II - MEMBERSHIP

Data regarding the membership of the System for use as a basis for the valuation were furnished by the Comptroller's office. The following tables summarize the membership of the Retirement System as of June 30, 2012 upon which the valuation was based. Detailed tabulations of the data are given in Schedule G.

### **Active Members**

Group	Number	Payroll	Group Averages		
			Salary	Age*	Service*
Tier I – Hazardous	94	\$10,100,567	\$107,453	56.2	27.6
Tier I – Plan B	2,942	262,999,684	89,395	56.1	30.2
Tier I – Plan C	117	9,718,558	83,065	58.4	31.9
Tier II – Hazardous	3,466	311,088,482	89,754	48.6	18.8
Tier II – Others	13,809	1,099,100,271	79,593	52.3	21.2
Tier IIA – Hazardous	6,311	448,323,104	71,038	40.6	8.2
Tier IIA – Others	19,148	1,136,383,033	59,347	44.8	7.2
Tier III – Hazardous	321	12,468,620	38,843	34.0	0.3
Tier III – Hybrid Plan	57	2,356,064	41,334	37.7	0.6
Tier III – Others	1,603	62,143,762	38,767	37.2	0.4
<b>Total</b>	<b>47,868</b>	<b>\$3,354,682,145</b>	<b>\$70,082</b>	<b>47.1</b>	<b>13.5</b>

\*Years

Of the 47,868 active members, 37,173 are vested and 10,695 are non-vested.





### Retired Lives

Type of Benefit Payment	No.	Annual Benefits	Group Averages	
			Benefit	Age*
Retired – Pre 1980	1,634	\$27,855,049	\$17,047	88.3
Retired – 1980 - 1997	14,671	425,734,615	29,019	78.5
Retired – 1997 - 2011	25,216	888,920,395	35,252	64.4
Retired – 2011+	2,366	81,966,987	36,644	58.6
<b>Total</b>	<b>43,887</b>	<b>\$1,424,477,046</b>	<b>\$32,458</b>	<b>69.7</b>

\*Years

This valuation also includes 1,561 deferred vested members with estimated annual benefits of \$22,680,512.



### **SECTION III - ASSETS**

1. As of June 30, 2012, the total market value of assets amounted to \$8,468,479,084 as reported by the Comptroller's Office. This amount includes \$6,635,867 of receivables as of the valuation date. The actuarial value of assets used for the current valuation was \$9,744,985,549. Schedule B shows the development of the actuarial value of assets as of June 30, 2012.
2. Schedule C shows receipts and disbursements of the System for the two years preceding the valuation date and a reconciliation of the fund balances at market value.

### **SECTION IV – COMMENTS ON VALUATION**

1. Schedule A of this report outlines the results of the valuation of the Retirement System as of June 30, 2012. The valuation was prepared in accordance with the actuarial assumptions and methods set forth in Schedule D and the actuarial cost method which is described in Schedule E.
2. The valuation shows that the System has a total actuarial accrued liability of \$23,018,751,734, of which \$16,646,787,023 is for the benefits payable on account of present retired members, beneficiaries of deceased members, and inactive members entitled to deferred vested benefits, and \$6,371,964,711 is for the benefits expected to be payable on account of present active members, based on service to the valuation date. Against these liabilities, the System has total present assets for valuation purposes of \$9,744,985,549 as of June 30, 2012. When this amount is deducted from the actuarial accrued liability of \$23,018,751,734, there remains \$13,273,766,185 as the unfunded actuarial accrued liability.
3. The employer's contributions to the System consist of normal cost contributions and accrued liability contributions. The normal cost represents the ultimate cost of the benefits and the accrued liability contribution is an addition (reduction in case of a surplus) due to the amortization of the unfunded accrued liability. The valuation indicates that annual employer normal contributions at the rate of



7.45% of active members' compensation are required to provide the currently accruing benefits of the System. The increase in the employer normal cost rate is primarily due to the change in the investment return assumption from 8.25% to 8.00%.

4. Accrued liability contributions of 30.37% of payroll are required to be made to amortize the unfunded accrued liability within 19 years from the valuation date.

**SECTION V – CONTRIBUTIONS PAYABLE BY EMPLOYER**

The following table shows the amount and rate of contribution payable by the employer as determined from the present valuation for the 2013/2014 fiscal year.

Contribution for	Contribution Amount	Contribution Rate
A. Normal Cost:		
Service retirement benefits	\$308,180,450	9.19%
Disability benefits	3,627,329	0.11%
Survivor benefits	<u>3,667,976</u>	<u>0.10%</u>
Total Normal Cost	\$315,475,755	9.40%
B. Less Member Contributions	(65,479,272)	(1.95)%
C. Employer Normal Cost	\$249,996,483	7.45%
D. Unfunded Actuarial Accrued Liabilities (19 year level percent of payroll amortization)	\$1,018,938,087	30.37%
E. SEBAC IV Adjustment	0	0.00%
F. SEBAC V Adjustment	0	0.00%
G. Net Unfunded Actuarial Accrued Liabilities	\$1,018,938,087	30.37%
H. Total (C. + G.)	\$1,268,934,570	37.82%



The following table shows a breakdown by group of the normal cost amount and rate payable by the employer as determined from the present valuation for the 2013/2014 fiscal year.

Group	Normal Cost	Normal Rate
Tier I – Hazardous	\$ 0	0.00%
Tier I – Plan B	32,992,790	12.54
Tier I – Plan C	872,618	8.98
Tier II – Hazardous	43,254,343	13.90
Tier II – Others	88,086,530	8.01
Tier IIA – Hazardous	34,979,603	7.80
Tier IIA – Others	48,019,417	4.23
Tier III – Hazardous	386,769	3.10
Tier III – Others	1,404,413	2.18
<b>Total</b>	<b>\$ 249,996,483</b>	<b>7.45%</b>

The following table provides the projected required contributions for the fiscal year ending June 30, 2015.

These results assume an 8.00% investment return on actuarial value of assets.

Projected Contributions Required for Fiscal Year Ending June 30, 2015	June 30, 2013 Valuation	
	As % of Pay	\$
Employer Normal Cost	8.31%	\$ 260,807,224
Unfunded Actuarial Accrued Liabilities	35.63	1,118,381,286
<b>Total</b>	<b>43.94%</b>	<b>\$ 1,379,188,510</b>



**SECTION VI – ACCOUNTING INFORMATION**

1. Governmental Accounting Standards Board Statements 25 and 27 set forth certain items of required supplementary information to be disclosed in the financial statements of the System and the employer. One such item is a distribution of the number of employees by type of membership, as follows:

**NUMBER OF ACTIVE AND RETIRED MEMBERS  
AS OF JUNE 30, 2012**

GROUP	NUMBER
Retirees and beneficiaries currently receiving benefits	43,887
Terminated employees entitled to benefits but not yet receiving benefits	1,561
Active plan members	<u>47,868</u>
Total	93,316

2. Another such item is the schedule of funding progress as shown below.

**SCHEDULE OF FUNDING PROGRESS**  
(Dollar amounts in thousands)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) - PUC (b)	Unfunded AAL (UAAL) (b - a)	Funded Ratio (a / b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b - a) / c)
6/30/2007	\$9,584,970	\$17,888,065	\$8,303,095	53.6%	\$3,310,351	250.8%
6/30/2008	9,990,247	19,243,373	9,253,126	51.9	3,497,445	264.6
6/30/2010	9,349,605	21,054,197	11,704,592	44.4	3,295,666	355.2
6/30/2011	10,122,765	21,126,725	11,003,960	47.9	3,210,666	342.7
6/30/2012	9,744,986	23,018,752	13,273,766	42.3	3,354,682	395.7

All figures prior to 6/30/2010 were reported by the prior actuarial firm.



3. The following shows the schedule of employer contributions (all dollar amounts are in thousands).

<b>Fiscal Year Ending June 30</b>	<b>Valuation Date Ending June 30</b>	<b>Annual Required Contribution</b>	<b>Actual Contribution</b>	<b>Percentage Contributed</b>
2010	2008	\$ 897,428	\$ 720,527	80.3%
2011	2008	944,077	825,801	87.5
2012	2011	926,372	926,343	100.0%
2013	2011	1,059,652	N/A	N/A
2014	2012	1,268,935	N/A	N/A

All figures before the valuation year ending 6/30/2010 were reported by the prior actuarial firm.

4. The information presented in the required supplementary schedules was determined as part of the actuarial valuation at June 30, 2012. Additional information as of the latest actuarial valuation follows.

Valuation date	6/30/2012
Actuarial cost method	Projected Unit Credit
Amortization method	Level percent of payroll, closed
Remaining amortization period	19 years
Asset valuation method	5-year smoothed actuarial value
Actuarial assumptions:	
Investment rate of return*	8.00%
Projected salary increases*	4.00% - 20.00%
Cost-of-living adjustments	2.30% - 3.60%
Social Security Wage Base	3.50%
*Includes inflation at	3.75%



**SECTION VII – EXPERIENCE**

Actual experience will never (except by coincidence) coincide exactly with assumed experience. It is assumed that gains and losses will be in balance over a period of years, but sizable year to year fluctuations are common. Detail on the derivation of the experience gain/(loss) for the year ended June 30, 2012 is shown below. Schedule H provides detailed gain/(loss) by source.

	<u>\$ Millions</u>
(1) UAAL* as of June 30, 2011	\$ 11,004.0
(2) Total Normal cost from last valuation	291.4
(3) Actual Employer and Employee contributions	1,001.8
(4) Interest accrual: $(1) \times .0825 + [(2) - (3)] \times .0404$	<u>879.2</u>
(5) Expected UAAL as of June 30, 2012: $(1) + (2) - (3) + (4)$	11,172.8
(6) Plan Changes	0.0
(7) Assumption Changes	<u>1,213.0</u>
(8) Expected UAAL as of June 30, 2012: $(5) + (6) + (7)$	\$ 12,385.8
(9) Actual UAAL as of June 30, 2012	\$ 13,273.8
(10) Gain/(loss): $(8) - (9)$	\$ (888.0)
(11) Gain/(loss) as percent of actuarial accrued liabilities at June 30, 2011 (\$21,126.7)	(4.2)%

\*Unfunded actuarial accrued liability.

Valuation Date June 30	Actuarial Gain/(Loss) as a % of Beginning Accrued Liabilities
2010	(9.9)%
2011	5.3%
2012	(4.2)%



**SCHEDULE A**  
**RESULTS OF VALUATION**  
**PREPARED AS OF JUNE 30, 2012**

	JUNE 30, 2012	JUNE 30, 2011
<b>1. ACTUARIAL ACCRUED LIABILITY</b>		
Present value of prospective benefits payable in respect of:		
(a) Present active members		
- Tier I – Hazardous Duty	\$ 66,444,936	\$ 64,437,469
- Tier I – Plan B	1,343,050,284	1,232,873,143
- Tier I – Plan C	50,902,606	47,184,111
- Tier II – Hazardous Duty	1,246,123,225	1,121,820,462
- Tier II – All Others	2,316,784,672	1,998,223,466
- Tier IIA – Hazardous Duty	590,337,378	440,607,783
- Tier IIA – All Others	756,291,436	558,199,530
- Tier III – Hazardous Duty	431,199	0
- Tier III – All Others	<u>1,598,975</u>	<u>0</u>
- Total actives	\$ 6,371,964,711	\$ 5,463,345,784
(b) Present inactive members and members entitled to deferred vested benefits:	235,055,761	231,659,145
(c) Present annuitants and beneficiaries	<u>16,411,731,262</u>	<u>15,431,720,563</u>
(d) Total actuarial accrued liability [1(a) + 1(b) + 1(c)]	\$ 23,018,751,734	\$ 21,126,725,492
<b>2. ACTUARIAL VALUE OF ASSETS</b>	<u>\$ 9,744,985,549</u>	<u>\$ 10,122,765,430</u>
<b>3. UNFUNDED ACTUARIAL ACCRUED LIABILITY [1(d) – 2]</b>	\$ 13,273,766,185	\$ 11,003,960,062





**SCHEDULE B**

**DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS**

	<b>June 30, 2012</b>	<b>June 30, 2011</b>
(1) Actuarial Value Beginning of Year*	\$10,122,765,430	\$10,175,800,311
(2) Market Value End of Year**	8,468,479,084	8,984,875,027
(3) Market Value Beginning of Year	8,984,875,027	7,791,337,413
(4) Cash Flow		
(a) Contributions**	1,001,754,671	895,989,754
(b) Disbursements	<u>(1,424,665,994)</u>	<u>(1,323,592,948)</u>
(c) Net: (4)(a) + (4)(b)	(422,911,323)	(427,603,194)
(5) Investment Income		
(a) Market Total: (2) – (3) – (4)(c)	(93,484,620)	1,621,140,808
(b) Assumed Rate	8.25%	8.25%
(c) Amount for Immediate Recognition: [(1) x (5)(b)] + [(4)(c) less Receivable**] x (5)(b) x 0.5	817,409,326	821,761,374
(d) Amount for Phased-In Recognition: (5)(a) – (5)(c)	(910,893,946)	799,379,434
(6) Phased-In Recognition of Investment Income		
(a) Current Year: (5)(d) x 0.20	(182,178,789)	159,875,887
(b) First Prior Year	159,875,887	22,969,457
(c) Second Prior Year	22,969,457	(511,332,736)
(d) Third Prior Year	(511,332,736)	(261,611,703)
(e) Fourth Prior Year	<u>(261,611,703)</u>	<u>142,906,034</u>
(f) Total Recognized Investment Gain	(772,277,884)	(447,193,061)
(7) Preliminary Actuarial Value End of Year: (1) + (4)(c) + (5)(c) + (6)(f)	9,744,985,549	10,122,765,430
(8) Final Actuarial Value End of Year Using 20% Corridor: Greater of [(7) and .8 x (2)], but no more than 1.2 x (2)	9,744,985,549	10,122,765,430
(9) Difference Between Market & Actuarial Values: (2) – (8)	\$(1,276,506,465)	\$(1,137,890,403)
(10) Rate of Return on Preliminary Actuarial Value	0.39%	3.74%

\* Before corridor constraints, if applicable.

\*\* Includes receivables of: \$6,635,867 at 6/30/2012 and \$2,509,578 at 6/30/2011.



**SCHEDULE C**

**SUMMARY OF RECEIPTS AND DISBURSEMENTS  
(Market Value)**

<u>Receipts for the Year</u>	<b>YEAR ENDING</b>	
	<b>June 30, 2012</b>	<b>June 30, 2011</b>
Contributions:		
Members	\$ 68,776,064	\$ 67,679,263
State	742,685,744	645,766,057
Federal (Net of Transfers)	<u>183,656,996</u>	<u>180,034,856</u>
Subtotal	\$ 995,118,804	\$ 893,480,176
Amount Receivable	6,635,867	2,509,578
Investment Earnings (net of expenses)	<u>(93,484,620)</u>	<u>1,621,140,808</u>
TOTAL	\$ 908,270,051	\$ 2,517,130,562
<u>Disbursements for the Year</u>		
Benefit Payments	\$ 1,417,025,660	\$ 1,315,660,456
Refunds to Members	<u>7,640,334</u>	<u>7,932,492</u>
TOTAL	\$ 1,424,665,994	\$ 1,323,592,948
<u>Excess of Receipts over Disbursements</u>	\$ (516,395,943)	\$ 1,193,537,614
<u>Reconciliation of Asset Balances</u>		
Asset Balance as of the Beginning of Year	\$ 8,984,875,027	\$ 7,791,337,413
Excess of Receipts over Disbursements	<u>(516,395,943)</u>	<u>1,193,537,614</u>
Asset Balance as of the End of Year	\$ 8,468,479,084	\$ 8,984,875,027
Rate of Return	( 1.07)%	21.39%



**SCHEDULE D**

**OUTLINE OF ACTUARIAL ASSUMPTIONS AND METHODS**

Adopted or reaffirmed by the Commission for the June 30, 2012 and later valuations.

**VALUATION INTEREST RATE:** 8.00% per annum, compounded annually, net of expenses.

**SALARY INCREASES:**

No salary increases are assumed for the 2012 & 2013 fiscal years. From fiscal year 2014 through 2016 salary increases are assumed to be 1% less than the table below. After the 2016 fiscal year, salary increases are assumed to continue using the same service schedule prior to 2012, which are as follows:

<b>Years of Service</b>	<b>Rate</b>
0	10.00%
1	20.00%
2	10.00%
3	6.25%
4	6.00%
5	5.75%
6	5.50%
7	5.50%
8	5.50%
9	5.50%
10	5.00%
11	5.00%
12	5.00%
13	5.00%
14	5.00%
15+	4.00%

**COST OF LIVING ADJUSTMENTS:**

<b>Group</b>	<b>Rate</b>
Pre July 1, 1980 Retirees	3.60%
July 1, 1980 – June 30, 1997 Retirees	3.00%
July 1, 1997 – October 1, 2011 Retirees	2.60%
Post October 1, 2011 Retirees	2.30%

**SOCIAL SECURITY WAGE BASE INCREASES:** 3.50% per annum.

**PAYROLL GROWTH ASSUMPTION:** 3.75% per annum.



**IMPACT OF LONGLEY DECISION:** Benefits for members retiring from service on or after the *Longley* decision date are assumed to increase by 0.084% as a result of the revised treatment of longevity pay. Retroactive application of *Longley* has been reflected in this valuation to the extent impacted retiree benefits have been recalculated.

**SEPARATIONS BEFORE SERVICE RETIREMENT:** Representative values of the assumed annual rates of separation before service retirement are as follows:

**WITHDRAWAL**

<b>Annual Rates of Non-Hazardous Withdrawal*</b>								
<b>Age</b>	<b>Years of Service</b>							
	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6-9</b>	<b>10+</b>
<b>Men</b>								
20	40%	40%	40%	20%	20%	8%	5%	5.0%
25	30	30	20	10	10	8	4	5.0
30	25	22	14	8	7	8	4	4.0
35	25	15	10	7	6	6	4	3.0
40	25	15	9	7	6	5	4	2.5
45	25	15	9	7	6	5	4	2.2
50	25	15	9	7	6	5	4	1.5
55+	25	15	9	7	6	5	4	0.0
<b>Women</b>								
20	35%	45%	30%	20%	20%	10%	5%	5.0%
25	25	25	15	12	9	10	5	5.0
30	20	20	10	9	7	8	5	4.0
35	20	15	9	7	6	6	4	3.0
40	20	15	8	7	6	5	4	2.5
45	20	15	8	7	6	5	3	2.0
50	20	15	8	7	6	5	3	1.5
55+	20	15	8	7	6	5	3	0.0

\* For Hazardous Male Employees, multiply male rates by 35%

\* For Hazardous Female Employees, multiply female rates by 55%



**DISABILITY**

<b>Annual Rates of Disability</b>		
<b>Age</b>	<b>Hazardous</b>	<b>Non-Hazardous</b>
25	0.00%	0.01%
30	0.05	0.04
35	0.15	0.05
40	0.25	0.12
45	0.30	0.16
50	0.45	0.24
55	0.60	0.40
60	0.80	0.60
65	1.10	0.80
70	1.40	1.00

**RETIREMENT:** The assumed annual rates of retirement are shown below.

<b>Annual Rates of Retirement</b>		
<b>Hazardous Employees</b>		
<b>Tier I, II &amp; IIIa</b>		
<b>Age</b>	<b>First Year Eligible For</b>	<b>All Years After</b>
44 and Less	18.0%	10.0%
45-48	25.0%	10.0%
49-59	10.0%	10.0%
60-69	25.0%	15.0%
70-79	100.0%	20.0%
80	100.0%	100.0%
<b>Tier III</b>		
49 and Less	18.0%	10.0%
50-59	25.0%	10.0%
60-69	10.0%	10.0%
70-79	100.0%	20.0%
80	100.0%	100.0%



<b>Annual Rates of Retirement Non-Hazardous Employees Tier I, II &amp; III</b>			
<b>Age</b>	<b>Early Retirement</b>	<b>Normal Retirement</b>	
		<b>First Year</b>	<b>Other Years</b>
55	7.5%	15.0%	12.5%
56-59	5.0%	15.0%	12.5%
60	5.0%	25.0%	12.5%
61	15.0%	25.0%	15.0%
62	10.0%	10.0%	30.0%
63	35.0%	35.0%	25.0%
64	45.0%	45.0%	25.0%
65-69	65.0%	65.0%	25.0%
70-79	100.0%	100.0%	20.0%
80	100.0%	100.0%	100.0%

  

<b>Tier III</b>			
<b>Age</b>	<b>Early Retirement</b>	<b>Normal Retirement</b>	
		<b>First Year</b>	<b>Other Years</b>
58-59	5.0%	7.5%	5.0%
60	5.0%	12.5%	12.5%
61	10.0%	15.0%	15.0%
62	10.0%	10.0%	30.0%
63	10.0%	35.0%	25.0%
64	10.0%	45.0%	25.0%
65-69	25.0%	65.0%	25.0%
70-79	25.0%	100.0%	20.0%
80	100.0%	100.0%	100.0%

\* These rates also apply for Tier I Plan B and Tier I Plan C members upon attainment of age 60 with at least 10 years of service.



**DEATHS AFTER RETIREMENT:** The RP2000 Mortality Table for Annuitants and Non-Annuitants projected with Scale AA 15 years for men (set back 2 years) and 25 years for women (set back 1 year) is used for the period after retirement and for dependent beneficiaries. Representative values of the assumed annual rates of mortality are as follows:

Age	Men	Women	Age	Men	Women
40	0.086%	0.044%	65	0.810%	0.760%
45	0.107	0.069	70	1.425	1.311
50	0.142	0.101	75	2.460	2.083
55	0.219	0.198	80	4.483	3.482
60	0.414	0.392	85	8.075	5.981

In our opinion, the projection of the mortality rates with Scale AA continues to provide a sufficient margin in the assumed rates of mortality to allow for additional improvement in mortality experience.

55% (men) and 80% (women) of the RP-2000 Disability Mortality Table is used for the period after disability.

**ASSET METHOD:** Actuarial Value, as developed in Schedule B. The actuarial value of assets recognizes a portion of the difference between the market value of assets and the expected value of assets, based on the assumed valuation rate of return. The amount recognized each year is 1/5 of the difference between market value and expected actuarial value. In addition, the actuarial value of assets cannot be less than 80% or more than 120% of the market value of assets.

**VALUATION METHOD:** Projected Unit Credit cost method. See Schedule E for a brief description of this method.

**SPOUSES:** For members who have elected spouse coverage, husbands are assumed to be three years older than their wives.

**PERCENT MARRIED:** 80% of active members are assumed to be married with an average of two children who are on average age 12.

**OTHER ASSUMPTIONS:**

- 20% of Pre-Retirement deaths are assumed to be service related,
- 50% of Tier I Hazardous Employees are assumed to be State Police,
- To take into account State Police Supplemental Benefits and the offset of Workers Compensation, Social Security, and Non-Rehabilitation Earnings, the following minimum and maximum benefits as a percent of salary are assumed for disability benefits:

	<u>Minimum</u>	<u>Maximum</u>
Tier I State Police	60%	80%
All Other Members	40%	60%



## **SCHEDULE E**

### **ACTUARIAL COST METHOD**

The valuation is prepared on a projected benefit basis, under which the present value, at the interest rate assumed to be earned in the future (currently 8.00%), of each member's expected benefits at retirement or death is determined, based on age, service and sex. The calculations take into account the probability of a member's death or termination of employment prior to becoming eligible for a benefit, as well as the possibility of his terminating with a service, disability or survivor's benefit. Future salary increases are also anticipated. The present value of the expected benefits payable on account of the active members is added to the present value of the expected future payments to retired members, beneficiaries and members entitled to deferred vested benefits to obtain the present value of all expected benefits payable from the System on account of the present group of members and beneficiaries.

The Projected Unit Credit cost method is used to develop employer contributions. The employer contributions required to support the benefits of the System consist of a normal contribution and an unfunded actuarial accrued liability contribution.

The Actuarial Accrued Liability is determined as the present value of benefits accrued to the valuation date, where the accrued benefit for each active member is the pro-rata portion (based on service to the valuation date) of the projected benefit payable at termination, death, disability or retirement. The Actuarial Accrued Liability for deferred vested and inactive members is the present value as of the valuation date of their remaining benefit payments.

The normal contribution is determined as the present value of the portion of the projected benefit attributable to the year following the valuation date.

The Unfunded Actuarial Accrued Liability is determined by subtracting the Actuarial Value of Assets from the Actuarial Accrued Liability.





## SCHEDULE F

### **SUMMARY OF MAIN SYSTEM PROVISIONS AS INTERPRETED FOR VALUATION PURPOSES**

The Connecticut State Employees Retirement System (CT SERS) is a defined benefit pension plan established by the Connecticut General Assembly for the purpose of providing retirement allowances and other benefits for State employees in Connecticut, and their survivors and other beneficiaries.

#### **Eligibility Requirements**

Tier I	All State Employees, Elected Officials and their Appointees hired prior to July 1, 1984. Those employees hired between July 1, 1982 and January 1, 1984 could elect to move to Tier II.
Tier II	All State Employees, Elected Officials and their Appointees hired on or after July 1, 1984.
Tier IIA	All State Employees, Elected Officials and their Appointees hired on or after July 1, 1997.
Tier III	All State Employees, Elected Officials and their Appointees hired on or after July 1, 2011.

#### **Final Average Earnings (FAE)**

Tier I, II, and IIA	Average Salary of the three highest paid years of service. Effective January 1, 1986, no one year's earnings can be greater than 130% of the average of the two preceding years in calculating the Final Average Earnings.
Tier III	Average Salary of the five highest paid years of service. No one year's earnings can be greater than 130% of the average of the two preceding years in calculating the Final Average Earnings.

#### **Normal Retirement Benefit**

Eligibility	<p><u>Tier I Hazardous</u> – 20 years of credited service.</p> <p><u>Tier I Plans B and C</u> – Earliest of age 55 with 25 years of service, age 60 with 10 years of service, or age 70 with 5 years of service.</p> <p><u>Tier II Hazardous</u> – 20 years of credited service.</p> <p><u>Tier II and IIA</u> – For those who will be eligible for retirement on or before July 1, 2022, the earliest of age 62 with 10 years of vesting service (effective July 1, 1992), age 60 with 25 years</p>
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of vesting service, age 70 with 5 years of vesting service, or age 62 with 5 years of actual state service for terminations on or after July 1, 1997.

For those who will not be eligible for retirement on or before July 1, 2022, the earliest of age 65 with 10 years of vesting service, age 63 with 25 years of vesting service, age 70 with 5 years of vesting service.

Tier III Hazardous – Earlier of Age 50 and 20 years of benefit service or 25 years of benefit service.

Tier III – Age 63 and 25 years of benefit service or Age 65 and 10 years of benefit service.

Benefit

Tier I Hazardous – 50% of FAE plus 2% for each year of service in excess of 20.

Tier I Plan B – 2% of FAE times years of service up to age 65. Thereafter, 1% of FAE up to \$4,800, plus 2% of FAE in excess of \$4,800 times years of service. At age 70, greater of 1.25% of FAE up to \$4,800 plus 2.5% of FAE in excess of \$4,800 times years of service (maximum 20 years) or 1.0% of FAE up to \$4,800 plus 2% of FAE in excess of \$4,800 times year of service. Minimum benefit with 25 years is \$833.34 per month.

Tier I Plan C – 2% of FAE times years of service. At age 70, greater of 2.5% of FAE times years of service (maximum 20 years) or 2.0% of FAE times years of service. Minimum benefit with 25 years is \$833.34 per month.

Tier II, IIA and III Hazardous – 2.5% of FAE times years of service up to 20 years plus 2.0% of FAE times years of service in excess of 20 years, if any. Minimum benefit with 25 years is \$360 per month.

Tier II, IIA and III All Others – 1.333% of FAE plus 0.50% of FAE in excess of year's breakpoint\*, times years of service from October 1, 1982 up to 35 years plus 1.625% of FAE times years of service in excess of 35 years, if any. Minimum benefit with 25 years if \$360 per month.

\* \$10,700 increased by 6% each year after 1982, rounded to nearest \$100 but not greater than Social Security Covered Compensation.



## Early Retirement Benefit

### Eligibility

Hazardous – None.

Tier I – Age 55 with 10 years of service.

Tier II and IIA – Age 55 with 10 years of service.

Tier III – Age 58 with 10 years of service.

### Benefit

Tier I – Benefit is Normal Retirement Benefit reduced for retirement prior to age 60 with less than 25 years of service.

Tier II, IIA and III – Benefit is Normal Retirement Benefit reduced 0.25% (effective July 1, 1991) for each month prior to age 60 if at least 25 years of service or age 62 if at least 10 but less than 25 years of service.

For those who retire on or after October 2, 2011 but prior to meeting the age and service requirements for a normal retirement, will be subject to a benefit reduced by 0.50% for each month prior to Normal Retirement.

## Disability Retirement Benefit

### Tier I

For non-service disabilities occurring prior to age 60 with at least 5 years of service, benefit is 3% of FAE times years of service; maximum benefit is 1.667% of FAE times year of service projected to age 65.

For service disabilities occurring prior to age 60, benefit is 1.667% of Salary times years of service projected to age 65 (maximum 30 years).

Exception: State Police benefit is equal to the normal retirement benefit if more than 20 years of service. State Police also receives an additional benefit of \$360 per month plus \$300 to spouse plus \$300 to a surviving dependent child.

### Tier II, IIA and III

Prior to age 65 for service related disability or at any age with at least 10 years of service, benefit is 1.333% of FAE plus 0.50% of FAE in excess of the year's breakpoint, times service projected to age 65 (maximum 30 years).



## Deferred Vested Retirement Benefit

### Eligibility

Tier I - 10 years of service.

Tier II and IIA – Effective July 1, 1997, 5 years of actual state service, 10 years of vesting service, or age 70 with 5 years of service.

Tier III – 10 years of benefit service.

### Benefit

Tier I – Benefit is payable at Normal Retirement Age or an Early Retirement Benefit is payable at age 55.

Tier II and IIA – Benefit is payable at Normal Retirement Age or an Early Retirement Benefit is payable at age 55.

Tier III – Benefit is payable at Normal Retirement Age or an Early Retirement Benefit is payable at age 58.

## Pre-Retirement Spouse's Benefit

### Tier I

State Police – Survivor benefits to spouse of \$670 per month plus \$300 to a surviving dependent child.

If eligible for early or normal retirement, 50% of the average of the Life Benefit and the 50% Joint & Survivor Benefit the member would have received.

If not eligible for retirement but with 25 years of service, the same benefit calculated as though age 55 using service and earnings at death.

If not eligible for retirement, return of contributions (5% interest).

### Tier II, IIA and III

If eligible for early or normal retirement, 50% of the 50% Joint & Survivor Benefit the member would have received.

If not eligible for retirement but with 25 years of service, the same benefit calculated as though age 55 using service and earnings at death.

If not eligible for retirement, return of contributions (5% interest).

### Tiers I, II, IIA and III

If death is due to employment and there are dependent children under age 18, spouse will be paid \$100,000 in 10 annual installments while living and not remarried. In addition, \$50 per month will be paid to each child while under age 18.

If death is due to employment and there are no dependent children under age 18, spouse will be paid \$50,000 in not less than 10 annual installments.



**Payment Options**

50% or 100% Joint and Survivor (Normal Form if married).  
Straight life annuity (Normal Form if not married).  
10 or 20 year certain and life annuity.

**Cost of Living Adjustments (COLA)**

Annual adjustments each July 1 of up to 5% for retirements prior to July 1, 1980; 3% for retirements after July 1, 1980. For members (and beneficiaries) not covered by Social Security and age 62 and over, the maximum increase is 6%.

For employees retiring after June 30, 1999, the annual adjustment will be 60% of the increase in CPI up to 6% and 75% of the increase in the CPI over 6%. This adjustment will be no less than 2.5% and no greater than 6%.

Employees retiring between July 1, 1997 and June 30, 1999 made an irrevocable choice between the above formula and a fixed 3% annual adjustment.

An employee from Tier IIA must have at least 10 years of actual state service or directly make the transition into retirement in order to be eligible for annual adjustments.

For employees retiring on or after October 2, 2011, the minimum COLA shall be 2.0% and the maximum COLA shall be 7.5%.

**Member Contributions**

Tier I – Hazardous	4% of earnings up to Social Security Taxable Wage Base plus 5% of earnings above that level.
Tier I – Plan B	2% of earnings up to Social Security Taxable Wage Base plus 5% of earnings above that level.
Tier I – Plan C	5% of earnings.
Tier II – Hazardous	4% of earnings.
Tier II – All Others	None.
Tier IIA & III – Hazardous	5% of earnings.
Tier IIA & III – All Others	2% of earnings.



**Hybrid Defined Benefit/Defined  
Contribution Plan for Employees  
of Higher Learning**

Individuals hired on or after July 1, 2011 otherwise eligible for the Alternate Retirement Plan ("ARP") shall be eligible to be members of the new Hybrid Plan in addition to their existing choices. Individuals who are currently members of the ARP shall be eligible to join the Hybrid Plan on a one time option at the full actuarial cost. The Hybrid Plan shall have defined benefits identical to Tier II/IIA and Tier III for individuals hired on or after July 1, 2011, but shall require employee contributions 3% higher than the contribution required from the Applicable Tier II/IIA/III Plan. An employee shall have the option, upon leaving state service, of accepting the defined benefit amount, or electing to receive a return of his/her contributions to the Hybrid Plan, plus a 5% employer match, plus 4% interest ("cash out option"). In the event the employee elects the cash out option, he/she shall permanently waive any entitlement they may have to health insurance as a retired state employee unless they convert the cash out option to a periodic payment as would be required under the current ARP Plan.



**SCHEDULE G**

**TABLES OF MEMBERSHIP DATA**

**STATUS RECONCILIATION OF ACTIVE MEMBERS**

	<b>Total</b>
As of June 30, 2011	47,778
Retirements	(516)
Disability	(113)
Terminated Vested	(64)
Terminated Non-Vested	(21)
Deaths	(42)
Rehires	19
New Participants	2,949
Refunds	(2,122)
As of June 30, 2012	47,868

**STATUS RECONCILIATION OF INACTIVE MEMBERS**

	<b>Retirees</b>	<b>Disability</b>	<b>Survivor</b>	<b>Deferred Vested</b>	<b>Total</b>
As of June 30, 2011	35,943	3,997	4,111	1,589	45,640
Retirements	180	(41)		(139)	0
Disability		1		(1)	0
Survivors	(218)	(49)	267		0
Deaths with no Survivors	(389)	(37)	(176)		(602)
Rehires	(2)			(9)	(11)
Refunds				(12)	(12)
Certain Period Ended			(7)		(7)
Data Corrections	(290)	(9)	(38)	69	(268)
From Active	516	113	15	64	708
As of June 30, 2012	35,740	3,975	4,172	1,561	45,448



**SCHEDULE G**  
**(Continued)**

**TIER I – HAZARDOUS DUTY**

**The Number and Average Annual Compensation of Active Employees  
By Age and Service as of June 30, 2012**

Age	Years of Service									Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	
Under 25	0	0	0	0	0	0	0	0	0	0
Avg. Pay	0	0	0	0	0	0	0	0	0	0
25 to 29	0	0	0	0	0	0	0	0	0	0
Avg. Pay	0	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	0	0	0	0	0	0	0
Avg. Pay	0	0	0	0	0	0	0	0	0	0
35 to 39	0	0	0	0	0	0	0	0	0	0
Avg. Pay	0	0	0	0	0	0	0	0	0	0
40 to 44	0	0	0	0	0	0	0	0	0	0
Avg. Pay	0	0	0	0	0	0	0	0	0	0
45 to 49	0	0	1	0	0	0	3	0	0	4
Avg. Pay	0	0	\$93,658	0	0	0	\$97,900	0	0	\$96,840
50 to 54	0	1	3	2	0	1	9	15	0	31
Avg. Pay	0	\$95,603	\$78,473	\$72,001	0	\$63,496	\$122,572	\$91,392	0	\$97,179
55 to 59	0	0	0	1	3	4	15	15	6	44
Avg. Pay	0	0	0	\$67,072	\$104,373	\$79,017	\$124,583	\$109,974	\$116,490	\$111,672
60 to 64	0	0	2	0	2	1	1	2	2	10
Avg. Pay	0	0	\$169,545	0	\$72,656	\$112,003	\$145,389	\$113,305	\$177,547	\$132,350
65 to 69	0	0	0	0	2	0	0	1	1	4
Avg. Pay	0	0	0	0	\$67,987	0	0	\$117,043	\$129,119	\$95,534
70 & Up	0	0	0	0	0	0	0	0	1	1
Avg. Pay	0	0	0	0	0	0	0	0	\$81,461	\$81,461
Total	0	1	6	3	7	6	28	33	10	94
Avg. Pay	0	\$95,603	\$111,361	\$70,358	\$84,915	\$81,928	\$121,821	\$101,944	\$126,461	\$107,453

Average Age: 56.2  
Average Service: 27.6





**SCHEDULE G**  
**(Continued)**

**TIER I – PLAN B**

**The Number and Average Annual Compensation of Active Employees  
By Age and Service as of June 30, 2012**

Age	Years of Service									Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	
Under 25	0	0	0	0	0	0	0	0	0	0
Avg. Pay	0	0	0	0	0	0	0	0	0	0
25 to 29	0	0	0	0	0	0	0	0	0	0
Avg. Pay	0	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	0	0	0	0	0	0	0
Avg. Pay	0	0	0	0	0	0	0	0	0	0
35 to 39	0	0	0	0	0	0	0	0	0	0
Avg. Pay	0	0	0	0	0	0	0	0	0	0
40 to 44	0	0	0	0	0	0	0	0	0	0
Avg. Pay	0	0	0	0	0	0	0	0	0	0
45 to 49	0	1	3	3	7	3	101	24	0	142
Avg. Pay	0	\$55,207	\$51,223	\$58,212	\$73,389	\$95,539	\$74,217	\$73,531	0	\$73,553
50 to 54	2	9	16	22	20	36	387	620	29	1,141
Avg. Pay	\$39,936	\$67,992	\$73,960	\$77,109	\$77,758	\$80,512	\$88,118	\$77,277	\$79,460	\$80,932
55 to 59	1	7	23	22	31	42	223	583	120	1,052
Avg. Pay	\$187,237	\$66,461	\$70,365	\$68,319	\$86,199	\$83,721	\$92,346	\$91,715	\$84,637	\$89,526
60 to 64	0	2	9	10	17	17	72	178	103	408
Avg. Pay	0	\$125,134	\$82,915	\$75,417	\$96,452	\$90,469	\$101,452	\$110,202	\$101,702	\$103,736
65 to 69	0	3	4	1	4	1	15	44	51	123
Avg. Pay	0	\$117,965	\$144,973	\$119,423	\$68,724	\$62,380	\$110,620	\$108,036	\$134,309	\$119,131
70 & Up	0	0	0	0	0	0	11	19	46	76
Avg. Pay	0	0	0	0	0	0	\$96,657	\$110,411	\$128,094	\$119,123
Total	3	22	55	58	79	99	809	1,468	349	2,942
Avg. Pay	\$89,036	\$78,933	\$77,846	\$73,235	\$84,249	\$83,855	\$89,268	\$88,293	\$102,230	\$89,395

Average Age: 56.1  
Average Service: 30.2



**SCHEDULE G**  
**(Continued)**

**TIER I – PLAN C**

**The Number and Average Annual Compensation of Active Employees  
By Age and Service as of June 30, 2012**

Age	Years of Service									Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	
Under 25	0	0	0	0	0	0	0	0	0	0
Avg. Pay	0	0	0	0	0	0	0	0	0	0
25 to 29	0	0	0	0	0	0	0	0	0	0
Avg. Pay	0	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	0	0	0	0	0	0	0
Avg. Pay	0	0	0	0	0	0	0	0	0	0
35 to 39	0	0	0	0	0	0	0	0	0	0
Avg. Pay	0	0	0	0	0	0	0	0	0	0
40 to 44	0	0	0	0	0	0	0	0	0	0
Avg. Pay	0	0	0	0	0	0	0	0	0	0
45 to 49	0	0	0	0	0	0	5	2	0	7
Avg. Pay	0	0	0	0	0	0	\$86,111	\$74,854	0	\$82,895
50 to 54	0	0	0	0	1	0	6	24	1	32
Avg. Pay	0	0	0	0	\$86,986	0	\$63,083	\$75,888	\$52,424	\$73,101
55 to 59	0	0	1	1	1	0	7	27	8	45
Avg. Pay	0	0	\$80,657	\$96,650	\$86,972	0	\$102,856	\$79,474	\$94,962	\$86,439
60 to 64	1	0	0	0	1	0	2	5	4	13
Avg. Pay	\$81,926	0	0	0	\$64,425	0	\$87,971	\$79,087	\$67,404	\$75,950
65 to 69	0	0	0	0	0	0	1	1	7	9
Avg. Pay	0	0	0	0	0	0	\$59,738	\$136,619	\$79,976	\$84,021
70 & Up	0	0	0	1	0	1	0	4	5	11
Avg. Pay	0	0	0	\$109,004	0	\$52,015	0	\$95,587	\$124,487	\$105,982
Total	1	0	1	2	3	1	21	63	25	117
Avg. Pay	\$81,926	0	\$80,657	\$102,827	\$79,461	\$52,015	\$84,035	\$79,861	\$90,560	\$83,065

Average Age: 58.4  
Average Service: 31.9



**SCHEDULE G**  
(Continued)

**TIER II – HAZARDOUS DUTY**

**The Number and Average Annual Compensation of Active Employees  
By Age and Service as of June 30, 2012**

Age	Years of Service									Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	
Under 25	0	0	0	0	0	0	0	0	0	0
Avg. Pay	0	0	0	0	0	0	0	0	0	0
25 to 29	0	0	0	0	0	0	0	0	0	0
Avg. Pay	0	0	0	0	0	0	0	0	0	0
30 to 34	0	0	1	2	0	0	0	0	0	3
Avg. Pay	0	0	\$73,679	\$69,348	0	0	0	0	0	\$70,792
35 to 39	1	0	0	23	116	0	0	0	0	140
Avg. Pay	\$51,879	0	0	\$85,902	\$83,717	0	0	0	0	\$83,849
40 to 44	0	3	13	48	831	95	2	0	0	992
Avg. Pay	0	\$62,039	\$71,281	\$90,213	\$91,267	\$94,604	\$70,780	0	0	\$91,144
45 to 49	0	0	13	33	664	267	50	0	0	1,027
Avg. Pay	0	0	\$81,787	\$84,112	\$89,336	\$98,844	\$102,254	0	0	\$92,173
50 to 54	1	2	7	15	384	135	73	1	0	618
Avg. Pay	\$51,793	\$67,833	\$74,148	\$93,511	\$83,404	\$91,594	\$104,041	\$75,247	0	\$87,657
55 to 59	1	1	0	12	248	76	37	0	0	375
Avg. Pay	\$79,295	\$79,245	0	\$101,741	\$83,004	\$91,023	\$116,684	0	0	\$88,532
60 to 64	0	2	3	7	149	41	15	1	0	218
Avg. Pay	0	\$76,456	\$88,152	\$81,909	\$82,133	\$99,631	\$108,578	\$90,436	0	\$87,305
65 to 69	0	1	0	2	60	12	3	0	0	78
Avg. Pay	0	\$77,450	0	\$63,550	\$83,713	\$83,624	\$91,648	0	0	\$83,407
70 & Up	0	0	1	4	9	0	1	0	0	15
Avg. Pay	0	0	\$104,486	\$26,592	\$91,019	0	\$121,016	0	0	\$76,736
<b>Total</b>	<b>3</b>	<b>9</b>	<b>38</b>	<b>146</b>	<b>2,461</b>	<b>626</b>	<b>181</b>	<b>2</b>	<b>0</b>	<b>3,466</b>
<b>Avg. Pay</b>	<b>\$60,989</b>	<b>\$70,154</b>	<b>\$77,672</b>	<b>\$86,649</b>	<b>\$87,592</b>	<b>\$95,447</b>	<b>\$106,029</b>	<b>\$82,842</b>	<b>0</b>	<b>\$89,754</b>

Average Age: 48.6  
Average Service: 18.8



**SCHEDULE G**  
**(Continued)**

**TIER II – ALL OTHERS**

**The Number and Average Annual Compensation of Active Employees  
By Age and Service as of June 30, 2012**

Age	Years of Service									Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	
Under 25	0	0	0	0	0	0	0	0	0	0
Avg. Pay	0	0	0	0	0	0	0	0	0	0
25 to 29	0	0	0	0	0	0	0	0	0	0
Avg. Pay	0	0	0	0	0	0	0	0	0	0
30 to 34	0	0	1	10	1	0	0	0	0	12
Avg. Pay	0	0	\$69,098	\$62,890	\$90,663	0	0	0	0	\$65,722
35 to 39	1	4	16	40	135	2	0	0	0	198
Avg. Pay	\$27,827	\$46,542	\$65,453	\$71,523	\$73,213	\$29,315	0	0	0	\$71,033
40 to 44	4	25	59	109	928	393	43	0	0	1,561
Avg. Pay	\$48,188	\$51,444	\$69,384	\$79,162	\$80,087	\$71,014	\$71,597	0	0	\$76,559
45 to 49	21	55	79	141	942	1,390	878	2	0	3,508
Avg. Pay	\$62,093	\$66,217	\$71,118	\$76,092	\$80,295	\$81,249	\$77,695	\$44,587	0	\$79,297
50 to 54	8	54	88	107	814	1,236	1,245	24	0	3,576
Avg. Pay	\$116,891	\$56,949	\$69,221	\$74,708	\$79,288	\$79,565	\$84,761	\$83,191	0	\$80,677
55 to 59	8	39	67	93	672	949	855	10	5	2,698
Avg. Pay	\$40,701	\$61,396	\$65,596	\$80,116	\$79,677	\$80,640	\$84,713	\$83,345	\$102,506	\$80,953
60 to 64	3	19	47	67	494	527	411	5	15	1,588
Avg. Pay	\$58,574	\$46,564	\$56,442	\$71,342	\$78,667	\$81,708	\$89,636	\$78,474	\$93,036	\$81,261
65 to 69	2	9	16	23	159	182	101	1	7	500
Avg. Pay	\$96,476	\$35,500	\$46,465	\$64,070	\$77,701	\$80,674	\$86,285	\$33,600	\$97,454	\$78,394
70 & Up	1	6	6	6	71	40	36	1	1	168
Avg. Pay	\$11,958	\$17,372	\$13,660	\$52,807	\$66,240	\$79,641	\$78,134	\$64,171	\$131,516	\$67,930
Total	48	211	379	596	4,216	4,719	3,569	43	28	13,809
Avg. Pay	\$65,956	\$56,362	\$65,417	\$75,272	\$79,207	\$79,827	\$83,390	\$79,287	\$97,206	\$79,593

Average Age: 52.3  
Average Service: 21.2



**SCHEDULE G**  
**(Continued)**

**TIER IIA – HAZARDOUS DUTY**

**The Number and Average Annual Compensation of Active Employees  
By Age and Service as of June 30, 2012**

Age	Years of Service									Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	
Under 25	0	21	3	0	0	0	0	0	0	24
Avg. Pay	0	\$53,081	\$54,954	0	0	0	0	0	0	\$53,315
25 to 29	4	469	156	0	0	0	0	0	0	629
Avg. Pay	\$51,983	\$59,155	\$63,471	0	0	0	0	0	0	\$60,180
30 to 34	11	425	616	100	0	0	0	0	0	1,152
Avg. Pay	\$97,734	\$60,199	\$67,654	\$71,088	0	0	0	0	0	\$65,489
35 to 39	5	268	497	659	1	0	0	0	0	1,430
Avg. Pay	\$127,348	\$64,386	\$69,188	\$79,915	\$53,922	0	0	0	0	\$73,424
40 to 44	3	179	360	680	0	0	0	0	0	1,222
Avg. Pay	\$87,203	\$64,783	\$70,232	\$81,750	0	0	0	0	0	\$75,885
45 to 49	1	128	261	394	1	0	0	0	0	785
Avg. Pay	\$90,539	\$62,722	\$72,778	\$76,800	\$106,693	0	0	0	0	\$73,223
50 to 54	1	88	161	246	1	0	0	0	0	497
Avg. Pay	\$17,346	\$66,264	\$71,767	\$78,505	\$64,136	0	0	0	0	\$74,003
55 to 59	0	31	98	167	0	0	0	0	0	296
Avg. Pay	0	\$57,448	\$80,610	\$74,143	0	0	0	0	0	\$74,536
60 to 64	0	12	56	97	0	0	0	0	0	165
Avg. Pay	0	\$68,760	\$79,932	\$77,164	0	0	0	0	0	\$77,492
65 to 69	0	6	16	50	0	0	0	0	0	72
Avg. Pay	0	\$73,854	\$61,447	\$64,940	0	0	0	0	0	\$64,907
70 & Up	0	0	6	33	0	0	0	0	0	39
Avg. Pay	0	0	\$90,368	\$51,385	0	0	0	0	0	\$57,382
Total	25	1,627	2,230	2,426	3	0	0	0	0	6,311
Avg. Pay	\$91,570	\$61,588	\$69,893	\$78,213	\$74,917	0	0	0	0	\$71,038

Average Age: 40.6  
Average Service: 8.2



**SCHEDULE G**  
**(Continued)**

**TIER IIA – ALL OTHERS**

**The Number and Average Annual Compensation of Active Employees  
By Age and Service as of June 30, 2012**

Age	Years of Service									Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	
Under 25	57	364	10	0	0	0	0	0	0	431
Avg. Pay	\$40,401	\$14,221	\$41,451	0	0	0	0	0	0	\$18,315
25 to 29	96	919	318	4	0	0	0	0	0	1,337
Avg. Pay	\$52,549	\$45,355	\$51,000	\$40,959	0	0	0	0	0	\$47,201
30 to 34	70	946	989	210	0	0	0	0	0	2,215
Avg. Pay	\$51,984	\$49,479	\$60,010	\$58,185	0	0	0	0	0	\$55,086
35 to 39	43	760	1,029	890	12	0	0	0	0	2,734
Avg. Pay	\$61,495	\$51,748	\$62,541	\$70,231	\$70,345	0	0	0	0	\$62,062
40 to 44	40	760	986	1,076	4	2	0	0	0	2,868
Avg. Pay	\$44,434	\$52,010	\$61,556	\$72,030	\$72,360	\$78,885	0	0	0	\$62,744
45 to 49	46	740	974	1,000	2	0	0	0	0	2,762
Avg. Pay	\$40,655	\$50,226	\$64,271	\$71,390	\$90,254	0	0	0	0	\$62,711
50 to 54	44	672	932	987	2	0	1	0	0	2,638
Avg. Pay	\$36,103	\$53,283	\$62,074	\$71,214	\$49,622	0	\$90,348	0	0	\$62,822
55 to 59	30	543	748	774	2	2	1	1	0	2,101
Avg. Pay	\$28,818	\$52,628	\$65,714	\$72,535	\$71,428	\$80,637	\$24,193	\$170,336	0	\$64,368
60 to 64	24	306	505	517	2	1	0	0	1	1,356
Avg. Pay	\$40,507	\$43,337	\$63,418	\$73,805	\$91,315	\$79,054	0	0	\$76,980	\$62,504
65 to 69	13	146	169	173	1	0	1	0	0	503
Avg. Pay	\$6,978	\$41,379	\$54,479	\$69,122	\$52,726	0	\$311,539	0	0	\$54,993
70 & Up	15	81	52	55	0	0	0	0	0	203
Avg. Pay	\$15,623	\$18,947	\$39,609	\$60,426	0	0	0	0	0	\$35,232
<b>Total</b>	<b>478</b>	<b>6,237</b>	<b>6,712</b>	<b>5,686</b>	<b>25</b>	<b>5</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>19,148</b>
<b>Avg. Pay</b>	<b>\$43,993</b>	<b>\$47,284</b>	<b>\$61,670</b>	<b>\$70,990</b>	<b>\$71,662</b>	<b>\$79,620</b>	<b>\$142,027</b>	<b>\$170,336</b>	<b>\$76,980</b>	<b>\$59,347</b>

Average Age: 44.8  
Average Service: 7.2



**SCHEDULE G**  
(Continued)

**TIER III – HAZARDOUS DUTY**

**The Number and Average Annual Compensation of Active Employees  
By Age and Service as of June 30, 2012**

Age	Years of Service									Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	
Under 25	12	0	0	0	0	0	0	0	0	12
Avg. Pay	\$29,013	0	0	0	0	0	0	0	0	\$29,013
25 to 29	121	0	0	0	0	0	0	0	0	121
Avg. Pay	\$35,131	0	0	0	0	0	0	0	0	\$35,131
30 to 34	63	0	0	0	0	0	0	0	0	63
Avg. Pay	\$41,032	0	0	0	0	0	0	0	0	\$41,032
35 to 39	50	0	0	0	0	0	0	0	0	50
Avg. Pay	\$39,173	0	0	0	0	0	0	0	0	\$39,173
40 to 44	26	0	0	0	0	0	0	0	0	26
Avg. Pay	\$41,600	0	0	0	0	0	0	0	0	\$41,600
45 to 49	28	0	0	0	0	0	0	0	0	28
Avg. Pay	\$46,103	0	0	0	0	0	0	0	0	\$46,103
50 to 54	15	0	0	0	0	0	0	0	0	15
Avg. Pay	\$44,378	0	0	0	0	0	0	0	0	\$44,378
55 to 59	2	0	0	0	0	0	0	0	0	2
Avg. Pay	\$41,328	0	0	0	0	0	0	0	0	\$41,328
60 to 64	2	0	0	0	0	0	0	0	0	2
Avg. Pay	\$57,879	0	0	0	0	0	0	0	0	\$57,879
65 to 69	1	0	0	0	0	0	0	0	0	1
Avg. Pay	\$54,505	0	0	0	0	0	0	0	0	\$54,505
70 & Up	1	0	0	0	0	0	0	0	0	1
Avg. Pay	\$34,893	0	0	0	0	0	0	0	0	\$34,893
Total	321	0	0	0	0	0	0	0	0	321
Avg. Pay	\$38,843	0	0	0	0	0	0	0	0	\$38,843

Average Age: 34.0  
Average Service: 0.3



**SCHEDULE G**  
(Continued)

**TIER III – HYBRID PLAN**

**The Number and Average Annual Compensation of Active Employees  
By Age and Service as of June 30, 2012**

Age	Years of Service									Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	
Under 25	4	1	0	0	0	0	0	0	0	5
Avg. Pay	\$36,570	\$2,237	0	0	0	0	0	0	0	\$29,703
25 to 29	9	0	1	0	0	0	0	0	0	10
Avg. Pay	\$33,949	0	\$32,521	0	0	0	0	0	0	\$33,806
30 to 34	6	0	0	0	0	0	0	0	0	6
Avg. Pay	\$42,018	0	0	0	0	0	0	0	0	\$42,018
35 to 39	11	0	0	0	0	0	0	0	0	11
Avg. Pay	\$39,287	0	0	0	0	0	0	0	0	\$39,287
40 to 44	12	1	0	0	0	0	0	0	0	13
Avg. Pay	\$50,047	\$62,737	0	0	0	0	0	0	0	\$51,023
45 to 49	4	0	0	0	0	0	0	0	0	4
Avg. Pay	\$32,960	0	0	0	0	0	0	0	0	\$32,960
50 to 54	5	0	0	0	0	0	0	0	0	5
Avg. Pay	\$39,193	0	0	0	0	0	0	0	0	\$39,193
55 to 59	3	0	0	0	0	0	0	0	0	3
Avg. Pay	\$64,707	0	0	0	0	0	0	0	0	\$64,707
60 to 64	0	0	0	0	0	0	0	0	0	0
Avg. Pay	0	0	0	0	0	0	0	0	0	0
65 to 69	0	0	0	0	0	0	0	0	0	0
Avg. Pay	0	0	0	0	0	0	0	0	0	0
70 & Up	0	0	0	0	0	0	0	0	0	0
Avg. Pay	0	0	0	0	0	0	0	0	0	0
Total	54	2	1	0	0	0	0	0	0	57
Avg. Pay	\$41,825	\$32,487	\$32,521	0	0	0	0	0	0	\$41,334

Average Age: 37.7  
Average Service: 0.6





**SCHEDULE G**  
**(Continued)**

**TIER III – ALL OTHERS**

**The Number and Average Annual Compensation of Active Employees  
By Age and Service as of June 30, 2012**

Age	Years of Service									Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	
Under 25	235	3	0	0	0	0	0	0	0	238
Avg. Pay	\$20,738	\$20,540	0	0	0	0	0	0	0	\$20,736
25 to 29	302	5	2	0	0	0	0	0	0	309
Avg. Pay	\$38,365	\$25,155	\$16,218	0	0	0	0	0	0	\$38,008
30 to 34	241	1	2	0	0	0	0	0	0	244
Avg. Pay	\$39,978	\$861	\$35,824	0	0	0	0	0	0	\$39,784
35 to 39	179	2	0	0	0	0	0	0	0	181
Avg. Pay	\$44,114	\$56,312	0	0	0	0	0	0	0	\$44,249
40 to 44	177	2	0	1	2	0	0	0	0	182
Avg. Pay	\$46,203	\$56,378	0	\$21,703	\$45,700	0	0	0	0	\$46,175
45 to 49	142	0	0	0	0	0	1	0	0	143
Avg. Pay	\$36,859	0	0	0	0	0	\$276	0	0	\$36,603
50 to 54	134	2	2	0	0	1	1	0	0	140
Avg. Pay	\$46,896	\$25,874	\$5,701	0	0	\$93,625	\$83,401	0	0	\$46,602
55 to 59	97	0	0	0	0	0	0	0	0	97
Avg. Pay	\$43,616	0	0	0	0	0	0	0	0	\$43,616
60 to 64	39	1	0	0	0	0	0	0	0	40
Avg. Pay	\$46,213	\$15,926	0	0	0	0	0	0	0	\$45,456
65 to 69	23	0	0	0	0	0	0	0	0	23
Avg. Pay	\$53,240	0	0	0	0	0	0	0	0	\$53,240
70 & Up	6	0	0	0	0	0	0	0	0	6
Avg. Pay	\$52,031	0	0	0	0	0	0	0	0	\$52,031
<b>Total</b>	<b>1,575</b>	<b>16</b>	<b>6</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>1,603</b>
<b>Avg. Pay</b>	<b>\$38,893</b>	<b>\$30,082</b>	<b>\$19,248</b>	<b>\$21,703</b>	<b>\$45,700</b>	<b>\$93,625</b>	<b>\$41,839</b>	<b>0</b>	<b>0</b>	<b>\$38,767</b>

Average Age: 37.2  
Average Service: 0.4



**SCHEDULE G**  
**(Continued)**

**NUMBER OF RETIRED MEMBERS  
AND THEIR BENEFITS BY AGE**

<b>Age</b>	<b>Number</b>	<b>Total Annual Benefits</b>	<b>Average Annual Benefits</b>
Under 50	1,401	\$ 57,226,947	\$ 40,847
50 – 54	1,467	61,138,283	41,676
55 – 59	4,260	167,808,343	39,392
60 – 64	6,782	262,959,393	38,773
65 – 69	7,632	267,048,257	34,991
70 – 74	5,990	191,581,779	31,984
75 – 79	4,524	139,743,274	30,889
80 – 84	3,727	104,236,519	27,968
85 – 89	2,515	61,777,689	24,564
90 – 94	1,123	23,874,815	21,260
95 & Over	294	5,253,761	17,870
Total	39,715	\$ 1,342,649,060	\$ 33,807

**NUMBER OF BENEFICIARIES  
AND THEIR BENEFITS BY AGE**

<b>Age</b>	<b>Number</b>	<b>Total Annual Benefits</b>	<b>Average Annual Benefits</b>
Under 50	294	\$ 5,301,086	\$ 18,031
50 – 54	134	3,249,240	24,248
55 – 59	186	4,262,149	22,915
60 – 64	308	8,229,253	26,718
65 – 69	403	9,437,356	23,418
70 – 74	530	10,989,188	20,734
75 – 79	589	10,493,694	17,816
80 – 84	688	12,661,739	18,404
85 – 89	608	10,590,399	17,418
90 – 94	325	5,064,304	15,582
95 & Over	107	1,549,579	14,482
Total	4,172	\$ 81,827,987	\$ 19,614



**SCHEDULE G**  
**(Continued)**

**NUMBER OF DEFERRED VESTED MEMBERS  
AND THEIR BENEFITS BY AGE**

<b>Age</b>	<b>Number</b>	<b>Total Annual Benefits</b>	<b>Average Annual Benefits</b>
Under 50	753	\$ 10,142,899	\$ 13,470
50 – 54	528	8,935,045	16,922
55 – 59	181	2,624,987	14,503
60 – 64	78	773,200	9,913
65 – 69	20	192,573	9,629
70 – 74	1	11,808	11,808
75 – 79	0	0	0
80 – 84	0	0	0
85 – 89	0	0	0
90 – 94	0	0	0
95 & Over	0	0	0
<b>Total</b>	<b>1,561</b>	<b>\$ 22,680,512</b>	<b>\$ 14,529</b>



## SCHEDULE H

### ANALYSIS OF FINANCIAL EXPERIENCE

Gains & Losses in Accrued Liabilities  
Resulting from Difference Between  
Assumed Experience & Actual Experience  
(\$ Millions)

Type of Activity	\$ Gain (or Loss) For One Year Period Ending 6/30/2012
<b>Age &amp; Service Retirements.</b> If members retire at older ages, there is a gain. If younger ages, a loss.	\$ ( 2.5)
<b>Disability Retirements.</b> If disability claims are less than assumed, there is a gain. If more claims, a loss.	( 30.8)
<b>Death-in Service Benefits.</b> If survivor claims are less than assumed, there is a gain. If more claims, there is a loss.	( 8.8)
<b>Withdrawal From Employment.</b> If more liabilities are released by withdrawals than assumed, there is a gain. If smaller releases, a loss.	( 3.6)
<b>Pay Increases.</b> If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss.	( 127.5)
<b>New Members.</b> Additional unfunded accrued liability will produce a loss.	( 15.1)
<b>Investment Income.</b> If there is a greater investment income than assumed, there is a gain. If less income, a loss.	( 772.6)
<b>Death After Retirement.</b> If retirants live longer than assumed, there is a loss. If not as long, a gain.	( 21.2)
<b>Other.</b> Miscellaneous gains and losses resulting from changes in valuation software, data adjustments, timing of financial transactions, etc.*	<u>94.1</u>
<b>Gain (or Loss) During Year From Financial Experience</b>	<u>\$ ( 888.0)</u>
<b>Non-Recurring Items.</b> Adjustments for plan amendments, assumption changes, or method changes.	<u>(1,213.0)</u>
<b>Composite Gain (or Loss) During Year</b>	<u>\$ (2,101.0)</u>

\*Includes contribution shortfall



## SCHEDULE I

### ACTUARIAL SURPLUS TEST

Section 5-162(h) of the General Statutes of Connecticut provides that the Retirement Commission may grant additional Cost-of-Living Adjustments (COLAs) for retired members if an actuarial surplus exists. An actuarial surplus is deemed to exist if three criteria are met.

- I. **Investment Income:** The actual rate of return for the Fiscal Year ending on the valuation date must exceed the actuarial interest rate assumption.

Market Value of Assets on June 30, 2011: (A)	\$8,984,875,027
Market Value of Assets on June 30, 2012: (B)	\$8,468,479,084
Investment Income for FY 2011-2012: (I)	\$(93,484,620)
Actual Rate of Return for FY 2011-2012: $2I / (A + B - I)$	( 1.07)%
Actuarial Interest Rate Assumption:	8.00%

Actual return of (1.07)% is less than the assumed 8.00%, so the first criterion is not met and therefore, no actuarial surplus exists.

- II. **Assets vs. Liabilities:** Market value of assets must exceed 50% of specified liabilities.

Market Value of Assets on June 30, 2012:	\$8,468,479,084
Specified Liabilities on June 30, 2012:	
Liability for Retired Members	\$16,411,731,262
Liability for Terminated Vested Members	\$235,055,761
Liability for Member Contributions with Interest	\$744,222,613
Total	\$17,391,009,636
50% of Specified Liabilities	\$8,695,504,818

Market Value does not exceed 50% of specified liabilities so the second criterion is not met and therefore, no actuarial surplus exists.

- III. **Unfunded Liability:** Actual unfunded liability must be less than the projected unfunded liability five years from the determination date.

Actual Unfunded Liability on June 30, 2012:	\$13,273,766,185
Projected Unfunded Liability on June 30, 2017 (see next page):	\$4,098,934,000

Actual Unfunded Liability is not less than Projected Unfunded Liability so the third criterion is not met and therefore, no actuarial surplus exists.



**SCHEDULE I**  
**(continued)**

**ACTUARIAL SURPLUS TEST**  
**PROJECTION OF UNFUNDED LIABILITY**

Section 5-162-h(b)(2) of the General Statutes of Connecticut specifies the means of calculating the Projected Unfunded Liability used in the third criterion of the Actuarial Surplus Test. The projection reflects the actual unfunded liability as of December 31, 1983 adjusted for changes in actuarial assumptions and cost methods through the determination date. No provision is made in the Statute for reflecting the impact of plan changes. The projection below reflects the following changes: data correction (June 30, 1987); change in actuarial assumptions (June 30, 1987); change in actuarial cost method (June 30, 1988); change in actuarial assumptions - interest rate only (June 30, 1989); change in actuarial cost method – amortization period only (June 30, 1992); change in actuarial assumptions (June 30, 1993); change in actuarial cost method – level percent amortization (June 30, 1997); change in actuarial methods and assumptions (June 30, 2000); change in actuarial assumptions (June 30, 2004); change in actuarial assumptions (June 30, 2008); change in actuarial assumptions (June 30, 2012).

<b>Year</b>	<b>(\$000) June 30 Unfunded Liability</b>	<b>Year</b>	<b>(\$000) June 30 Unfunded Liability</b>	<b>Year</b>	<b>(\$000) June 30 Unfunded Liability</b>
1987	\$2,524,556	2002	\$2,360,589	2017	\$4,098,934
1988	1,954,257	2003	2,429,273	2018	4,041,779
1989	1,432,333	2004	2,502,591	2019	3,965,612
1990	1,939,758	2005	2,569,504	2020	3,868,369
1991	1,930,524	2006	2,634,814	2021	3,747,804
1992	1,920,505	2007	2,698,021	2022	3,601,467
1993	1,794,192	2008	2,823,251	2023	3,426,692
1994	1,787,586	2009	2,861,884	2024	3,220,576
1995	1,780,419	2010	2,895,933	2025	2,979,962
1996	1,772,643	2011	2,924,709	2026	2,701,414
1997	1,764,205	2012	4,160,465	2027	2,381,197
1998	1,835,087	2013	4,172,971	2028	2,015,249
1999	1,907,249	2014	4,174,465	2029	1,599,160
2000	2,222,296	2015	4,163,616	2030	1,128,134
2001	2,291,494	2016	4,138,969	2031	596,965
				2032	0